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SOCIAL COGNITION AND SOCIAL COMPETENCE IN A RECREATIONAL GROUP OF CHILDREN

by

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ABSTRACT

This study examined social cognition and social competence in a recreational group of 96 boys attending summer camp. The theoretical position reflected is that social cognition consists of concepts or rules which guide social behavior, and that these concepts are sufficiently complex to merit description independently of socially competent behavior. The paradigm underpinning the investigation is that social cognition has a direct effect on social competence.

Social cognition and social competence were conceptualized as multi-faceted variables, and the multiple measures used reflected this position. Particular attention was given to those measures which were based on the recreational experience. Measures of social cognitive goals and strategies were derived from boys' explanations of videotapes made while they were playing a dyadic game. In addition, boys were measured on their generation of alternative solutions. Measures of social competence included: counselor ratings of global competence, frustration tolerance, assertiveness, and persistence, as well as children's sociometric ratings of each other, and their observed amount of initiative in the dyadic game.

To answer the question of how much social cognitive measures contributed to various measures of social competence, a series of hierarchical multiple regression analyses were conducted. The videotape-based social cognitive strategy variable was generally

the best predictor, contributing significantly in five out of six regression equations.

In evaluating social competence for clinical purposes, it is suggested that the type of competence deficit be clearly articulated and that social cognitive training be applied selectively for those competence dimensions most sensitive to social cognitive influence. In addition, it is suggested that what is socially competent varies with the setting, and the importance of attending to settings, the familiarity of the peer group, and real-life cognitions and behavior is advocated.

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CHAPTER 1

INTRODUCTION

The question of how social competence can be promoted has recently achieved clinical importance. Research in the last decade has been persuasive in demonstrating that children's social competence co-varies with both concurrent and future mental health status (Cowen, Pederson, Babigian, Izzo & Frost, 1973; Gesten, 1976; Hightower, Work, Cowen, Lotyczewski, Spinell, Guare & Rohrbeck, 1985). Consequently, in order to advance social competence, several remedial and preventative programs have emerged. These have included social skill training, often comprised of conceptual training as well as behavioral practice (Ladd & Mize, 1983), and training in social reasoning (e.g., Spivack & Shure, 1974; Camp & Bash, 1982). These particular approaches assume that social cognition mediates social competence. However, this generalized formula has been difficult to test, because the constructs of social cognition and social competence have eluded agreed-upon definitions.

Both social cognition and social competence have been defined quite narrowly and sometimes idiosyncratically by researchers. A variety of measures, thought to be appropriate indices of social cognition, have been developed, and applied in predicting some aspect of social competence. These range from descriptive, structural, measures, such as complexity and content of social rules (Damon, 1977; Selman, 1980), to processes, such as reasoning about means and ends (Spivack & Shure, 1974). Similarly, different indices of social competence have been developed. These range from level of aggressiveness (Dodge & Frame, 1982) to sociometric status

(Oden & Asher, 1977; Rubin, 1983) to teacher ratings of social adeptness (Gesten, 1976; Hightower, Work, Cowen, Lotyczewski, Spinell, Guare & Rohrbeck, 1985).

Due to the proliferation of variables, the literature relating social cognition with social competence is frequently difficult to interpret and contains many apparent contradictions. For instance, it has been reported that children's social competence, as expressed in the proportion of successful interactions, is positively related to one social cognitive measure, but not to another (Enright & Sutterfield, 1980). The resolution of such discrepant results lies partly in the recognition that there is not interchangeability amongst measures of social cognition (Enright & Sutterfield, 1980), or amongst measures of social competence (Ledingham & Younger, 1985). However, this resolution raises another dilemma. If variables are not interchangeable, how are they related to each other, and in what manner can they be said to be part of the constructs, social cognition or social competence? What appears to be lacking is a theoretical model which delineates the component variables in social cognition, social competence, and explains the relation between them.

The lack of "specific and detailed theory guiding the research on social-cognitive/social behavior relations" was cited as problematic quite recently by Shantz (1983, p. 526). However, the situation is not entirely bleak. While no theory appears to be comprehensive enough to incorporate all variables which have been investigated, Harré's theory, as expressed in Social Being, and social learning theory, both partially explain the social cognition - social behavior relation. Dodge's information

processing theory shares many features of its predecessors but augments them by incorporating additional variables.

A basic distinction in Rom Harré's theory of social behavior is one between competence and performance (Harré, 1979). The social behavior which is performed shows many of the nuances, and reflects competence in social rules or concepts. However, Harré notes that explanations for social behavior are separate from, and more elaborate than, the behavior itself, drawing on rules, judgments of propriety, appraisals of status, and so on. Furthermore, these complex cognitive formulae underlying behaviors are not sufficient to explain behavior. In addition according to Harré, a motive for maintaining dignity in relationships governs both structure of social cognition and its expression in behavior. Thus, Harre's theory incorporates a motivational construct, a complex structural description of social cognition as comprised of rules, and subsequent behavior. The theory does not describe only a linear motive-cognition-behavior sequence, however. There is assumed to be reciprocity, such that innovations of social behavior can re-structure rules in a process described by Harre as modifying the social template.

Harré rejected laboratory methods of studying social cognition in favor of naturalistic studies. He interviewed subjects to discover cognitive rules governing patterns of behavior. Rules discovered in this manner are ecologically valid in two senses; they reflect naturally occurring social situations, and account for the reasoning that occurs in that context. Harré's subjects are not asked to think about hypothetical situations - a method which begs the question of how real life social reasoning occurs. Rather, they are observed in, for example, a social

introduction situation. Patterns can then be described structurally, as in: third party pronounces the names of two people being introduced, first respondent defers prestige to the other, reply acknowledges prestige and returns respect to first speaker. Harré's focus, however, is on the manner in which the social order is expressed and maintains itself. He does not address the molecular process of the development of social rule-learning in individuals.

On the other hand, a second contemporary theory, while sharing certain features with Harré, has been further elaborated in the direction of describing the process of rule-learning for individuals. Bandura's (1977) social learning theory is similar to Harré's theory in that it assumes social rules are extracted from observed interactions and that these rules guide subsequent behavior, in a process called reciprocal determinism. Further, the actual behavioral expression of social rules is controlled or instigated by the presence or absence of motivational variables. Other social learning theorists have extrapolated from Bandura's concepts and identified those elemental processes thought to advance social rule-learning. For instance, Ladd and Mize (1983) delineate the following elements in social concept learning: identifying concept attributes, identifying exemplars and non-exemplars, rehearsing and recalling, and generalizing. These authors review social skill training literature for adequacy of attention to these processes, and conclude that social cognitive training which addresses them is more successful in producing effective social behavior. In short, the social learning theory offers a componential analysis of the social cognitive process which is predictive of social behavioral competence.

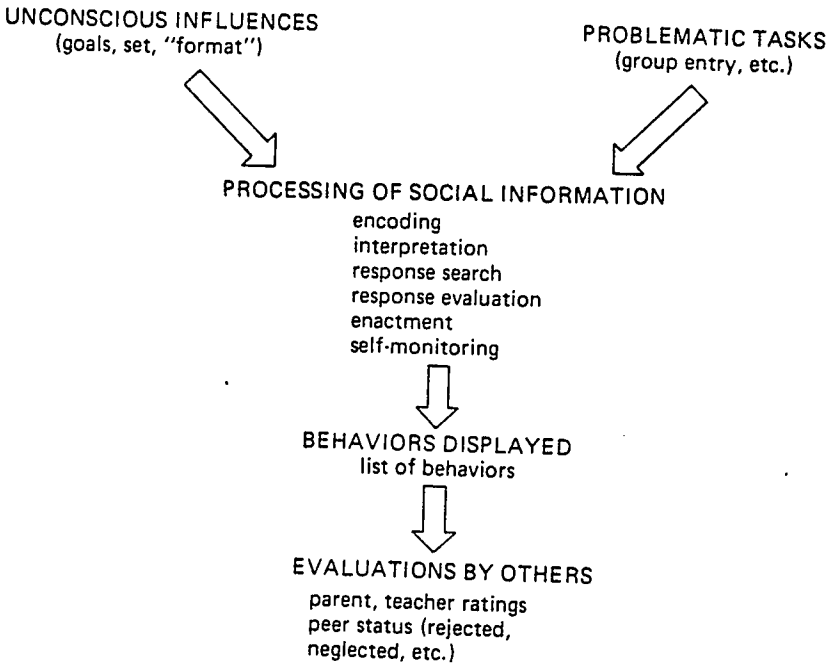

FIGURE 1.1. Assessing social competence.

FIGURE 1

Dodge's Model of Social Competence

From: Dodge, K.A. (1985) Facets of social interaction and the assessment of social competence in children. In B.H. Schneider, K.H. Rubin & J.E. Ledingham (Eds.) Children's peer relations: Issues in assessment and intervention p. 4

While social learning theory has the advantage of empirically tested components of social cognition, and Harré's theory has the advantage of discovering ecologically valid patterns in social cognitions, Dodge's approach attempts to incorporate social cognitive processes, as well as non-cognitive processes, such as affect and motivation, in explaining social competence. Dodge's (1985) model - building endeavor is presented in the accompanying figure (see Figure 1).

Dodge (1985) describes social cognitive problem-solving processes as influenced by children's "sets", or pre-existing attitudes. Dodge offers these sets as examples of the category "unconscious influences", which appears to be intended to accommodate motivation, affect, and personal history factors. Such unconscious influences are seen to co-occur with a problem situation and these two factors jointly affect social information processing. In Dodge's model then, social competence is a composite of cognitive and non-cognitive factors. The parallel to Bandura's (1977) and Harré's (1979) theories is apparent; all three explanations see social cognition as necessary but not sufficient to social competence. Further, all three explanations see social cognition and social competence as complex constructs influencing each other in a reciprocal fashion.

An additional feature of Dodge's model is important. It is that the operation of the social cognitive process interacts with situational constraints in producing social behavior. Dodge's empirical findings indicate that social information processing skills contribute differentially to teacher-rated success in different problem situations (Dodge, 1985). A full explanation of the relation between problem situation and social cognition is still lacking however. Specifically,

Dodge does not discuss how children construe a situation as a problem situation and to what extent differences in children's problem construals might account for differences in social information processing. For instance, children who encode the same situation as different types of problems or even problems and non-problems, cannot properly be compared on processing abilities or behavioral competence.

Nevertheless, the introduction of situational constraints on social cognition does raise the possibility that social cognition and social competence may be differently structured in various settings. Problem situation, as defined by Dodge, is a discrete term referring to such situations as group entry, teasing, provocation. A more global environmental situation, such as defined by school, store, or home may similarly bear on the social cognitive process. These situations may be better labelled settings or social ecology variables.

A wide range of ecological variables can be named: school, playground, recreation center, club, family home, restaurant. Each may potentially constrain social cognition in different ways and result in social competence having a different structure. Research which is explicitly attentive to such ecological factors is rare (Higgins & Parsons, 1983). Furthermore, methodological variations so far developed to capture social cognition and competence in an ecologically valid way, are relatively new and often quite difficult and elaborate. For instance, Krasnor and Rubin (1983) use a complex coding scheme for naturalistic observations thought to tap cognitive and competence factors. The coding of these social cognitive and social behavioral variables require numerous time samples. Similarly, Putallaz (1983) uses an elegant multivariate

coding scheme in examining several dimensions in children's social cognition about play, requiring multiple raters.

To summarize, contrary to Shantz's (1983) statement, theory linking social behavior is becoming more finely honed and indicates quite specific components. However, the translation of theory into researchable questions has encountered some obstacles. First, the devising of means to measure social cognition in action and in context appears only to have been attempted by Harré's analysis of discourse during real-life social cognition. Second, where facets of social cognition and social competence have been linked theoretically, there is as yet little attention given to examining many of these facets in relation to each other. It is known that different facets of social cognition and social competence are not interchangeable (Enright & Sutterfield, 1980; Ledingham & Younger, 1985). More information is required on how various facets operate in relation to each other. Further, the importance of non-cognitive factors in affecting the relation between social cognition and social behavior is worthy of research attention.

The Problem

One purpose of the investigation reported here is to explore the reliability and validity of social cognitions gathered from interviews with children. These social cognitions are argued to be ecologically valid since they are taken in the context of a play situation which is representative of children's real life experience. Further, real life events, rather than hypothetical ones, are the focus of the interviews.

The selection of a recreational setting for the study, is intended to provide a context different from the usual school or laboratory setting. The content and structure of children's social cognition and social competence may differ from setting to setting. This investigation attempts to add to the literature by describing social cognition and social competence in a new setting.

The second purpose of the study is to describe the relationship between social cognition and social competence in this recreational group of children. Multiple measures of social cognition and social competence are used in order to account for the complexity of the constructs. In addition, some non-cognitive variables are also considered as potential contributors to social competence.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Cognitive Mediation of Social Behavior

It is a common belief that voluntary behaviors are cognitively mediated. This belief is no more evident than in our education system. Children are instructed through the presentation of directions, which are intended to be stored cognitively for future application in behavior. Such pedagogical practices are based on theory linking cognition with action, such as that explicated by Vygotsky (1962, 1978).

Vygotsky maintained that children gradually acquire the ability to represent events symbolically. He further maintained that the acquisition of specific symbolic representations can be aided by pedagogical techniques, but when finally learned, these representations guide behavior.

Vygotsky illustrated the development of symbolic thought by assigning a key press task to children of various ages. In this task, children were required to depress certain picture keys upon the presentation of a visual concept. The youngest children depressed keys without regard to the visual concept. At a more advanced age they responded selectively, pressing the key picture that matched the visual concept. Older children pressed keys where the picture stood in non-identical relation to the visual concept, as in matching knife-fork, or dog-horse. Only the eldest children could learn to press keys where the visual concept stood in arbitrary relation to key

pictures. These children were taken to have achieved the idea of a symbol as arbitrarily standing for something.

It is an important element of Vygotsky's theory that the cognitive activity which is evoked by the thing comes to be similarly evoked by the symbol, thereby establishing the symbol-thing equation. Following this line of argument, if cognitive activity can represent an event, it can also represent, or provide a blueprint for, a motor-behavioral event. According to Vygotsky, action and cognition operate reciprocally, with action resulting in cognitive representation as readily as cognitive representation resulting in action. For example, Vygotsky described how an infant's unsuccessful grasping motions, may bring mother to help retrieve an object, and thus come to be cognitively represented as 'requesting' by the infant. Subsequent wishes for objects out-of-reach, then lead to the grasping action. Vygotsky argued that children who could not achieve a performance, might be aided to do so by the presentation of an example, a prompt, or related information. In this way, he maintained, conceptual representation was facilitated, and children could then proceed to master task performance. Verbal instruction, augmented by examples or guided performance, he considered the key feature of education, and he considered it to exert its effect by enhancing the cognitive representation required for complex performances.

More contemporary and social examples of cognitive mediation have been given by social learning theorists. In this literature, children were given concrete demonstrations, or exemplars, of previously absent social behaviors, such as altruism. They were subsequently tested for generalization of the behaviors to new situations. Generalization occurred

differentially with procedural variations in presentation of material such as the amount and order of information given in training, and whether a reward was promised or awarded (Bandura, 1977; Rosenthal & Zimmerman, 1978). Nevertheless, that generalization occurred was taken to illustrate that the concept or rule underlying the desired social behavior was represented cognitively, and further, that the representation guided subsequent social behavior. These studies have been criticized as confounding social performance with social knowledge.

However, recent procedural variations, such as controlling for social knowledge by selecting very young children, and partialling out instigatory aspects of reinforcers, seem to refute these criticisms (Bandura, 1977; Rosenthal & Zimmerman, 1978). That is, experimental procedures where children are normally found to be naive for a skill, then given a demonstration of the skill, and in a new situation observed to produce a variant of the skill without ever having been reinforced, appears to indicate that the children have learned a new social concept.

In summary, the cognitive mediation of social behavior has been supported by Vygotsky's demonstration of the gradual acquisition of abstract concepts that guide behavior, and by more contemporary social learning studies in which children have shown new behavior attributable to rule-learning.

2.2 Social Cognition

The apparently simple assertion that cognition mediates social behavior, belies the complexity of cognition, social behavior and the relationship between them. The notion of cognition, when applied to the social domain, has itself been the subject of much enquiry and appears to require several dimensions to explain it. Futhermore, these dimensions display little overlap with the dimensions of general cognitive ability. Experimental findings to this effect are best understood in the light of a description of social cognition.

2.2.1 Social and General Cognition

The term social cognition, as used in the literature, appears to indicate at least three different concepts: (1) understanding social objects (people); (2) understanding relationships between people; and (3) reasoning about the flow of social interaction. The content, then, is distinctively social.

There is still debate concerning whether the process of social cognition is distinctively different from that of general cognition. The opposite points of view are: that all cognition is social, by virtue of happening within a social context and, that all social cognition can be reduced to general cognitive principles governing information coordination and organization. However, this debate has lost much of its force since, as Shantz (1983) suggests, empirically interesting questions about social cognition cannot divorce process and content.

Whether or not it is a function of content, there has been a

dissociation between general cognitive abilities and social cognitive abilities. For instance, various measures of the ability to understand another's social perspective have shown quite low correlations with general intelligence as measured by I.Q. Futhermore, these correlations have been shown to decrease from .39 in pre-school years to .10 in late elementary school years (Rubin, 1978). This suggests that beyond a threshold of general ability normally achieved by the early grades, intelligence contributes a negligible amount of the variance in social understanding. Additional evidence for a separate social cognitive construct has come from Spivack, Platt & Shure (1976) who demonstrated that, while Verbal I.Q. is related to social problem-solving skill, I.Q. can be statistically partialled out and still leave an explanatory social problem solving factor. Similarly, in an analysis of scores on a test of role-taking, an independent "social de-centering ability" has been required to explain differences not sufficiently accounted for by age, verbal intelligence, or performance on Piagetian conservation tasks, (Feffer & Gourevitch, 1960).

2.2.2 Aspects of Social Cognition

The finding of a social cognitive construct in the above studies, does nothing to establish the range of possible social cognitive factors, or their number. The field is without comprehensive and elaborate theoretical models to suggest along what dimensions such an exploration may profitably proceed.

This is problematic, as researchers with different orientations do not reconcile their areas of investigation with each other. Although presumably the consequence of the newness of this field, the resulting

concatenation of concepts renders somewhat obscure the actual process of social cognition, as well as its influence on social behavior. While some attention to model-building has emerged in the recent literature (e.g., Dodge, 1985; Ford, 1982), for the most part, researchers have considered discrete, and occasionally idiosyncratic, aspects of social cognition. These various aspects, differing in construct and ecological validity, and in their utility in predicting social behavior, are discussed below, with an eye to identifying dimensions which may be profitable for understanding social competence. Aspects of social cognition researched to date, have often been suggested by extrapolation from other fields.

2.2.3 Cognitive-Developmental Aspects and Social Perspective-Taking

Cognitive-developmental psychologists, in the Piagetian tradition, have proposed that, just as perceptual perspective-taking is a measure of children's general cognitive maturity, so social perspective-taking or role-taking is a measure of social cognitive maturity (Feffer & Gourevitch, 1960; Flavell, Botkin, Fry, Wright & Jarvis, 1968). Social perspective-taking in this context refers to the ability to understand that a person will interpret a social sequence as a function of idiosyncratic factors such as different information and role experiences. In addition, the mature social perspective - taker will understand not only that the other's different information or role experience perspective is different but what that difference is . The measurement of social perspective-taking has been fraught with some difficulty, as the concept has been exposed as a very complex, rather than unitary one. For example, some social-perspective taking tasks also require perceptual de-centering (Lempers,

Flavell & Flavell, 1977; Chandler & Boyes, 1982). Furthermore, the notion of de-centering, whether perceptual or social, only guarantees the rejection of the self's perspective. Other skills are involved in the apprehension of what the other's perspective is. Indeed, Flavell et al. (1968) discuss a four-sequence process necessary to social perspective-taking, composed of cognitions of existence, need, inference and application. Existence refers to the apprehension that there exist different perspectives; need refers to the need to determine another perspective; inference refers to the reasoning about what the other perspective is; and application refers to the application of the other perspective to the situation.

Efforts to account for the complexity of social perspective-taking have culminated in at least two hierarchical developmental models. Selman's (Selman, 1980; Gurucharri, Phelps & Selman, 1984) levels of interpersonal understanding accounted for individual differences in de-centering and in understanding the rules governing relationships. Different domains of relationships, such as friendship, parent-child, authority, each accounted for a separate structural expression of social cognitive knowledge, unique to the content area. Apart from the studies by Selman and colleagues, this aspect of social cognition has received little use as an index. However, Pellegrini (1980) found it useful in combination with a social problem-solving measure, in predicting children's status amongst their peers. That is, children who were not egocentric but could see other points of view, and who understood that friendship, for example, required reciprocal caring, were found to be more popular with other children.

Selman's levels of interpersonal understanding share with Damon's levels of social cognitive maturity, an emphasis on the child's utilization of multiple pieces of information within separate domains of relationships (Damon, 1977). Damon, however, has been concerned with social perspective-taking as it is expressed in the coordination of multiple pieces of information about individuals rather than the coordination of multiple social perspectives. For example, a person can be evaluated as the most worthy recipient of limited resources only after considering the individual's need, ability, and frequency of receiving limited goods, when compared to others. Damon's explanation of social cognition has also received scant attention outside his own laboratory. Nevertheless, his levels of social cognitive maturity have been useful in predicting the success of children's interpersonal encounters (Enright & Sutterfield, 1980). The proportion of successes coded in naturalistic interaction was positively and significantly related to scores on Damon's moral judgment measure ($r = .31$, p .05).

Perhaps the most important consideration for this discussion with respect to the Selman and Damon social cognitive explorations, is their developmental focus. While children can be demonstrated to become more sophisticated on these dimensions as they mature, there is also the potential for individual differences in social cognition within a developmental level. This may be the reason that the correlation between developmental levels and certain aspects of social behavior, such as the actual number of interactive successes and peer status, has been of low magnitude (Enright & Sutterfield, 1980; Pellegrini, 1980). Not surprisingly, developmental dimensions of social cognition, appear to be

useful for developmental questions, but not for questions about individual differences within a group which is relatively homogeneous with respect to maturity.

2.2.4 Socio-Cultural Aspects

From social psychology, a more recent line of enquiry has examined a dimension of social cognition which refers to cultural norms. From an edited collection by Higgins, Ruble and Hartup (1983) two articles have clearly illustrated the effect of norms on social cognition. In the first case, young elementary school girls were shown to consider helping and sharing with other girls whom they designate friends, more often than non-friends, in a game situation. In the same situation, by contrast, boys were shown to consider helping and sharing with non-friends more often than with friends (Berndt, 1983). This suggests that ideas of friendship differ between normative, or gender, groups. The second case utilized the concept of 'discounting'. Children are said to apply the discounting principle when they accurately disregard an additional variable in the presence of an existing sufficient cause. Children who discounted the explanation of "wanting" to play with a non-preferred toy when they are told to play with it by an adult, appeared to fail to discount when they play with peers. Rather, they said that they "wanted" to play with a non-preferred toy if they are constrained to do so because their peer took the more attractive one (Costanzo & Dix, 1983). Although it may be argued that the situations of being told by an adult and being constrained by a peer were not equivalent, the important point in this context is that the child's construal varied with norms attendent on the social context.

The notion that norms influence the construal of a social event, or the construal of an event as social, was developed in a much more elaborate fashion by Rom Harre (1979). He analyzed the content of discourse to expose speech patterns which were indicative of social rules governing interpersonal behavior. For instance, the use of pre-closing phrases such as "well, ok" or "I've got to run" indicates the social rule that leave-taking must not be done abruptly. Harre pointed to the common knowledge of such rules as evidence of a social template for appropriate behavior represented in each social group member. He further proposed that the social template, as constructed from exposure to social experience, is subject to idiosyncratic modification and innovations which in turn have the potential to alter the common fund of social experience in a gradual evolutionary process.

Moreover, Harre theorized that normatively originated representations of social knowledge permeate all levels of social action. Thus, the social cognitive representation of marriage as a relationship of mutual support and fidelity is seen in the specific components of the wedding ceremony as well as in the general patterns of interaction between married couples in various contexts. Harre conceptualized all these related behaviors as a 'social act', with a common meaning, socioculturally determined. In sum, Harre's treatment of social cognition is heavily dependent on representing normative social rules. But rules established cognitively also operate reciprocally with actions, in that shifts in one fold back onto the other and cognitive modification may come from new experience. Simply put, change in social values can arise from new ways of doing things, and vice versa.

The difficulty in making use of the theoretical and empirical knowledge surrounding sociocultural norms, is the difficulty in disentangling them from their context and manipulating them for studying for example, how much of the variance in social behavior is thus explained. Indeed, if such procedures were possible, they would be rejected by theorists on the grounds that a norm or rule removed from its sociocultural context is no longer a norm or rule. Consequently, while interesting descriptive research is possible in this vein, it does not allow for any formula in which social cognition can be calculated as a component with a particular weight for predicting social competence.

2.2.5 Cognitive-Developmental and Socio-Cultural Aspects

Discrete aspects, such as social perspective taking and social norms then, have been useful in describing social cognition and explaining social behavior. However, the interaction between these dimensions may provide a yet more satisfactory account. Such an integrative approach is proposed by Flavell and Ross (1981) but taken up by few researchers. One exception is the use, by Higgins and Parsons (1983), of the notion of 'social life phases'. Social life phases are social contextual factors that change predictably over the age span in constraining the understanding of others. For example, as they grow up, children gradually develop the idea that success is determined by effort and ability. To understand this, the child must perceive and coordinate the dimensions of effort and ability, requiring a developmentally-related cognitive analysis of others. The socially normative experience of attending school shows the child that some children try but do not succeed, while others succeed without trying.

Thus, cognitive-developmental processes interact with normative social experiences to favor changing social cognitions about determinants of success (Higgins & Parsons, 1983). This interaction between social cognitive ability and social life phases in developing conceptions of causes of success, is presented as an hypothesis by Higgins and Parsons. Empirical evidence is not yet available.

Although he does not offer experimental evidence, the same line of thought is developed by Damon (1977), who noted that children's ideas about leadership took into account a potential leader's expertise in the realm in which he would lead, at about the same time that children became involved in various organizations such as school, clubs, and formal or informal sports groups, each exposing children to a different realm of skill or expertise. That is, ideas about leadership change with age but also with concurrent exposure to various social organizations.

In spite of such theoretical recognition of social life influences on social cognition, variables representing social life factors have only rarely been considered for their affect on cognition. Moreover, the only known report with empirical data is cited by Higgins and Parsons (1983), referring to a study by colleagues. It showed that children attending grade seven in an elementary school differed from children attending grade seven in a junior high school, in their ideas about others. Details of this investigation were unfortunately rather sparse; the comparability of the groups was not indicated, neither was the nature of the social disparities. Thus, while a social cognition by social life factor interaction may be anticipated to affect social competence, hypotheses in this vein presently have not received much research. Apart from the

practical considerations in ensuring groups under study differ only in social life phases, a more fundamental theoretical difficulty has yet to be overcome. A taxonomy of social life factors which could guide research is entirely lacking. While Higgins and Parsons (1983) offered the dimension of social life phases, based partly on predictable changes in exposure to social institutions, they have not proposed what the critical aspects of this dimension might be, or how it relates to other possible dimensions such as one which might be described by shifts in primacy of familial vs. peer reference groups. Therefore, while a promising direction, the focus on social life-by-developmental factors in social cognition is not currently practical for explaining social competence.

2.2.6 Temporal or Dialectical Aspects

While further theoretical and empirical elaboration would be helpful in establishing the validity of social cognition as an integration of social life and cognitive developmental processes, an even broader conceptual framework would be desirable. Social cognition, as discussed this far, is static or described by a discrete point along cognitive and sociocultural axes. However, social life consists of sequences of interchanges. To comprehend these phenomena, social cognition must have a temporal dimension. In the words of Glick (1978) "The main problem of social life is not necessarily to emerge with a 'theory' of actions. It is rather to maintain and sustain coherent courses of action which are related coherently to an interactive context" (p.5 Italic's mine).

There are only a small number of studies which study social cognition in its interactive context (Bearsion, 1982). Of these, the methodological

innovations of Gottman and Parkhurst make their study exemplary. Using sequential analysis to derive a coding system which reflected interaction patterns, Gottman and Parkhurst (1980) observed the behavior of friendship and stranger dyads among children. They found that the younger children's (under 5 yrs. of age) friendship dyads were characterized by more "me too" comparisons, more responsiveness to imperatives and more explanations for disagreement, when compared to older (5 or more years of age) children's friendship dyads. Such patterns in behavior are interesting on two counts. First, they illustrate that social interaction is governed by rules which may be cognitively represented. Second, they illustrate that social cognitions about relationships have ecological validity since ideas of friendship can be distinguished in naturalistic interaction. Thus, social cognition-in-context is demonstrated as an integral component of the performance of competent friendship behavior. The strength of such an approach, which does not separate cognition and performance, is also its weakness. While it is not contaminated by experimental procedures, the process by which cognition is transformed into behavior cannot be revealed in componential steps.

2.2.7 Metacognitive Aspects

If such interactional studies show how social cognition is 'maintained and sustained', they offer little insight into when and how it is invoked. To understand the generation of social cognition, it may be useful to attend to processes similar to Flavell's metacognition (Flavell, 1979, 1981). Flavell argues that people monitor their thinking. In this fashion, they are able to realize that they don't understand something, or

what cognitive approaches are likely to solve a problem. Flavell refers to realization of non-understanding as a metacognitive experience, and to understanding of the best cognitive approach to a certain problem as metacognitive knowledge. The application of these concepts to social cognition is straightforward. Monitoring of social cognition could spark the metacognitive experience of a breakdown in communication with others, or the metacognitive knowledge that the boundaries of a relationship have been exceeded. Such experiences and knowledge, in the context of personal aspirations and goals, can lead to adjustments in social problem-solving tactics as well as other aspects of social cognition. In short, the concept of metacognition may be useful in social cognition to explain how different social-cognitive tacks are arrived at and modified.

The concept of a meta-framework in social cognition is closely allied with the notion that people select different rules to apply to different situations and relationships. In this context, Argyle (1985) suggests that socially unskilled individuals do not know, or do not monitor, their application of social cognitive rules. This argument receives support from the empirical literature. For instance, Putallaz (1983) had adult raters evaluate a target child's relevance, defined as sensitivity to the frame of reference, in a group entry problem with experimental confederates. She found a significant positive correlation between children's relevance and social acceptance in a new situation some months later ($sr^2 = .24$, $p < .01$). Such a skill would appear to require evaluation of what the frame of reference is, as well as ways and means to match the frame of reference.

In a similar vein, other researchers have described the social

cognitions of skillful children to be characterized by their degree of abiding with conventions applicable to a social context (Ladd & Oden, 1979), or by attention to situational demands and correspondingly differential social responses (Dodge, Coie & Brakke, 1982).

Interestingly, metacognitive skills lead to a new consideration of social perspective-taking. To the extent that de-centering from one's own perspective is involved in achieving relevance, the skill is clearly not divorced from the cognitive developmental psychologist's concept of social perspective-taking. Indeed, the four-step model of Flavell et al. (1968) encompasses what are here described as metacognitive dimensions. First, the child must understand that another perspective on a social event exists (metacognitive knowledge). Second, the child must have a need or motive to discover what it is (metacognitive goal). Third, the child must be able to infer the other perspective. Finally, the inference must be applied to the social task. Both theoretically and empirically then, the monitoring of social cognition is endorsed as a useful dimension with respect to social competence.

Further to the need to include metacognition in an adequate explanation of social cognition, there is related evidence from the field of artificial intelligence. These computer simulations of social intelligence must be considered incomplete accounts of social cognition at present, partly as there is no input that represents perspective-taking ability, or social norms at a general level. Nevertheless, Schank and his colleagues (Schank, 1984; Schank & Abelson, 1977) have developed computer simulations for social problem-solving, which account for others' statements and make appropriate inferences. Moreover, offering a

substantial emphasis on the long-term goals and plans that an individual brings to a social encounter, Schank and his colleagues have set social problem-solving in the context of a problem-solver with motives, intentions and history. The emphasis on these individual differences echoes a statement by Damon (1983), writing of the complexity of social cognition "There will be considerable individuality to the total process and an infinity of final possibilities" (p. 378).

The notion of plans and goals has received scant attention in social cognitive psychology, in spite of the common practice of explaining daily behaviors in terms of achieving aims. This area of neglect has been recently offset by the attentions of von Cranach and colleagues (von Cranach & Kalbermatten, 1982; Brenner, Ginsburg & von Cranach, 1985) to precisely these kinds of explanations as they accompany simple social exchanges. von Cranach and colleagues used 'self-confrontation' as afforded by viewing a videotape of oneself, to collect and analyze reports of cognitions in the course of interactions. On the basis of this collection of data, they proposed that a useful heuristic scheme for social cognition can be composed of: (1) goals, (2) strategies and (3) operations. Cognitive goals describe the purpose of the sequence, for example, winning a toy. Following Harré (1979), von Cranach also arguef that goals may often make reference to social norms or values, such as the right to toy possession. Cognitive strategies described ideas about how to achieve the goal on a molar level, such as threatening, cajoling or taking. Finally, operations described the molecular actions constituting the strategy, such as specific verbalizations and movement positions.

It is of some significance that this framework for identifying social cognitions could be applied in a kindergarten setting (von Cranach & Kalbermatten, 1982). This implies that such an organizational framework may be generally applicable across developmental levels. At least, it can be applied to very young children. Further, each apparently singular behavior of a child is subject to understanding at different organizational levels from goals to operations, but these levels are also related and form a unified act.

2.2.8 Social Problem-Solving Aspects

A more prosaic consideration of social cognition, comes from the social problem-solving literature. In this literature, specific social cognitive skills are singled out by virtue of their face validity or intuited applicability, to social life. A particular example of this sort is afforded by the work of Spivack and Shure and colleagues (Spivack & Shure, 1974; Spivack, Platt & Shure, 1976). These researchers identified five major social cognitive skills, each of which is found to have differential competence effects across age groups and psychopathological conditions. The first skill, alternative-solution thinking, is the ability to generate a sufficiently large number of alternatives to social dilemmas. The implicit rationale here is that the greater the reserve of ideas, the more likely an effective one can be selected, if not initally, then upon subsequent social problem-solving attempts. The second skill, consequential thinking, is the ability to predict possible outcomes. Clearly, this is not a simple skill but would appear to require reserves of social knowledge, gained through experience, as well as sometimes the ability to

infer others' reactions. As such, in some cases this skill overlaps with social perspective-taking. The third skill, causal thinking, is the ability to attribute causes to events in social life. Again, this skill can be interpreted as a complex one, consisting of understanding of how much different social events are influenced by people, how much by situations, and how much the interaction of persons and situations. Sobol and Earn (1985) have illustrated that children differ, across developmental and sociometric variables in their ascribing the same social outcomes to internal, stable and controllable factors. For example, older and popular children felt that what others said about them had to do with things to do with both them and others (internal and external cause), was stable across others and was somewhat controllable by them.

The fourth skill in the Spivack and Shure (1974; Spivack, Platt & Shure, 1976) studies also appears to draw on a complex of sub-skills. Means-end thinking is the ability to arrive at a social end point by cognitively constructing a sequence of actions, anticipating obstacles, and dealing with obstacles, in a plausible manner. Finally, the fifth skill, sensitivity to interpersonal problems, is the ability to recognize the existence of interpersonal problems. This skill was not well defined by Spivack and Shure and colleagues, and turned out to have little predictive value for social competence, as measured by them (Spivack, Platt & Shure, 1976). Nevertheless, once again it would appear difficult to discriminate this skill from aspects of social perspective-taking.

In fairness to these researchers, their purpose was to create an effective intervention program, on the assumption that these social cognitive skills mediated social adjustment. This assumption was

substaniated according to the bulk of the evidence, (Spivack & Shure, 1974; Spivack, Platt & Shure, 1976; Rubin & Daniels-Bierness, 1983; Asarnow & Callan, 1984), and in spite of some methodological problems (Krasnor & Rubin, 1981). It is surprising, however, that the focal social cognitive skills were not subjected to a more fine-grained analysis to determine the importance of component parts. Indeed, component parts were not acknowledged. Furthermore, the focal skills were not placed in a theoretical context which would have been helpful in developing a process model of social cognitive probem-solving which is presumably intended by this work.

2.2.9 Overview of Social Cognition

The various measures of social cognition arise from differing theoretical models and are adopted for different purposes. No attempt has yet been made to integrate all components into a multifaceted construct. However, certain pairs of components have begun to be theoretically and empirically yoked. For instance, the cognitive-developmental concept of increasingly differentiated concepts of persons, is linked with the idea of systematic change in the social environment. Among the results is a bi-variate explanation of children's attributions of success, where the two variables are: (1) the differentiation of causes of behavior (e.g., stable, or ability, vs. unstable, or effort) and (2) representations about relevant social environments, such as school (Higgins & Parsons, 1983). Children's social cognitions can thus be understood by their attributions of cause and their comprehension of the range of possibilities allowed by social contexts.

The absence of a multifaceted construct which incorporates more than two dimensions of social cognition is problematic, both theoretically and empirically. A comprehensive theoretical elaboration of social cognition cannot be fully given until the various measures are accounted for, and the relationship amongst these measures is explicated. A model of social cognition has many variables to account for. Empirically, it becomes clear that, as different variables address different facets of social cognition, they cannot be used interchangeably. Understanding of persons as highly differentiated in physical, social emotional and value characteristics, does not guarantee the generation of multiple solutions to social problems. These are simply different aspects of social cognition which also bear differentially on social competence.

Eventually, the question of how social cognition mediates social behavior must be rephrased as which dimensions of social cognition mediate social behavior. At present, all possible concepts are not anchored along dimensions or in theory, and require further such elucidation. This may in part come with studies illustrating social cognitive variables' co-variation with social competence. Studies using multiple measures of social cognition and multiple measures of social competence are already showing promise in identifying constructs, factors or dimensions which can contribute to explaining process and building theoretical models (e.g., Ford, 1982; Dodge, 1985).

2.3 Social Competence

Social competence is no less complex a factor than social cognition. It has been variously assessed in the literature as a process or an outcome, and occasionally as some combination of process and outcome.

2.3.1. Process Measures

Process measures describe the performance characteristics of socially competent individuals. Many authors have argued that these characteristics do not have absolute values, but rather, show a great deal of variability. For instance, Krasnor and Rubin (1981) argued that flexibility, or the ability to change approaches on the basis of interim evaluations of social reception, is a hallmark of social competence. In the same vein, Asher (1983) described the socially competent individual as (1) relevant, modulating his approach to the situation, (2) responsive, picking up on cues from others and (3) appreciative of the fact that relationships evolve over time, using patient and often indirect approaches rather than trying to reach objectives immediately. As is clear from these descriptions, a considerable amount of subjectivity enters into these evaluations. Furthermore, it is not required that they be related to measures of outcome, but are offered as intrinsically valuable characteristics. As it transpires, there is evidence that these process measures may be related to at least one outcome measure - popularity. For instance, variability or flexibility in approaching others across structured (classroom) and unstructured (playground) situations, has been shown to be characteristic of both younger and older groups of popular elementary school children (Rubin & Daniels - Bierness, 1983; Dodge, Coie & Brakke, 1982).

2.3.2 Outcome Measures: Sociometric Status, Observed Behavior and Teacher Ratings

There are three common outcome measures of social competence: sociometric status, observed behavior, and teacher-rated competence. Of these, sociometric status and observed behavior have most often been studied in conjunction with each other. The results of these studies have established an association between the two. On the other hand, teacher-rated social competence has shown both association and dissociation with sociometric status and observed behavior.

2.3.2.1 Sociometric Status and Social Behavior: Sociometric status, as measured by either peer nominations of liked and disliked children, or ratings of how much peers like to play with designated children, has been repeatedly correlated with marker social competence behaviors. One particular constellation of behaviors which has been studied in relation to peer status is aggressiveness. Using a method where elementary school children were asked to select the names of most-liked and least-liked peers, Dodge, Coie and Brakke (1982) classified children into popular, average and rejected categories. These children were observed in classroom and play settings, where their behavior was coded for a variety of characteristics, including aggressive acts. For the purposes of this study, aggressive acts were defined as verbal or physical hostile or destructive behaviors that were assaultive, taunting, obstructive or threatening in nature and directed at a specific peer. Dodge et al. found that rejected children displayed proportionately higher rate, at 16.8%, of

aggressive acts than average or popular peers, who were similar in proportion of aggressive acts, at 6.5% and 7.5%, respectively.

These findings have been cross-validated in other studies. For instance, Coie and Kupersmidt (1983), using the same method of assigning peer status, observed how children behaved in groups of unfamiliar peers. In spite of the absence of peer expectations for aggressive behavior, children rejected by their classmates also showed significantly higher rates of verbally aversive behavior in the new peer groups than the other peer status categories, although the magnitude of this difference is not reported. Interestingly, these rejected children were not observed to be more physically aversive in their new peer groups, although this characteristic may have eventually emerged, since their familiar classmates rated them as more likely to start fights. Indeed, a further study by Dodge (1983), also amongst unfamiliar peers, but extending over a longer period, found that sociometrically rejected boys engaged in significantly more hitting, although the magnitude of this effect is not reported.

As might be anticipated, the observation of pro-social behaviors such as co-operative play (Dodge, 1983) appropriate social approaches (Dodge, Coie & Brakke, 1982) and high proportion of agreements (Putallaz, 1983) has also distinguished children of differing sociometric status. In general, more popular children have shown more pro-social behavior, the more rejected children less. These findings are more complex than might at first appear however, as Dodge (1983) demonstrated a gradual decrement in pro-social behavior and increment in aggressive and aversive behavior for rejected children over time. In short, low status children have shown more

competent behavior in new groups. The correlation between low status and poor behavioral competence emerged gradually.

The findings of Dodge (1983) and Coie and Kupersmidt (1983) that rejected children began to display aversive and aggressive behavior in new groups, before their sociometric status was established, is consonant with the research of Olweus (1978). Olweus' longitudinal research on Stockholm school children, revealed that peer-rated variables related to aggression (tendency to: start fights, give verbally aggressive responses) showed considerable stability over a three year follow-up. Similarly, Olweus' review of other longitudinal research on aggression further substantiated this position, with stability coefficients for aggression forming a regression line parallel to stability coefficients for intelligence (p. 154).

Contrary to the hypothesis that social behavior predicts sociometric status, it has been suggested that a composite social competence measure, including sociometric preference, is explained best not by social behavior but by motor skills. In a study by Hops and Finch (1985) motor skills were found to account for 20.7% of the variance in social competence, among pre-school boys. The expected pro-social behaviors of responding to initiations, proximal play, and hovering, did not contribute to social competence in excess of 8% of the variance accounted for. This failure of sociometric status to converge with expected social behavior may, however, be an artifact of the statistical analysis. A stepwise regression method was used, so that any variance social behavior shared with motor skill was already accounted for in the variance extracted with motor skill. This

could lead to an underestimate of the importance of social behavior. Indeed, it is not unreasonable to assume that, amongst pre-schoolers, motor skills and social behavior are intertwined, as most social play is also motor play. Therefore, variance attributable to motor skill could be largely shared with social behaviors.

2.3.2.2 Teacher ratings and sociometric status: Teacher ratings of competence have seldom been studied in conjunction with other outcome measures. However, in a study examining children's effectiveness in problematic social situations, significant positive correlations were found between teacher rating of effectiveness, and sociometric status (Dodge, McClaskey & Feldman, 1985). On the other hand, directly testing the association between sociometric status and teacher-rated social adjustment, Dodge, Coie and Brakke (1982) found that both the popular and the rejected children were rated as significantly more well adjusted than the average children.

The lack of agreement between teacher and peer ratings is discussed by Ledingham and Younger (1985). These researchers reviewed teacher and peer evaluations of class members' likeability, aggressiveness and withdrawal, in first through seventh grade classrooms. There was substantial nonoverlap, and this was most pronounced for likeability and withdrawal. To rule out the possibility of the results being caused by the lower cognitive abilities of the children, an examination of younger vs. older classes was conducted. The magnitude of correlation between teacher and peer judgments did not change across the age span, suggesting the cognitive sophistication of the children was not a major factor, but rather that

teachers and peers of elementary school children evaluate likeability, withdrawal and aggression differently. Non-teacher adult, and peer evaluations are compared in a different study by Ollendick, Francis & Hart (1985). A curious aspect of this study was the use of different social competence criteria for child and adult raters. Children were requested to evaluate likeability, cooperativeness, intelligence and attractiveness, while adults were requested to evaluate assertiveness. Consequently, the findings are affected by these different criteria. Nevertheless, correlation analysis indicated that boys' and girls' ratings were differentially associated with adults' opinions of assertiveness, based on the same stimulus material. Therefore, this study can be used to explain the different teacher and peer ratings in the Ledingham and Younger (1985) study by showing that boys and girls attend to different cues and that adults make judgments based on differential weighting of behavioral observations across gender groups. That is, peers of different genders, and adults, appear to bring separate evaluation schemas to rating social behavior.

That teacher and peer ratings lack a clear positive and linear relationship is perhaps not surprising for yet another reason. Teachers, by the nature of their authority relationship with the children, as well as their restricted observational contexts, are drawing from a different fund of information. Unfortunately, the prevalent use of teacher ratings of social competence frequently fails to recognize the limitations of this measure. Where the assessment pertains to social behavior in a school setting, such as in the Dodge et al. (1985) study, teacher ratings may be regarded as more appropriate. Nevertheless, teacher ratings are not

necessarily appropriate as a summary measure of social competence. In short, outcome measures of social competence are not interchangeable but have situational and rater boundaries. In this context, it is perhaps unfortunate that so many social competence studies use school-based observations, as these represent only a portion of the child's social life. Even the use of school playground observations can be argued to be limiting the generalizability of the findings due to the usual continuation of school rules to the school playground.

2.3.3 Outcome Measure: Effectiveness Rating

Another measure of social competence which reflects a different definition of competence, is effectiveness of interaction. The rationale here is that if social behavior brings about the desired effect, it is competent. At its logical extreme, this orientation would allow that, contrary to other valuations, aggression is socially competent if it accomplishes the desired end. The only known behavioral study which rates effectiveness at a molar level indeed reports this finding. The most uniformly successful strategies amongst pre-schoolers were object-agonistic strategies such as grabbing a toy (Krasnor & Rubin, 1983). Although such an approach to social competence is intriguing, there are difficulties which may explain its unpopularity. First, to code success or effectiveness it is necessary to know the intent of the actor, which is often far from transparent. Second, effectiveness of discrete actions is rather a narrow definition of social competence, particularly if process valuations of flexibility, persistence and awareness of the evolving nature of relationships, are to be taken seriously.

2.3.4 Factorial Measures

Recent attempts have been made to consolidate process and outcome measures in order to formulate a comprehensive definition of social competence. One such effort is illustrated in the work of Ford (1982). Ford defines social competence as the "attainment of relevant social goals in specified social contexts, using appropriate means and resulting in positive developmental outcomes" (p. 324). Process concerns are reflected in the use of the words "relevant" and "appropriate means". Outcome concerns are reflected in the inclusion of "positive developmental outcomes" in the definition, where developmental is taken to mean pertinent to long term as well as short term objectives.

Ford's concern with process aspects of social competence leads to his sketching out necessary pre-conditions for "relevant" and "appropriate" performance, including goal-directedness and consideration of consequences. In this sense, Ford anticipates the argument of this review, that social competence depends on social cognition. Summary competence measures, reflected by peer, teacher, self, and interviewer ratings were also taken.

Using factor analysis, Ford examined the factor structure of these combined process and outcome variables. A first factor, called academic competence, accounted for 23% to 33% of the variance in two separate samples, and loaded on grade point average as well as teacher-rated and peer-rated competence. A second factor, interpreted as social interest, accounts for 11.5% - 15% of the variance, and loads on affective, motivational and environmental variables. The third factor, representing social cognitive skill, accounted for 8.4% - 11.2% of the variance.

Finally, a factor interpreted as social desirability, accounted for 7.8% to 9.4% of the variance, and loaded on self-portrayal measures.

These factors were relatively distinct and argue for the separation of social cognitive, affective-motivational, and social desirability elements. All factors showed covariation with the summary rating measures of social competence, with the summary measures loading between .34 and .62 on different factors. Unfortunately, methodological limitations, such as low inter-rater reliability on the interview-based measure of social competence, as well as predominant reliance on questionnaire responses for social cognitive and affective-motivational variables, require that this particular structural description be accepted only provisionally.

Nevertheless, a series of studies by Dodge and colleagues (Dodge, 1985) validates the co-variation of social cognitive and social effectiveness variables. As social cognitive variables, Dodge proposed: encoding of cues, interpretation of social cues, response search, selection, and rehearsal. These variables were found to result in multiple correlations of .74 to .82 with ratings of competence, where competence was defined by rated effectiveness, in dealing with different problem situations from peer group entry to peer provocation. Attitudinal, or affective-motivational variables, are also considered by Dodge to contribute to an explanation of social competence, but these variables are only theoretically, and not empirically, presented in Dodge's work.

It is intriguing that, although Ford and Dodge propose that social competence is structured similarly, the percent variance accounted for by social cognition varies from the minimum of 8.4% in one of Ford's studies, to a minimum of 54.8% in Dodge's studies. Again, methodological

differences may be a partial explanation, as well as the more comprehensive review of processing variables by Dodge. Further, Dodge predicted to quite specific outcomes while Ford examined contribution to a composite of theoretically related items of uncertain empirical status and construct validity.

An additional finding in the Ford study, important for the present discussion, was the finding of positive and significant correlations among all four criterion measures of social competence. However, as the magnitude of some correlations (e.g., between interview rating and peer rating) was small at some levels, this cannot be construed as strong support for a unitary construct of social competence. Indeed, the bulk of the evidence reported by Ford argues for a multifaceted construct.

2.3.5. Overview of Social Competence

Many aspects of social competence have been proposed and some effort has been made to cluster these into an omnibus social competence. However, the various aspects have been differentially related to their antecedents and co-variates. It is therefore unlikely that omnibus measures of social competence will be of much clinical use. A child's social competence can have many facets, and these facets have been shown to be differently predicted and not interchangeable. Social competence has also been shown to have situation and rater boundaries. Thus, an analysis of the context and the evaluator must enter into descriptions of a child's performance as competent or not in any particular aspect.

2.4 Social Cognition and Social Competence

The above-cited studies by Ford (1982) and Dodge (1985) have introduced social cognition as contributory to social competence. At the same time, both social cognition and social competence appear to be complex constructs, explicable using only multiple dimensions and multiple measures. Therefore, this relationship between social cognition and social competence requires a more detailed analysis. To apply Kurdek's (1978) question about the relationship between perspective-taking and moral judgment to the present domain: what dimensions of social cognition are related to what dimensions of social competence?

2.4.1 Social Cognitive Problem-Solving and Competence

The assumption of a social-cognitive deficit in generating strategies underlies many social skill training programs and was given an early test by Chittenden (1942). Chittenden used doll play and direct instruction to point out to children that generating cooperative strategies had more positive interaction outcomes than generating dominative strategies. Following this training, experimental children were shown to exhibit less negative and more positive interaction than control children in naturalistic play.

Training in the ability to think about various strategies is also the feature in the seminal body of clinical research conducted by Spivack, Shure and colleagues (Spivack & Shure. 1974; Spivack, Platt & Shure, 1976). Five social-cognitive problem-solving skills were posited on the basis of reflective analysis. The five skills: alternative-solution thinking,

consequential thinking, means-end thinking, causal thinking and social sensitivity, were variously shown to enter into the prediction of teacher-rated social adjustment. Different skills were demonstrated to carry different percentages of the variance at different ages, with alternative solution thinking contributing at all age levels studied. The importance of alternative solution thinking, which is measured by the number of alternatives generated, has since been supported by other studies using peer-rated popularity as an index of social adjustment (Richard & Dodge, 1982; Asarnow & Callan, 1985). Thus, it is suggested that the effects of alternative solution thinking are somewhat generalized, and are not confined to teacher perceptions of classroom social behavior.

2.4.2. Social Cognitive Development and Competence

The above studies then, establish a link between various social-cognitive problem-solving skills and rated social adjustment or social status. A similar effect is demonstrated in a body of developmental research which correlates complexity of thoughts about social problems with age and clinical status. Damon (1977) showed that the number and type of factors considered and coordinated, in such dilemmas as sharing limited goods, changes predictably as children grow older. Further, Damon found that in contrived situations, children's behavior corresponds roughly to their reasoning in hypothetical situations.

In the clinical realm, Selman (1980) and Gurucharri, Phelps and Selman (1984) followed a sample of emotionally disturbed boys to demonstrate that low levels of interpersonal understanding were correlated with low levels of social adjustment as rated by teachers, on both positively oriented

social competence rating scale and a problem behavior questionnaire. Further, training these disturbed boys in interpersonal understanding resulted in increments in social adjustment 3-6 years later as measured by acceptable methods of conflict resolution. These improvements corresponded to an accelerated acquisition of interpersonal concepts for the clinical training group compared to matched control subjects, also over a 3-6 year follow-up period.

2.4.3 Strength of Relationship Between Social Cognition & Social Competence

The finding of a statistically significant relationship, however, partially begs the question of how important social reasoning skills are for social competence measures. In the original reports by Spivack, Platt and Shure (1976) little data were given. In an effort to rectify this, Shure and Spivack (1982) recently published some of their analyses in more detail. Unfortunately, still, only results of tests of significance were given. These do not make it possible to determine what percent of the variance in social competence is estimated to come from social cognitive problem-solving. Such an estimate is, however, available from Pellegrini (1980) who reported that means-end thinking, as assessed by Spivack and Shure's MEPS test, plus Selman's interpersonal understanding score, accounted for 20% of the variance in social competence, as measured by peer-status. Similarly, Enright and Sutterfield (1980), reported that alternative solution thinking accounts for 13.7% of the variance in percentage of interactive failures for grade one children. There was, however, no significant correlation between alternative solution thinking and percentage of interactive successes or number of approaches by others.

Therefore, how powerful the Spivack and Shure social cognitive factors are, in comparison with other social cognitive measures, has yet to be studied across different social competence criteria.

The data which does bear on this issue of the relative importance of social cognition for social competence are intriguing and derive from a variety of research formats. Two methodologically rigorous series of studies use naturalistic behavior to assess social competence, although different measures of social cognition are taken in each.

Lefebvre-Pinard (1982) examined the strength of the relationship between social cognitive ability, as assessed by several referential communication and perspective-taking tasks, and the child's observed effectiveness in interaction, as measured by whether social requests were acceded to, as well as adequacy of messages as coded by criteria taken from sociolinguistic theory. In neither a discriminant analysis, in which children were categorized as adequate or not adequate; nor a regression analysis, with a composite social competence score as the dependent measure; did any of these social cognitive variables contribute significantly to the variance. Rather, Lefebvre-Pinard found that the children's partners' behavior accounted for the bulk of (74%) the variance associated with success of social requests.

Nevertheless, several aspects of these studies may have obscured the actual relationship between social cognition and social competence. First, requestive behavior and communication adequacy are restricted and narrow definitions of socially competent behavior. Second, the competency measures chosen may not have occurred with sufficient variability in the pre-school population tested to reveal a correlation that may exist in a

more heterogeneous population. This second explanation is difficult to evaluate as Lefebvre-Pinard does not provide information on the distribution of scores in her studies, but the fact that 71% of all requests met with success suggests the behavior of the children may have displayed little variation.

In another naturalistic study with pre-school children, Krasnor and Rubin (1983) also investigated the relationship between social cognition and social competence. While similar comments can be made about restricted variability in the social competence measure of interactive success, this study is interesting in its use of multiple measures of social cognition. Krasnor and Rubin (1983) measured strategies-in-action, goals-in-action, persistence, and flexibility. In their analysis, the greatest reduction of uncertainty concerning interactive success, at 7.5%, was knowledge of the child's goals. Echoing the Lefebvre-Pinard studies, knowledge of the partner or target of interactions resulted in the second greatest reduction of uncertainty, although at the diminished magnitude of 3.3%. Knowledge of strategy resulted in only a .9% reduction in uncertainty in outcome.

The bulk of the evidence reporting magnitude of effect then, points to a modest social cognitive factor explaining social competence. The specific selection of variables would appear to moderate this effect however, as it is enhanced in some studies (Krasnor & Rubin, 1983; Ford, 1982; Dodge, 1985) but diminished in others (Lefebvre-Pinard, 1982; Enright & Sutterfield, 1980).

The bulk of evidence does not point to a knowledge-of-strategies variable being singularly critical in social competence. How, then, is the success of strategy coaching on behavioral (Chittenden, 1942; Zahavi &

Asher, 1978; O'Connor, 1969), sociometric (Oden & Asher, 1977) and teacher-rated (Spivack et al., 1976) social competence to be interpreted? The answer is suggested by Asher and Renshaw (1981), who point out that coaching in strategies, or the 'how' of interaction, is not delivered without simultaneous coaching about contextual cues which define the 'when' and 'what' of appropriate interaction strategies. This explanation can then be reconciled with the Krasnor and Rubin (1983) finding that the greatest reduction in uncertainty for interactive outcome results from knowledge of the goal of social behavior. As the child's goal reflects 'what' he wants in the context of a specific situation, strategies simply become a means to that end and cannot stand alone as determinants of competent performance.

2.4.4 The Goal Construct in Mediating Social Competence

Additional support for the goal construct as a pivotal one in social competence comes from studies comparing behavioral profiles of competent and less competent children. Specifically, there is evidence that less competent children display the same behaviors as their more competent counterparts, but fail to use contextual cues in determining when to do what. Stated differently, less competent children differ in their ability to be governed by the situation or frame of reference when developing an action plan. For instance, Dodge, Coie and Brakke (1982) found that rejected children used pro-social approaches to peers on the playground, when it was appropriate to do so, as well as in the classroom, when it was not. Similarly, neglected children restricted their approaches in the classroom, when it was appropriate, but also on the playground, when it was

appropriate, but also on the playground, when it was not. In the same vein, unpopular children's responses to hypothetical social problems have been scored as having a greater number of deviations from normative solutions (Ladd & Oden, 1977), and as exhibiting less evidence of planning (Asarnow & Callan, 1985) than their more competent peers. Both results can be interpreted as a demonstration of the deficiency in less competent children in the ability to modulate behavior by taking context into account. Further, Putallaz (1983) reported that the evaluation of a behavior as relevant or not, significantly improved the fit of a multiple regression solution for sociometric status.

Taken together, these studies suggest that establishing a relevant and contextually senisitive plan or goal for social interaction may be necessary before training in a variety of alternative skills can be effective. Indeed, the successful "Think Aloud" social training program (Camp & Bash, 1982) incorporates emphasis on problem identification and goal development as well as the Spivack and Shure social cognitive problem-solving skills.

2.5 The Effects of Social Goals

Since social goals have been demonstrated to account for more of the variance in interaction outcome than strategies (Krasnor & Rubin, 1983), and since planning and modulation in social initiation are associated with social competence, then it may be that competent children pursue different goals. A direct test of this hypothesis is offered by Renshaw and Asher

(1983).

Following Greene (1976), these researchers underlined the importance of goal-setting in determining the course of interaction, by noting that social situations are inherently ambiguous and much depends on how participants construe situations and subsequently construct goals.

Consequently, Renshaw and Asher described a series of ambiguous situations to children to examine differences in goals. They hypothesized that differences would arise with respect to age and to sociometric status when children stated what they wanted, or what they would try to do, as well as with respect to how they would go about doing it. Indeed both age and sociometric status effects emerged, with older children suggesting more outgoing and positive (friendly) goals and strategies and low status children suggesting more accommodating, rule oriented, avoidant or hostile goals and strategies. Interactions were also evident such that older, low status children suggested avoidant strategies almost exclusively. The age with peer status interaction emerged again in a subsequent investigation (Taylor & Asher, 1984) using a refined and expanded set of goals developed for questionnaire format. For instance, fifth and sixth grade children who were popular endorsed fewer relationship-oriented goals (e.g., Try to help other kids) and more performance-oriented goals (e.g., Try to beat other players) than their third and fourth grade counterparts. The nature of the function was different for boys and girls, describing an overall greater relationship orientation for girls.

While both of these studies used only sociometric status as a measure of social competence, there is also some evidence that children's constructions of goals in social situations govern molecular behavioral aspects of social competence. Dodge (1980) and Dodge and Frame (1982); in

a series of studies with boys rated by teachers, as aggressive or non-aggressive, found that aggressive boys attributed hostility to others and also responded to ambiguous situations with more hostile intention and behavior than their non-aggressive counterparts. Hostile intention was defined as the use of retaliatory startegies to ambiguous behaviors. That the aggressive boys had reason to overattribute hostility and formulate aggressive goals and strategies as a consequence of their learning history, was speculated. However, the important point in this context is that goals as well as strategies were associated with at least one behavioral aspect of social adjustment - aggression.

In summary, the studies which include measurement of social goals, directly or indirectly, have found prediction of social competence is aided. It is therefore unfortunate that this goal factor has not been more thoroughly investigated in relation to social competence. For instance, what is the normal range of goal types across different situation and age groups? More importantly, how valid are the goal categories so far developed for children's goals in naturalistic situations?

In some studies reported here, children have not been asked directly about their goals. Rather, investigators have inferred goals on the basis of the child's behavior. This can clearly lead to misinterpretation and is a dangerous practice when the object is to clarify how children construe situations and define problems. A child requesting an object may, or may not, have the goal of object acquisition. Alternative plausible goals for the same behavior are: beginning a game in the interests of friendship, being recognized, or dominating the other. It may be argued that children

cannot report their own goals without distortion. Nevertheless, this problem may be reduced with methodological innovations, such as the use of videotape prompts (Genest & Turk, 1981). Furthermore, with or without distortion, children's reported goals may be systematically related to aspects social competence, and therefore carry predictive validity.

One reason children have seldom been solicited for their goals may be the concern that verbal fluency will account for a great deal of the variance in goal statements. There is no evidence to support this line of thought, and much to refute it. Researchers in social cognition have repeatedly found that general intellectual ability, as well as verbal skills specifically, show either no relation or minimal relation to various social cognitive factors (see Shantz, 1983; Spivack, Platt & Shure, 1976). Furthermore, the meager relation between general ability, including verbal ability as measured by I.Q., and a variety of social-cognitive tasks, decreases from the pre-school to fifth grade level, accounting for only .01% of the variance at fifth grade (Rubin, 1978). It would appear that beyond a threshold level of general verbal ability, children's social cognitions are governed by other factors. Indeed, Renshaw and Asher (1983) and Taylor and Asher (1984) indicate that children from grade three on, had no difficulty understanding, and giving codable answers to questions about what they were trying to do.

In the limited number of studies where children are asked to give a goal, another impediment to validity occurs. This is that goals proffered are based on hypothetical situations. There is no known study which investigates children's goals-in-action as reported by the children

themselves. In view of the potential power of this social cognitive factor, such a study would be an important addition to the field.

In spite of the potential value of self-report on goals, some cautions must be exercised around the use of this method. Ericsson and Simon (1984) discuss two objections to the use of 'why' questions in research. The first relates to the likelihood that the subjects will generate, rather than recall or reconstruct, their thoughts. The second relates to the supposition that the answer to 'why' questions is not located in short term memory, but draws on previous episodes and response patterns. According to these authors, the problem of generation as opposed to reconstruction can be overcome by procedural methods which maintain the immediacy of the experience, and require explanations consistent with the details of the situation and context. Such an optimal condition is created by videotaping performance, and viewing performance in proximity to the actual event. The problem of reliance on more than short term memory need not be construed as a problem if the intent of the 'why' question is to probe for reasons formed in part from habit. The fact that short term memory is not sufficient to explain these reasons is not of concern if the purpose is to expose habitual tendencies and inclinations rather than the limited contents of short term memory.

2.6 Non-Cognitive Aspects of Social Competence

While there appears to be a positive relationship between various measures of social cognition and social competence, the strength of the

relationship remains uncertain. Multiple measures of social competence may partially help resolve the problem. In addition, it may be that the introduction of non-cognitive factors would elucidate the relationship. For instance, it is conceivable that the apparently more powerful social cognitive factors are also correlated with affective variables which, by themselves, could account for the greatest part of the observed effect. As suggested elsewhere (Renshaw & Asher, 1983; Rubin, Daniels-Beirness & Bream, 1983; Dodge & Frame, 1982) social cognitions are not unmindful of previous experience, and unsuccessful previous experience can govern such potent affective variables as anxiety and feelings of low self-efficacy. Indeed, it can be demonstrated that perceived self-efficacy for social behavior is associated with social competence as measured by sociometric status (Wheeler & Ladd, 1982). What is unknown is how such affective variables interact with the cognitive variables already discussed to account for social adjustment.

2.7 Summary

In summary, investigations of the relationship between social cognition and social competence have proceeded in an unsystematic manner. Pairs of promising variables representing aspects of social cognition and social competence, respectively, have generally shown the modest correlations expected. However, each variable has too often been studied in isolation from other potentially important variables in the same category. In addition, the potentially powerful motivational and affective variables mediating the relationship between social cognition and social

competence are conspicuously absent from most studies. To correct this, the model-building achievements of Ford (1982) and Dodge (1985) have been useful in both proposing multivariate descriptions of social cognition and social competence, and in attending to cognitive, motivational and affective variables. A new standard for investigation in this area has thus been set, and is comprised of multivariate approaches and further description of the range and importance of intriguing variables such as social cognitive goals.

CHAPTER 3

AIMS, METHODS AND PROCEDURES

3.1 Aims of the Investigation

3.1.1 Determining Children's Social Goals and Strategies from Play Material

One aim of this investigation was to determine whether children's social goals and strategies could be reliably coded from a dyadic play sample. In addition, the types and frequencies of different goals and strategies occurring in dyadic play were of interest. A major precept underlying the collection of goal and strategy data in this study was that it be ecologically defensible. Thus, not only was a typical play situation used for study, but also goals were coded from children's descriptions of what they wanted to happen rather than an observer's inference of the children's intentions. In short, a coding scheme which was as close as possible to the play was attempted. Goal codes for the investigation were taken from the codes developed by Taylor and Asher (1984). Strategy codes were taken from those developed by Krasnor (1984). To be considered to represent a systematic dimension, each category in the goal and strategy codes was required to display a Cronbach's alpha of greater than .70. To be considered robust to observation by different raters, both goal and strategy code assignments were to display inter-rater reliability, as measured by Cohen's kappa, of greater than .70 on average, across the three weeks of study.

As this type of data have not been collected previously, it was decided to simply display the frequencies and percentages of occurrence for reliable goal and strategy codes as a preliminary step to contributing to normative data.

Finally, as goals logically precede strategies, it was of interest how much knowing the children's goals actually reduced uncertainty in predicting strategies. Percent reduction in error in predicting strategies, if goals were known, was considered a useful index. Goodman and Kruskal's Tau was selected, as it can be interpreted in this fashion.

3.1.2 Identifying Changes in Social Goals and Strategies Associated with Length of Acquaintance

A second aim of the investigation was to determine whether a composite measure of goals and a composite measure of strategies showed any changes associated with the children's length of acquaintance. This was considered important since many studies in social cognition report age-related change. Age-related change in thinking about social relations might be confounded with the length of time children have been in such relations. For example, when children are promoted from grade to grade, they usually move as a group, changing not only in age but, simultaneously, in length of acquaintance with the same school mates. Since much social-cognitive research is school based, developmental changes cannot be distinguished form the effects of familiarity.

For this investigation, the composite measures of goals and strategies were each required to show a main effect of length of acquaintance which

could be expected by chance not more than 5% of the time to be considered significant ($p \leq .05$). No hypotheses about the nature of the effect were entertained, but any length effect was hypothesized to exist to independent of age.

3.1.3 Determining Contribution of Social Goals and Strategies to Multiple Measures of Social Competence

The final aim of this investigation was to determine whether the distribution of social goals and strategies, measured in the dyadic play, contributed to prediction of different social competence criteria. Although other measures of social cognition have been related to social competence criteria in the past, an activity-based measure which also accounts for children's stated goals, has not been investigated. It was considered important to do this because children's conception of a social goal for their own behavior is the logical antecedent to the more popular social cognitive problem-solving measures. Furthermore, goals-in-action and strategies-in-action carry greater ecological validity than goals and strategies as determined by questionnaire or hypothetical situation measures.

Other variables which have previously been related to social competence were also considered, to determine whether these augmented prediction over the focal social cognitive variables of the study. These other variables include: alternative solution thinking, feelings of self-efficacy, age, and position in the sib-line.

For the purposes of this study, it was decided to describe predictor variables in terms of the percent of variance accounted for in the different criterion social competence measures. The probability of that percent of variance occurring by chance was also to be reported. However, it is acknowledged that this significance level is applicable only under conditions of either random selection of participants or selection of all possible participants. In fact, only 73% of the possible participants were tested. Furthermore, the parameters of the entire group of children are quite unknown, making any inferences hazardous. Thus, probability levels are given primarily as an indicator to potentially interesting relationships and to augment the simple description offered by percent of variance accounted for figures.

3.1.4 Summary of Hypotheses

1. Children's goals and strategies can be reliably coded from a dyadic play sample. Reliability will be taken to be indicated by Cronbach's Alpha greater than .70 for individual codes, and average Cohen's kappa greater than .70 for inter-rater reliability across the three weeks.

2. Knowing children's goals will reduce uncertainty about children's strategies. No minimally desirable percent reduction of uncertainty is set to indicate a reduction to be reported.

3. A composite measure of children's goals will show an effect of length of acquaintance, independent of age. To be considered significant, this effect must reach the .05 level of probability.

4. A composite measure of children's strategies will show an effect of length of acquaintance, independent of age. To be considered significant, this effect must reach the.05 level of probability.

5. Knowing how children distribute goals and strategies in a dyadic game will contribute to the prediction of social competence variables. To be reported, a semi-partial correlation for these social cognitive measures, must reach .05 level of probability.

3.2 Method

3.2.1 Setting

The present study was conducted at a recreational summer camp operated by Scouts Canada. The camp accepted up to sixty boys per week, primarily members of Cub Scout groups in the Calgary region. The camp is best characterized as consisting of structured and unstructured group activities, from lessons in archery and other sports to free swim and tuck periods. Activity level is high.

The boys were assigned arbitrarily to groups by the camp administration, prior to their arrival on site. These pre-established groups of boys then shared activities, a tipi (where they slept at night) and two camp counselors who gave supervision and instruction. The camp counselors were high school and university students and adult employees or volunteers for Scouts Canada.

3.2.2 Procedures for Observing Social Goals and Strategies in Action

Due to the tight schedule of activities, and to respect the wishes of parents and camp administration that the study not interfere with activities, children were seen by the researcher and assistant during times when they were awaiting their turns at a few-at-a-time activity such as archery or B-B guns. Waiting boys were brought in pairs, chosen for closest age matches, to the study site located in a field adjacent to the shooting ranges. It was at this site that the focal measures of social goals and strategies were taken according to the following procedure.

The pair of boys was informed that the researcher was interested in how children played, and were invited to play a game at the site for 5 minutes. They were told that, if they agreed, they would be videotaped and then given the opportunity to watch themselves played back on the color T.V. monitor. All boys agreed to this procedure.

The game chosen for the study was Labyrinth, a dual control maze capable of being tilted along two planes so that a small ball could be negotiated from start to finish. The hazards of the game were holes in the path that needed to be avoided in order to continue. The game was sufficiently difficult that no child, or pair of children, succeeded in getting to finish. At the same time, it seemed to have high novelty and appeal to the boys. In this sense, it was assumed to provide a standard situation for all participants. In addition, dyadic, object-oriented games are familiar and common in children's play. No rules were available or necessary, and each pair of boys was told this was something for them to use in any way they wished.

Next, the boys were invited, individually, to view the videotape of their play. Each boy in the pair was interviewed by the researcher or assistant, who normally conducted the interviews simultaneously from duplicate videotapes. During the viewing, the videotape was stopped when a socially-directed behavior (SDB) occurred. The definition of a socially directed behavior (SDB) was provided by Krasnor (1984) and is: "A behavioral act directed towards another; social orientation is indicated by either: (a) a visual gaze directed towards another, or (b) an attention-getting verbalization (e.g., "hey" or "John") in close proximity to the behavioral act". When an SDB was identified, the interviewer then attempted to elicit a social goal. The SDB was pointed out and the child was told: "Children might do/say that for different reasons, why did you do/say that, there?" Alternative forms of enquiry to clarify the question were: "What were you trying to do when you did/said that?" and "What did you hope would happen when you did/said that to him?" The interviews were recorded on audiotape and form the data base for the coding of social goals and strategies. Due to time constraints and the potential problem of fatigue or inattention, interviews were terminated at 15 minutes, whether or not the child had reviewed the entire videotape.

The immediacy of the interview following the play was seen as desirable. An exception to this immediacy occurred when time ran out before the interview was begun, and children were expected to be at another activity. In every case however, the interview was conducted later in the day of the game, with a maximum interval of three hours between game and interview.

3.2.3 Procedures for Gathering Other Measures

At the end of the interview for eliciting social goals, children were given items from the Preschool Interpersonal Problem-Solving (PIPS) test (Spivack & Shure, 1974) in order to generate a measure of alternative solution thinking. The other two children's tests, one a sociometric and another a self-efficacy scale, were administered as prescribed on the final night of camp week. Each week, participating children were gathered in two separate groups, to ensure any group was not too big to identify children who needed help or clarification of the instructions. They were thanked for their participation in the game and interview earlier in the week and asked to help the researcher one more time by answering some questions. After the completed instruments were gathered, children were once again thanked by allowing each one a box of juice and miniature candy bar.

Also on the final night of each camp week, each participant's senior counselor was asked to complete a Teacher-Child Rating Scale of social competence for him. At this point, the counselor had known the child seven days. While this might be considered a short time in which to gain valid impressions of a child's social skill, the camp context allowed for more numerous and extensive observations than normally afforded in one week of school. Counselors observed boys' behaviors on a 24-hour basis.

3.3 Instruments

3.3.1 Social Cognitive Measure: Social Goals in Action

Boys' responses to goal-eliciting questions were assigned codes derived from a study by Taylor and Asher (1984). These researchers

developed a conceptual framework consisting of eight different goal types that they felt might characterize children's orientations in game-playing situations. Their questionnaire, with items representing each goal type, was factor analyzed to reveal four factors pertaining to: (1) performance orientation, (2) relationship orientation, (3) avoidance orientation and (4) rule-orientation. However, as the factor structure of the questionnaire may not reflect the orientations of children in action, seven of the original eight goal types were retained for the present study. The eighth goal type, task mastery, could not be reliably distinguished in a pilot study and was therefore dropped.

Following Taylor and Asher, the goal types are presented and defined in Table 1. An additional category for responses which could not be assigned to these codes was titled 'uncodable'.

Table 1

Goals

Performance Approach:	Example
Socially-Directed Behaviors whose purpose is to develop skill or excel for self.	"to keep playing game "to get ball further "to win "to have more/other chances "to make it fun as a game "to get compliments (on performance)
Performance Avoidance	
Socially-Directed Behaviors whose purpose is to avoid negative performance outcomes for self.	"discovered what not to do "didn't want to look bad at the game
Rule-Oriented	
Socially-Directed Behaviors whose purpose is to make sure the game is played by the rules.	"way it's supposed to be played "it's fair that way "equal chances (...no further elaboration re: other's benefit).
Relationship Approach	
Socially-Directed Behaviors whose purpose is to initiate or maintain positive vs or neutral interaction or relationship.	"see if he'd agree with me "wanted him to talk to me "more fun together "wanted him to do well
Relationship Avoidant	
Socially-Directed Behaviors whose purpose is to avoid negative interactions and relationships.	"so he wouldn't think I fouled him up on purpose "so he wouldn't boss me
Self Protection	
Socially-Directed Behaviors whose purpose is to protect oneself or retaliate.	"get him back for taking my ball "so I wouldn't get beat up
Dominance	
Socially-Directed Behavior's whose purpose is to dominate or control others (with no personal performance	"I wanted to be first (Q...) "I wanted him to follow me (Q... no further elaboration)

Each response was assigned one, and only one, code. For instance, a boy's explanation that he told his partner to take a turn because people are supposed to be fair and not to cheat, was coded as rule-oriented. If he had instead stated that he wanted to be fair so that his partner would like him, the response would have been coded relationship approach. Thus, in the case of two goals, the salient or higher order purpose was coded, although in fact multiple goals were quite rare in the interviews.

The total number of occurrences of each code in each boy's interview protocol was summed to give a measure of frequency of the goal's use. Thus, a protocol of goal statements, might show, for example, relationship approach goals as most frequent, less frequent performance approach goals, and no other goals. The number of different goals was also expressed as a proportion of the total number of goals given. As determining the reliability and usefulness of this coding scheme was one of the aims of the study, reliability coefficients and evidence of predictive utility are presented in the Results section.

3.3.2 Social Cognitive Measure: Social Strategies in Action

For each socially-directed behavior which was the focus of goal enquiry, strategy was also recorded. The coding scheme selected for assigning strategy codes was developed by Krasnor (1984) for use with pre-school children. Nevertheless, the verbal and non-verbal behaviors described in the coding scheme appeared to have more general utility and were suggested by sociolinguistic research (for verbal strategies) and ethological research (for non-verbal strategies), according to Krasnor and Rubin (1983). Strategy codes are listed and defined for purposes of this study in Table 2.

Table 2

Strategies

Verbal	
Directives	
Verbal Socially-Directed Behaviors which direct other's behavior.	"Your turn/my turn "Go/stop/Get ready/OK, ready! "Try to do it (certain way) "I get the ball now/Let me go now
Suggestions	
Verbal Socially-Directed Behaviors which invite consideration of proposition or want.	"Let's start at finish "Let's do it together "You could slow down
Statements	
Verbal Socially-Directed Behaviors which declare something.	"I hate bugs "It's not easy "I only got to #3. "Another kid I played with got to 26.
Question	
Verbal Socially-Directed Behaviors which request information	"Where's the other ball? "Did you go to this camp before?
Non-Verbal Strategies	
Orienting	
Actions which direct attention to object, event or person.	shows route on game
Agonistic	
Use of force directed at object or person	pushes others hand away grabs game from others hands; grabs hat from other
Affiliative	
Position, non-forceful contact	touches other hugs other

Each socially-directed behavior which was also the focus of goal enquiry, was assigned one, and only one, strategy code. Multiple simultaneous strategies occurred occasionally, in which case the most salient was recorded. For instance, if a boy pushed the other's hand away and said "no you don't!", this was coded as an agonistic strategy. The total number of occurrences of a code in each boy's protocol was summed to give a measure of frequency of the strategy's use. Boys generally displayed a variety of strategies, and different protocols would show different numbers of, for example, statements, directives and orienting strategies. This measure was also expressed as a proportion of the total number of strategies used. Since determining the reliability and usefulness of this coding scheme was one of the aims of the investigation, reliability coefficients and predictive utility are presented in the Results section.

3.3.3 Social Cognitive Measure: Alternative Solution Thinking

One hypothetical situations measure was also selected. Following Spivack and colleagues (Spivack & Shure, 1974; Spivack, Platt & Shure, 1976) the boys were asked to give as many solutions as they could to social problems. Two problems from the Pre-school Interpersonal Problem-solving (PIPS) test were given. Other researchers have found that the entire test is not necessary in order to differentiate children's social competence (Rubin, Daniels-Beirness & Bream, 1983; Asarnow & Callan, 1985; Richard & Dodge, 1982). In addition, this short test was practical as time was at a premium. The boys were asked to generate solutions for getting to play

with a toy that another child was playing with, and avoiding mother's displeasure after having broken something valuable. The total number of different solutions across these problems was the boy's alternative solutions score. A different solution was defined by a substantial change in the type of action. Thus, 'help mother with something' and 'help set the table' were not regarded as different solutions. On the other hand 'help mother with something' and 'apologize' were regarded as different solutions.

3.3.4 Non-Cognitive Measure: Feelings About Self-Efficacy

In order to tap the boys' feelings of self-efficacy in social situations, the Children's Self-Efficacy for Peer Interaction (CSPI) test was administered.

This 22-item test contains brief descriptions of common social problems. Children are asked to indicate, on a 4-point scale, how easy or hard employing a given solution is. The CSPI shows good construct validity, as indicated by negative and significant correlations ($p < .01$) with the anxiety sub-scale of the Piers-Harris Self Concept Scale. Correspondingly, positive and significant correlations ($p < .01$) are reported with peer ratings of social influence and teacher ratings of social efficacy. Test-retest reliability over a 2-week period is reported at .80 and .90 for girls and boys, respectively. Internal consistency of the scale is given by a Cronbach's alpha coefficient of .85 (Wheeler & Ladd, 1982). For the purposes of this study, an overall CSPI score was computed for each participant, as described by Wheeler and Ladd.

3.3.5 Descriptive Factors

Boys' ages were calculated in months. Previous research had found age to interact with social goals (Renshaw & Asher, 1983; Taylor & Asher, 1984; Gottman & Parkhurst, 1980) social problem solving (Spivack et al., 1976), and feelings of self-efficacy (Wheeler & Ladd, 1982), in effecting various measures of social competence.

It was also hypothesized that two other factors may interact with the cognitive and socioemotional factors already outlined. These are: length of acquaintance and sibling position. The first of these factors, length of acquaintance, appears to have revieved no previous consideration in relation to changes in children's goals and strategies. However, in reviewing recent research describing the development of close relationships between adults, Huston and Burgess (1979) postulate a series of changes which imply an increased focus on the goal of maintaining the relationship (p.8). If there are similar changes in children's goal orientations, and their strategy preferences, there may be an independent length of acquaintance factor in social cognition which has been confounded with age changes.

If class or play groups of older children have also known each other longer, any effect of age may be partially due to length of acquaintance. In the present study, the boys were assumed not to have any previous acquaintance as they were drawn from a large number of Cub Scout groups and were randomly assigned to tipi groups. Due to the structure of the camp, videotaping and interviewing for social cognitive measures was conducted on the second and fifth days of the camp period. Thus, the length of acquaintance was either one day of living together or four days of living together. While this 3-day discrepancy might be small in other contexts,

the intensity of the living situation would suggest otherwise. Indeed, unsolicited verbal reports were received from children videotaped and interviewed on day five, but not on day two, to the effect that new forms of address and approach had been evolved. Or, in the words of one of the participants: "Our tipi likes to kid around. We joke with each other by telling the other guy how crazy he is and by doing crazy things (ourselves)." Length of acquaintance was recorded as a dichotomous variable in the present study.

Limited previous research was found which documented the effect of sibling position on social cognition or social behavior. Roff, Sells and Golden (1972) examined birth order and peer status variables for approximately 3,000 school children. They found no significant differences in peer status across birth order position except for middle children among four or more, who had lower peer status. There were, however, no controls in this analysis for socioeconomic status or intelligence.

Contrary to these results, another large scale study of 1,750 children by Miller and Maruyama (1976) found a clear distinction between first-born and later-born children, with later-born children rated as more preferred playmates. This study controlled for family size. Further, with respect to socioeconomic status, the authors point out that with family size controlled, the negative association between lower socioeconomic status and social desirability would in fact mitigate against their finding of later-born children being more popular. Lower socioeconomic status would be expected to be over-represented among the later-born children and therefore reduce their social desirability.

In spite of the absence of a clear relation between birth order and social competence, it may not be unreasonable to assume that, since many

social behaviors develop in the family, position in the family would have a bearing. The child with older siblings could be assumed to have an enriched social learning environment, to the extent that models close in age are available. Further, there is some evidence that non-first borns are less anxious and less quick to reach closure on identity (Rosenberg, 1982), possibly pre-disposing them to be more flexible and varied in their social behavior, a hallmark of social competence according to some (Krasnor & Rubin, 1981).

Although any main effect of sibling position would be expected to interact with gender, spacing, and other unavailable familial variables (Sutton-Smith, 1982) it was considered a low cost procedure to simply collect birth order data, to attempt to detect a relationship to social competence. Thus, sibling position was entered as an ordinal variable in the present study.

3.3.6 Social Competence: Sociometric Status

Sociometric status was selected as one measure of social competence. Apart from the tautological reason that social acceptance bespeaks social acceptability, there is also a burgeoning body of research tying sociometric status to effective and non-aggressive interactive behaviors (Gottman, Grasso & Rasmussen, 1975; Rubin & Daniels-Beirness, 1983; Rubin, 1983; Asher, 1983; Putallaz, 1983; Coie & Kupersmidt, 1983; Dodge, 1980). The measurement strategy selected for this study is the roster and rating scale instrument developed by Singleton & Asher (1977). This instrument has the advantage of being positively oriented. Children are asked to say, on a 5-point scale, how much they like to play with listed others. The end

points of the scale are: not at all, and very much. No peers can be forgotten as the instrument gives their names in roster format (see Appendix A). Each boy's sociometric score is the average (mean) of the ratings he receives from his peers.

3.3.7 Social Competence Measure: Teacher-Child Rating Scale (T-CRS) Part II

This instrument is a revised scale developed by the Rochester Primary Mental Health Project (Hightower, Spinell & Lotyczewski, 1984) and fashioned on the Health Resources Inventory (Gesten, 1976). The high indices of reliability and validity support its use as a quick screening measure of social competence. The internal consistency of each of the three social competence scales composing the test, as measured by Cronbach's alpha coeffecient, is high, ranging from .90 to .95 in different samples. As expected, test-retest stability coefficients after 10 or 20 week intervals, were somewhat lower, ranging from .64 to .91, in different samples. The predicted positive associations with parent-rated competence and a measure of self control were significant at or above the .05 level. The predicted negative associations with an anxiety measure were significant, at or above the .001 level. The T-CRS discriminated successfully between children who were referred for mental health problems and non-referred children.

This measure has not been previously applied to a recreational group of children, with counselors rating the children on the social competence items. Nevertheless, it seemed reasonable to surmise that the ratings would be of similar value for the present study. In common with the

school-based standardization samples, a group of same-aged children was engaged in structured activities, supervised by an instructor. The instructors in the present study were camp counselors. Although often younger and less experienced than teachers, these counselors had ample opportunity to observe the group of 10 boys for which each was responsible, in a variety of situations and activities daily, from rising to bedtime. Furthermore, the social competence items on the scale, such as: copes well with failure, faces the pressure of competition, and comfortable as a leader, are eminently applicable to the recreational setting here described (see Appendix D). However, as there were also subtle differences in the nature of the structured activities, the authoritative structure of the organization, and as the test group in the present study were assumed to be more homogeneous according to socioeconomic status, the data from the present study were analyzed for reliability and factor structure, as applicable to this setting, before proceeding to use the data. The results are presented in the Results section.

The validity of social competence ratings on the T-CRS has a limiting factor which can best be encapsulated as the problem of projection. That is, counselors may rate children not only on their actual behavior but also on the counselors' interpretations of their behavior; interpretations which are reflective of personality characteristics of the counselors. This problem is endemic in the use of rating scale scores which have not been cross-validated with other raters or sources of measurement. Fortunately, the T-CRS has been satifactorily cross-validated with self-report anxiety measures, parent ratings, teacher-rated self-control and adaptive skills. (Hightower, Work, Cowen, Lotyczewski, Spinnell, Guare & Rohrbeck, 1985). Unfortunately, counselor ratings have not been subjected to such

multi-trait, multi-method cross-validation. Therefore, some uncertainty remains as to whether projection may enter into the children's scores in this study. Nevertheless, this can be taken to be minimal if the overlap with factor structure of teacher ratings is substantial.

3.3.8 Social Competence Measure: Number of Socially Directed Behaviors

This is an index of the amount of social initiative occurring in this sample of novel, dyadic, game-oriented play. The measure is a simple frequency count for a 5-minute game playing interval. Socially directed behaviors were defined following Krasnor (1984) as: "A behavioral act directed towards another; social orientation is indicated by either (a) a visual gaze directed towards another, or (b) an attention-getting verbalization (e.g., "hey" or "John") in close proximity to the behavioral act". Examples of SDBs in this study are comments about the game ("hey, I got past the corner") and grinning and smiling to the other. Socially-directed behaviors (SDBs) were counted from the videotape. Independent counts were done by the researcher and assistant for 20 randomly selected boys' tapes. As recommended by Hollenbeck (1978) for observational measures, an assessment of reliability which partitions observer and between subjects measures, was then computed. Cronbach's alpha coefficient was therefore calculated on the 20 randomly selected boys' tapes. The result of .92 indicates that a systematic SDB dimension exists and that disagreement on its occurrence is attributable to observer error. Actual inter-rater agreement, as measured by simple percent agreement was satisfactory at 82% for all weeks of the study, and ranged from 68% to 90% in different weeks.

The inclusion of this measure in the present study as an index of

social competence is based on the assumption that a social behavioral initiative reflects previous social success. Indirect support for this position comes from Ford (1982) who reports that affirmative answers on a questionnaire about the desire to get involved with others contributes to the prediction of a multivariate social competence index. Behavioral studies, however, are equivocal on the issue, with findings that popular children initiate less (Dodge, 1983; Dodge, Coie & Brakke, 1982) as well as findings that they initiate more than non-popular children (Dodge, Coie & Brakke, 1982). The latter study, showing both results, gives a plausible explanation for the discrepancy. Popular children are shown to initiate more on the playground, but less in class. In other words, there is stimulus control of the social initiations of popular children. The same stimulus control effect is documented by Rubin and Daniels-Bierness (1983) who note that popular grade one children are more interactive in free time than popular kindergarten children. They interpret this to mean that as the demands for individual task orientation increase in grade one, the apportionment of interaction to non-academic time also increases.

The context of the present study is akin to a playground situation, where social initiation is appropriate. Therefore, for the purposes of this study, amount of socially-directed behavior is construed as one measure of social competence.

3.4 Subjects

Ninety-six boys attending summer camp participated in all aspects of the study. A larger number was anticipated, but either did not show up,

went home ill, or left camp early for family holidays. The boys' ages ranged from 7 years, 8 months, to 11 years, 4 months, with an average age of 9 years, 11 months. The study was limited to boys, as some previous studies had pointed to gender differences in social cognition (Taylor & Asher, 1984; Ford, 1982; see also Shantz, 1983), social competence as measured by peer ratings (Dodge, McClaskey & Feldman, 1985) or the relationship between social cognition and peer ratings of social competence (Ladd & Oden, 1979; Ollendick, Francis & Hart, 1985).

It was assumed that these boys represented middle class socioeconomic status, since the camp fee of $115 to $135 per week was not subsidized. In addition, the membership of most of the boys in Cub Scouts, and their family addresses, suggested lower class boys were excluded. This is important, as low socioeconomic status has occasionally been correlated with social competence deficiencies, (Spivack & Shure, 1974).

All boys attending Cub Scout camp for one or more weeks during the month of July were included in the study if parental permission had been received. Of all potential participants, parental permission was received for 73%. This figure may have been higher if it had been possible to reach all parents to explain the study by telephone, as intended and stated in an introductory letter (see Appendix B). As it was, each child's home was telephoned at least twice, but often a parent was not reached before camp began. There is no reason to believe that the parents who were not home when telephoned had children who were distinctive with respect to the purposes of this study. The actual number of consents received was 121. Consent was explicity denied by only two sets of parents. This is taken to mean that the consequences of less than full participation were minimal.

3.5 Statistical Treatment

The statistical treatment planned for the data is discussed in the context of the three primary aims of the investigation as follows.

3.5.1 Statistical Treatment of the Nominal Data of Goals and Strategies

For the purposes of contributing to the development of a normative data base describing children's goals and strategies in dyadic object-oriented play, a simple frequency count for each goal and strategy occurrence summed across all children was planned. In addition, relative frequencies of different goals and strategies were planned to be indicated by percentages of the total frequencies of goals and strategies. As children differed in the number of goals and strategies, it was decided that reporting means and dispersions for each code could be unduly influenced by the more productive children. That is, some children more readily gave explanations or had more SDBs to explain. Thus, protocols contained between 3 and 30 pairs of goals and strategies. Consequently, it was decided to report proportional use of different goals and strategies for each child, and to give the mean proportion across all children. It was not intended to use any inferential methods with the above nominal data, since the study was intended as an exploratory one for describing social cognition in a special manner.

As a specific focus of the investigation was to determine the reliability of goal and strategy codes, it was planned to report three types of reliability. To attest to the presence of a systematic dimension within the code category, a Cronbach's alpha was to be calculated on each code. Satisfactory uniformity in the code was to be indicated by an alpha

greater than .70. To attest to inter-rater agreement, two measures were to be calculated. The critical and most stringent measure was to be Cohen's kappa, and was required to be greater than .70. Simple percentage agreement, calculated by dividing number of agreements by number of observations (X 100), was also to be reported for the interest of other researchers.

Finally, the relationship between type of goal and type of strategy was to be reported using Goodman and Kruskal's Tau. This measure was selected because its asymmetrical nature lent itself to directional interpretation of goals as effecting or constraining strategies. Furthermore, Tau is recommended for use when marginal distributions are skewed, as turned out to be the case (Reynolds, 1977). In addition, interpretation is facilitated by its percent reduction in error meaning.

3.5.2 Statistical Treatment of Differences between Length of Acquaintance Groups

Since groups of boys who did not differ in any known way participated in the videotaping and goal-eliciting interview at two separate times during the week, these two groups were taken to represent length of acquaintance factor. To test the hypotheses that length of acquaintance effected (1) a composite measure of goals and (2) a composite measure of strategies, two MANCOVA analyses were planned, with age as a covariate in each case. MANCOVAs were selected to reveal group differences where there was no reason to expect that particular goals and strategies would be singly affected by length of acquaintance. Further, as the dependent variables in each analysis were considered related aspects of social

cognition, or different ways of expressing goal or strategy preferences, composite measures were considered preferable to separate dependent variables. The use of age as a covariate was intended to statistically adjust for expected age effects on these social cognitive measures (Taylor & Asher, 1984). As no direction of difference was predicted, a two-tailed test of significance was to be conducted. In the event of differences in reported significance levels for effects among the four methods available in SPSS^X, Wilks' Lambda analysis was proposed.

3.5.3 Statistical Treatment of Prediction of Social Competence from other Variables

As a major argument underlying this investigation has been that measures of social competence are not interchangeable, each measure taken in this study was investigated separately. For each measure, the essential question was: how much of the variance could be accounted for by (1) the action-based social cognitive measures and (2) other social cognitive, affective and descriptive variables? Given the particular focus on action-based measures of social goals and strategies, these were to be entered on the first two steps in a hierarchical multiple linear regression equation. That is, the action-based measures were considered most important, therefore any variance in social competence associated with them was to be extracted first. Maximizing the contribution of these social cognitive measures was considered justifiable in an exploratory study.

To address the question of whether the kinds of goals and strategies held by the boys affected social competence, it was considered desirable to eliminate differences among boys due to productiveness. Therefore, the

proportion of each type of goal or strategy relative to the total number of goals or strategies used by the subject was to be recorded. Further, since the question was whether different goals and strategies affected social competence (as opposed to how specific goals and strategies affected social competence), each set was to be entered as a block. That is, all goal proportion scores were considered ways of expressing goal preference, and therefore sub scores of one variable . Similarly, all strategy porportion scores were considered ways of expressing strategy preference and sub-scores of the strategy variable. Consequently, the variance contributed by the goal and strategy blocks was of primary concern.

Results were to be interpreted in light of the semi-partial correlation, (sr^2), the amount of variance added to R^2, by each additional step. It was decided to report probability levels for the variance which was added in each step. However, as probability statements require the assumption of random selection , and as there is no specific hypothesis about the amount of variance which can be explained by the measures in this study, inferential statements about the likelihood of this sized effect, are inappropriate.

CHAPTER 4

RESULTS

Data for all variables of interest were entered manually into tables and subsequently into a computer for analysis. Using appropriate sub-programs of SPSS^X, distribution of these variables was examined by requesting means and measures of dispersion. Where it became necessary to meet the assumptions for subsequent analyses, variables were tested for skewness, and skewed variables were transformed by methods reported at revelent points in this section. The original and transformed variables, together with information on their distributions, are presented in Table 3.

As relationships between all pairs of variables are of potential interest, the correlation matrix, where all variables are in their original, untransformed state, is presented in Table 4.

4.1 Goals and Strategy Coding

As planned, the coding schemes for goals and strategies were examined for absolute and relative use of code categories, for reliability, and for strength of association between goals and strategies.

4.1.1. Frequency, Proportions and Reliability of Goals Recorded

The frequency of occurrence of different goals and strategies influenced the collapsing of the original coding schemes into fewer

TABLE 3

Distribution of Variables Used in Analyses

Variable Name	N	M	S.D.	Range	Transformed Variable	N	M	S.D.	Range
Socially directed behaviors on videotape	96	17.65	6.41	6 - 37.00	Square root socially directed behaviors on videotape.	96	4.13	.75	2.45 - 6.08
Socially directed behaviors in interview	85	10.53	4.53	3 - 24.00					
Proportion of performance goals	85	.42	.23	0 - 1.00					
Frequency of performance goals[1]	85	4.41	2.93	0 - 16.00	Square root frequency of performance goals	85	1.96	.76	0 - 4.00
Proportion of relationship goals	85	.38	.23	0 - 0.87					
Frequency of relationship goals	85	4.27	3.43	0 - 14.00	Square root frequency of relationship goals	85	1.85	.93	0 - 3.74
Proportion of rule-oriented goals	85	.11	.14	0 - .67					
Frequency of rule-oriented goals	85	1.01	1.38	0 - 8.00	Log 10 frequency of uncodable goals	85	.17	.22	0 - .78
Proportion of directives	85	.32	.23	0 - 1.00					
Frequency of directives	85	3.15	2.22	0 - 9.50					
Proportion of suggestions	85	.10	.14	0 - 0.75					
Frequency of suggestions	85	.95	1.06	0 - 3.50	Square root frequency of suggestion	85	.71	.67	0 - 1.90
Proportion of statements	85	.44	.24	0 - 1.00					

Distribution of Variables Used in Analyses - Table 3 Cont'd.

Variable Name	N	M	S.D.	Range	Transformed Variable	N	M	S.D.	Range
Frequency of statements	85	5.03	3.90	0 - 19.00	Square root frequency of statements	85	2.03	.96	0 - 4.36
Proportion of questions	85	.09	.10	0 - 0.50					
Frequency of questions	85	.93	.90	0 - 3.50					
Proporiton of orienting	85	.03	.06	0 - 0.27					
Frequency of orienting	85	.31	.61	0 - 2.75					
Variety of goals (number of different goals)	85	3.19	.92	1.00 - 6.00					
Variety of strategies (number of different strategies)	85	3.38	1.06	1.00 - 6.00					
CSPI score	89	59.57	11.30	37.00 - 87.00					
Sociometric score	94	3.44	0.76	1.00 - 5.00	Square root sociometric score	94	1.84	.22	1 - 2.24
T-CRS score	92	72.49	13.66	42.00 - 104.00					
Frustration tolerance factor score	92	0.00	.88	-1.81 - 2.04					
Assertiveness factor score	92	0.00	.87	-1.76 - 1.69					
Age (in months)	93	118.46	9.67	92.00 - 136.00					
Alternative solutions score	85	6.06	1.87	3.00 - 12.00					

[1] Frequency of goals and strategies was determined by multiplying the proportion score, rounded off to three decimal places, by the number of socially directed behaviors in the interview. That is, the original data was recorded in the computer as proportion scores. Therefore, the range values for some goals and strategies do not appear as whole numbers due to rounding errors.

TABLE 4 – CORRELATIONS BETWEEN UNTRANSFORMED VARIABLES

		VIDEOTAPE SDB'S	INTERVIEW SDB'S	GOALS SET: p. PERFORMANCE	p. RELATIONSHIP	p. DEFENSIVE	p. RULE ORIENTED	p. UNCODABLE	VARIETY GOALS	STRATEGIES SET: p. DIRECTIVE	p. SUGGESTION	p. STATEMENT	p. QUESTION	p. ORIENTING	VARIETY STRATEGIES
	VIDEOTAPE SDB'S		.699**	.054	.179	.124	-.243*	-.148	.173	.039	-.120	.193*	-.113	-.158	.240*
	INTERVIEW SDB'S			-.036	.237*	.160	-.167	-.195*	.382**	-.216*	-.218*	.403**	-.092	-.001	.483**
GOALS SET	p. PERFORMANCE				-.707**	.114	-.392**	-.147	-.279**	.371**	.150	-.351**	-.036	-.087	.162
GOALS SET	p. RELATIONSHIP					-.182*	-.082	-.335**	.143	-.515**	-.019	.501**	.026	.198*	-.027
GOALS SET	p. DEFENSIVE						-.022	-.064	.240*	-.040	.017	.120	-.088	-.147	.135
GOALS SET	p. RULE ORIENTED							-.197*	.094	.138	-.082	-.085	.130	-.039	-.036
GOALS SET	p. UNCODABLE								.089	.101	-.141	-.181*	-.088	-.112	-.220*
	VARIETY GOALS									-.127	-.088	.266**	-.097	-.072	.781**
STRATEGIES SET	p. DIRECTIVE										-.148	-.684**	-.226*	-.193*	-.125
STRATEGIES SET	p. SUGGESTION											-.366**	-.021	-.019	.055
STRATEGIES SET	p. STATEMENT												-.161	.029	-.040
STRATEGIES SET	p. QUESTION													.047	.168
STRATEGIES SET	p. ORIENTING														.433**
	VARIETY STRATEGIES														

TABLE 4 (CONT'D) – CORRELATIONS BETWEEN UNTRANSFORMED VARIABLES

		CSPI	SOCIOMETRIC	T-CRS	AGE	SIB. POSITION	LENGTH ACQUAINTED	FACTOR 1 (FRUSTRATION)	FACTOR 2 (ASSERTIVE)	FACTOR 3 (PERSISTENCE)
	VIDEOTAPE SDB'S	–.069	.117	.082	.057	.122	–.014	–.124	.175	.030
	INTERVIEW SDB'S	.049	.174	.073	.108	.144	.210•	–.028	.083	.051
GOALS SET	p. PERFORMANCE	–.083	–.132	–.057	–.123	.167	–.378••	–.032	–.095	–.024
GOALS SET	p. RELATIONSHIP	.037	.010	.050	.112	–.193•	.343••	–.031	.098	–.033
GOALS SET	p. DEFENSIVE	.088	–.022	.035	.039	.193•	–.009	.049	–.086	.061
GOALS SET	p. RULE ORIENTED	.114	.104	–.001	.065	–.055	.101	.035	.024	–.025
GOALS SET	p. UNCODABLE	.179	–.036	.005	–.049	.045	–.036	.046	–.005	.114
	VARIETY GOALS	–.004	.057	–.014	.170	.009	.299••	.010	.013	.116
STRATEGIES SET	p. DIRECTIVE	.078	–.025	.200•	.255••	.130	–.079	.089	.126	.103
STRATEGIES SET	p. SUGGESTION	.159	–.317••	–.181	–.159	–.034	–.218•	.046	–.102	–.313••
STRATEGIES SET	p. STATEMENT	–.179	.146	–.080	.023	–.081	.207•	–.122	–.102	.036
STRATEGIES SET	p. QUESTION	–.058	.015	–.046	–.255••	–.055	–.079	.063	–.047	–.080
STRATEGIES SET	p. ORIENTING	–.007	.080	–.016	–.108	–.140	.260••	–.019	.015	.020
	VARIETY STRATEGIES	–.049	–.007	–.046	.028	–.032	.178	–.068	.058	.043

TABLE 4 (CONT'D) – CORRELATIONS BETWEEN UNTRANSFORMED VARIABLES

	CSPI	SOCIOMETRIC	T-CRS	AGE	SIB. POSITION	LENGTH ACQUAINTED	FACTOR 1 (FRUSTRATION)	FACTOR 2 (ASSERTIVE)	FACTOR 3 (PERSISTENCE)
CSPI		–.091	.001	–.088	.166	.106	.101	.068	–.155
SOCIOMETRIC			.219*	.231*	–.052	.132	.078	.099	.283**
T–CRS				.097	–.008	.208*	.722**	.492**	.523**
AGE					–.071	.146	–.134	.145	.150
SIB POSITION						–.087	–.067	.087	.014
LENGTH ACQUAINTED							.128	.007	.286**
FACTOR 1 (FRUSTRATION)								–.001	.186*
FACTOR 2 (ASSERTIVE)									.071
FACTOR 3 (PERSISTENCE)									

$p \leq .05$*

$p \leq .01$**

categories and is therefore reported first. Of the 96 boys interviewed, 89 interview protocols were coded due to technical errors in the recording of the remaining 7 interviews. The discarded interviews were unintelligible or unavailable due to the tape failing to advance or the termination of the audiotape without the interviewer's noticing. As previously noted, this frequency count is based on the amount of videotape reviewed with the child in the allotted time of approximately fifteen minutes. On average, this accounted for 60% of each child's socially directed behaviors. As there was no change in the situation or partner throughout the videotaped situation, there is no reason to believe that goals or strategies for these behaviors differed from the goals or strategies for the behaviors which were not the subject of the interview. Indeed, both the interview protocols and the videotapes contain considerable repetitiveness in each child's behaviors, and explanations of behaviors, in this context. A sample interview protocol is given in Appendix C as an illustration.

When the goals coded are pooled across children, it is possible to observe the absolute and relative frequencies of different goals. Note that the original data for Tables 3 & 4 consisted of proportion of the total that each child used certain goals. The decision to record proportion scores was taken in order to compare boys' orientations irrespective of their productivity. Actual frequencies occurring in interview protocols were calculated later and are reported in Table 5. In addition, the unweighted mean proportion is given to indicate, on average, proportionally how often a goal was used.

Table 5

Goal Frequencies,Percentages & Mean Proportions Across All Boys

Goal	Frequency	Percent	Mean Proportion
Performance-oriented	414	42.9	.43
Relationship-oriented	389	40.3	.38
Rule-oriented	89	9.2	.10
Defensive	9	.9	.01
Uncodable	63	6.5	.08

Performance-oriented goals, including the seeking of positive performance appraisals (Performance Approach)and the avoiding of negative performance appraisals (Performance Avoidance) account for 42.9% of these boys' socially-directed behaviors. Performance-oriented goals given by boys in this study included: "getting a chance to play", "getting further (along the maze)" and "finding out how not to lose". The second most frequently reported goal is Relationship-orientation, including the seeking of positive or neutral interactions (Relationship Approach) and the avoiding of negative interactions (Relationship Avoidant).

Relationship-oriented goals given by boys in this study included: "helping him, 'cause he's my friend", "getting him to talk to me" and "letting him know I didn't foul him up on purpose". The third most frequent goal, but trailing far behind the first two at 9.2% is Rule-orientation, the seeking of rule abiding. Rule-oriented goals given by boys in this study included: "letting him know about the rules" and "being fair, no cheating". A number of goal-statements (6.5%) could not be coded because the boys either said they didn't know or rambled on tangential subjects. The relatively small number of uncodable responses would appear to attest to the understandable and relevant nature of the questions about why socially directed behaviors occurred, for these boys. Finally, Defensive goals reflecting wanting to dominate or control (Dominance) or protect self (Self-Protection) were quite infrequent at less than 1% in this context.

The collapsing of seven original categories into the five reported is a consequence of both the more useful heuristic categories and the extremely small number of responses in the three original categories of Performance Avoidance, Relationship Avoidance and Self-Protection. The avoidance of negative performance appraisals and relationships appeared to reflect the same intent as the seeking of their opposites. The single Self-Protection response coded, "so he wouldn't hit me", occurred in a protocol with two Dominance responses ("so I could be first" and "show him who's boss"), suggesting a Defensive interpretation would have greatest heuristic value. That is, the co-occurrence of taking care of self-interest by protecting and taking care of self-interest by dominating both defend against others' interests taking precedence.

When goal frequencies in each boy's protocol are considered as porportions, thereby allowing for different amounts of goal activity among the boys, it becomes possible to examine the mean proportion of goals of different types across all boys. These figures, as displayed in Table 5, indicate that the order of preference for goal use is: Performance orientation, Relationship-orientation, Rule-orientation, uncodable, and Defensive-orientation.

Three methods of assessing reliability were used. Following Hollenbeck's (1978) recommendation, and Putallaz's (1983) example, code categories were first assessed for the relative amounts of variance between and within observers. For this purpose, 20 randomly selected protocol pairs were coded by both the researcher and assistant. Cronbach's alpha coefficients for the goal codes ranged from .48 to .97 as reported in Table 6. Generally high coefficients indicate that differences in coding are due to error in the raters' assignment of codes and not due to systematic variation in the coding scheme.

Only the Defensive code failed to demonstrate adequate reliability. This may have been partially due to the small number of observations in this category. Nevertheless, the Defensive code was removed from consideration in further analyses.

The interobserver reliability was then assessed on the same 20 protocol pairs, using both percent agreement on codes and Cohen's Kappa statistic. In order to calculate these values, contingency tables were

Table 6

Goal Code Reliability

Goal	Cronbach's alpha coefficeint
Performance orientation	.92
Relationship orientation	.97
Rule orientation	.96
Defensive	.48
Uncodable	.86

manually prepared from the two raters' coding of goals. Each SDB was entered into that cell of the contingency table defined by the intersect of the first and second observers' goal assignment. The Cohen's Kappa statistic is more stringent, as it takes marginal values in the contingency table into account. As the 20 protocols originated from different weeks, separate analyses are reported for protocols within each week, as given in Table 7.

Table 7

Interrater Reliability For Goals

	% agreement	Cohen's Kappa
Week 1	84%	.82
Week 2	80%	.68
Week 3	86%	.80

Finally, an attempt was made to investigate the stability of the children's goals, for the same game-playing situation, over time. This was possible since some children attended two or more weeks at camp, and could participate in the study twice. Unfortunately, the repeaters at camp were grouped together by the camp administration and therefore the pairs of players were not naive to the procedure. Although the boys were happy to play the game again, they tried to avoid the interview. Each pair of non-naive boys conspired together not to talk during the game, so that they could get back to the shooting ranges as quickly as possible! Although they were not uniformly successful in curtailing their speech entirely, and they were nevertheless interviewed about their non-verbal socially directed behaviors, the resulting protocols were considered a poor 're-test' measure, as the boys' motivation and construal of the situation was clearly

altered by the procedure itself. Therefore no measure of stability is reported.

From the results reported, it is clear that these boys were able to use a videotape prompt to report the rationale behind their social behavior. As a group, they had little difficulty with this task, seldom claiming that they didn't know or giving irrelevant responses. The probe questions for the coding scheme were comprehensible to the boys. As indicated by generally high reliability coefficients, the codes were uniform and capable of generating similar scores when used by trained observers.

4.1.2 Frequencies, Proportions and Reliability of Strategies Recorded

Boy's strategies were coded from the audiotaped description of the videotaped play, and this description was incorporated into the interview. Thus, the strategies are subject to similar constraints as reported for goals. That is, only those strategies that matched behaviors about which the boys were interviewed, were recorded. This format was adopted to later examine the strength of association between goals and strategies. The frequency of occurrence of different strategies is reported for the pooled group of children and given in Table 8. As noted for goals, strategies were initially recorded as proportions of each child's total, in order that strategy preference could be examined across boys without respect to productivity. By the same rationale, unweighted mean proportions are given to indicate strategies that are preferred when each child's preferences contribute equally.

Of the original eight strategy categories, only seven are reported. The eighth category, Affiliative, did not occur. The most frequent strategy is making Statements to one's partner at 49.3% of all strategies. Statements made by boys included: "My brother's friend got to the end (of the maze)", "sorry, I did try" and "You're cheating". The second most frequent strategy at 28.2% is being Directive to the other. Directives used by boys in this study included: "It is so my turn!" and "Give me the other ball". Suggestions and Questions, 9.1% and 8.8% respectively, are not popular verbal strategies, but are nevertheless more frequent than any of the non-verbal strategies. Examples of Suggestions and Questions are "Let's start at the finish!" and "Have you done this before?", respectively. Orienting strategies, including giving and showing, account for 3.2% of all strategies. Agonistic strategies account for less than 1% and included knocking the partner's hat off, grabbing the game, and pushing the other away. Nevertheless, that they occur at all is surprising, as the game, involving sitting down, and requiring no physical contact, ostensibly does not allow for forcefulness with either the game or the partner. The contrast with the absence of affiliative touching becomes the more interesting. Strategies rated uncodable indicated errors in transcription rather than the failure of the category scheme. Strategies were described on audiotape by the interviewer in the process of interviewing the children for goals. The descriptions in 6 instances, were too brief, or otherwise unintelligible, for accurate coding.

Table 8

Strategy Frequencies, Percentages & Mean Proportions Across All Boys

Strategy	Frequency	Percent	Mean Proportion
Verbal			
Directive	272	28.2	.32
Suggestion	88	9.1	.11
Statement	475	49.3	.43
Question	85	8.8	.09
Non-verbal			
Orienting	31	3.2	.03
Agonistic	7	.7	.00
Uncodable	6	.6	.01

When strategy frequencies in each boy's protocol are converted to a proportion of all his strategies, it becomes possible to examine the mean proportion of strategies of different types across all boys. These figures, as displayed in Table 8, indicate that on average, the boys used strategies in the following order of preference: Statement, Directive, Suggestion, Question, Orienting, Unkown, and Agonistic.

Table 9

Strategy Code Reliability

Strategy	Cronbach's alpha Coefficient
Directive	.94
Suggestion	.86
Statement	.72
Question	.91
Orienting	.93
Agonistic	0
Uncodable	0

The same three methods of reliability assessment that were used for goals, were also used for strategies. In addition, the same 20 randomly selected protocol pairs were coded for this purpose by both observers.

Cronbach's alpha coefficients are reported in Table 9 for each of the strategy codes, and range from .0 to .94. The extremely unreliable codes were the Agonistic and Uncodable codes. This was partially due to the low rate of occurrence in the protocols examined. Nevertheless, as accuracy was poor, these codes were dropped from further analyses. The alphas for remaining categories then ranged from .72 to .94 and were considered satisfactorily reliable.

Inter-rater reliability was calculated from contingency tables, prepared manually in the same fashion as the contingency tables for goal coding, and including the Agonistic and Uncodable categories. The results, showing a satisfactory degree of agreement are given in Table 10.

Table 10

Inter-rater Reliability for Strategies

	% Agreement	Cohen's Kappa
Week 1	86.	.79
Week 2	80.	.68
Week 3	88.	.81

Consequently, it would appear that all but Agonistic social strategies can be coded reliably from descriptions of children's videotaped social behaviors in this particular dyadic game situation. Games with more "pull"

for Agonistic strategies may be required to obtain a reliable assessment of them.

Unlike the method given for recording goals, this method for discerning strategies is not new (e.g., Krasnor & Rubin, 1983). What is divergent from other such studies however, is the illustration that uniform strategy dimensions can be reliably recorded from very brief play samples. At least this is true for more frequently occuring strategies. Infrequent strategies on the other hand are not revealed as systematic dimensions in this way.

4.1.3 Predicting Strategies from Goals

As the children's goals and strategies could be reliably coded using this analogue dyadic game, videotape, and interview method, it is then possible to combine goal and strategy observations in order to determine whether they are associated. Specifically, does the child's social goal influence or constrain his social strategy? A contingency table of goals and strategies was developed from the researcher's coding of all protocols, but deleting the observations containing unreliable goal or strategy codes. The resultant observations are partitioned into their respective goal-by-strategy cells, and presented in Table 11. As indicated by the marginal totals, the distributions are skewed and irregular. Following Reynolds' (1977) recommendation for considering marginal probabilities in such data, Goodman and Krauskal's Tau statistic was used to compute strength of association. The resulting of .114 indicates that knowledge of the boys' goals, results in approximately an 11.4% reduction in error when predicting strategies.

Table 11

Goals by Strategies to Examine Strength of Association

	GOAL				
Strategy	Performance	Relationship	Rule	Uncodable	Total
Directive	166	49	47	7	269
Suggestion	70	15	0	1	86
Statement	112	291	29	39	471
Question	44	23	7	11	85
Orientation	15	10	3	3	31
Total	407	388	86	61	942

However, close inspection of Table 11 also indicates that most observations fall in just three goal and three strategy categories. Therefore, a second, partial, table was constructed to examine the strength of association among these more frequent goals and strategies. Reynolds (1977), suggests this approach for examining interesting subsets. The data are displayed in Table 12.

Table 12

Selective Goals by Strategies to Examine Strength of Association

	GOAL			
Strategy	Performance	Relationship	Rule	Total
Directive	166	49	47	262
Suggestion	70	15	29	114
Statement	112	291	7	410
Total	348	355	83	786

Computing Tau for this Table gives a coefficient of .263. Therefore, when only the three most frequent goals are considered, knowledge of goals results in a 26.3% reduction in error in predicting the three most frequent strategies. That is, goals are associated with strategies, but the association between frequently used goals and frequently used strategies is even stronger. Examining both Tables 11 and 12, the evidence is that Performance and Rule orientations are likely to take Directive strategies, while Relationship orientation is likely to take a Statement strategy.

4.2 The Effect of Length of Acquaintance on Composite Measures of Goals and Strategies

It was hypothesized that length of acquaintance would affect social cognitive goals and strategies in the dyadic game. Moreover, it was hypothesized that the effect would be independent of age. Boys who were more familiar with each other were expected to show a different pattern of goals and strategies. However, there was no a priori reason to suspect that a shift in the pattern would be in any particular direction. For instance, on the one hand, more familiar dyads may attend to their relationship at the expense of performance-orientation. On the other hand, they may regard their relationship as a 'given' and adopt a performance orientation. Similarly, no prediction was made about the nature of change in strategies with length of acquaintance.

The boys were arbitrarily assigned by camp officials to groups which played the game Monday and groups which played the game Thursday. That is, there were no criteria governing whether a boy was tested on Monday or

Thursday, that decision being a chance one, with no known attribute distinguishing the two groups. Therefore, MANOVA and MANCOVA procedures were employed in an effort to examine effects of length of acquaintance. It was recognized that effects revealed in these procedures would require replication in an experimental study with random assignment to group.

4.2.1 Length of Acquaintance and Goals

MANCOVA was performed on SPSS^X (SPSS^X, 1983) using length of acquaintance as the between subjects factor, age as a covariate, and frequency counts for goal categories as the dependent variables. As some cases had missing values, N equalled 83 for this analysis. The frequency counts were the scores on goal codes from interview protocols, as calculated from proportion scores and number of socially directed behaviors. It was necessary to transform several of these variables in an attempt to eliminate skewness. Thus, the square roots of performance and relationship scores, and the logarithms (log 10) of rule oriented and uncodable goals were used. In addition, as there were many 0 values in the rule oriented and uncodable goals categories, a constant was added prior to the logarithmic transformation. Following transformation, one variable, rule orientation, remained slightly skewed. However, as MANCOVA is robust to slight deviations from normality that arise from skewness (Tabachnick & Fidell, 1983) this variable was entered into the analysis in its transformed state. There was one outlier in the short length condition for the rule orientation dependent variable. Analyses were run with this case deleted. A check for multivariate outliers unfortunately could not be performed with the statistical package being used. To test the assumption

of linearity between dependent variables, and between dependent variables and the covariate, a spot check was made of 5 of the 10 possible bivariate scattergrams. No violations of the assumption of linearity were detected. Similarly, tests for univariate and multivariate homogeneity of variance between the two conditions, were negative for violations. Multicollinearity or singularity was ruled out by finding a determinant for the within cells error correlation matrix different from 0(.86).

The results of the first analysis, with covariate adjusted for, indicated that there was a significant main effect of length of acquaintance on the composite measure of social cognitive goals ($\underline{F}$ = 4.07) (5,77;); $\underline{p}$=.005). An examination of the regression analysis, showing the effect of age on each goal variable, indicated that age was providing no adjustment. Therefore, age was eliminated as a covariate in a second analysis.

In the second analysis, a MANOVA, a stepdown procedure was used to determine the relative contribution of different goal variables to the effect. Without age as a covariate, the results of the second analysis indicated a significant main effect of length of acquaintance on the composite measure of social cognitive goals ($\underline{F}$ = 5.18 (4,78); $\underline{p}$ = .001). The results reflect a modest size effect of length of acquaintance, at η^2 = .210.

To investigate the import of the length effect on individual goals, a step-down analysis was performed. Goals were entered into the analysis in order of highest to lowest frequency or salience. Homogeneity of regression was achieved for each step of the analysis. On the first step, Performance- oriented goals result in a modest contribution to the effect

(F = 2.92 (1,81); p = .091). Children with longer acquaintance used fewer Performance- oriented goals (adjusted means 2.08 and 1.79, for shorter and longer conditions, respectively). On the second step, with the contribution associated with Performance-orientation already removed, Relationship goals remain highly significant in explaining the length effect (F = 12.52 (1,80); p = .001). In this case, the longer children were acquainted, the more Relationship-oriented goals were used (adjusted means 1.55 and 2.27, respectively). On the third step, Rule-orientation goals were also uniquely important (F= 3.91 (1,79); p = .052). Adjusted means indicated that the longer the children knew each other, the more Rule-oriented goals occurred (.17 and .28, respectively). Uncodable goals do not add to the effect after these other goals are removed. These results are summarized in Table 13.

In sum, there is a shift in social cognitive goals as a function of length of acquaintance. The shift is in the direction of more Relationship-orientation and Rule-orientation, at the expense of Performance-orientation, with longer acquaintance. No discernible shift in social cognitive goals with age variation could be detected in these analyses.

4.2.2 Length of Acquaintance and Strategies

It was hypothesized that length of acquaintance would effect a composite measure of strategies. Further, it was hypothesized that this effect would be independent of age. Therefore, MANCOVA was attempted on SPSS^X, using length of acquaintance as the between-subjects factor, age as the covariate, and frequency counts for strategy categories as the

Table 13

Effect of Length of Acquaintance on Social-Cognitive Goals

Main effect of length: $F = 5.18$ (4,78) $p = .001$ $\eta^2 = .210$

Variable	Stepdown F	p	95% Confidence Limits 1 Day	95% Confidence Limits 4 Days
Square root Performance-oriented goals	2.92	.091	1.86 - 2.29	1.54 - 2.04
Square root Relationship-oriented goals	12.52	.001	1.30 - 1.80	2.00 - 2.57
Logarithm Rule-oriented goals	3.91	.052	.110 - .240	.205 - .362
Logarithm Uncodable goals	.51	.479	.110 - .266	.108 - .289

dependent variable set. The frequency counts were the raw scores or strategy codes derived from interview protocols. Scores for Directive and Question strategies were entered untransformed. To reduce skewness, two score categories were transformed. Thus, scores for Suggestion and Statement were subject to square root transformations. Scores for Orienting were discarded due to marked skewness remaining after logarithmic transformation and failure of this variable to show homogeniety of variance across length conditions.

The MANCOVA analysis was deemed to be inappropriate as, in testing homogeneity of regression for the stepdown results, an interaction between length and age was detected at one step. Consequently, age was transformed into a factor by recoding into four age groups: below 109 months, 110 - 118 months, 119 - 127 months, and 128 - 136 months. A two way MANOVA was then performed, with age and length of acquaintance as factors. For this analysis, results of evaluation of assumptions of normality, homogeneity of variance and covariance, linearity, and multicollinearity were satisfactory. No univariate outliers were detected. Evaluation of multivariate outliers is not possible in SPSS^{X}.

Contrary to hypothesis, neither length of acquaintance, nor age, nor the interaction between length and age, had a significant effect on a composite measure of strategies. For the main effect of length of acquaintance, the Wilks' lambda obtained was non-significant (F = 1.64 =(4,72); p = .173). Similarly, for the main effect of age, Wilks' lambda was again non-significant (F = 1.30; (12, 190); p = .219). Finally, the length by age interaction was also not significant (F = .93 (12, 1980); p = .516).

4.2.3 Length of Acquaintance and Social Cognition

It is clear here that length of acquaintance shifts the pattern of social-cognitive goals, independently of age. This shift would appear to be best described as a shift away from task-focus and towards reciprocity in a relationship.

4.3 Factor Structure of Rated Social Competence

As the T-CRS rating scale for social competence had not been previously used in a recreational group, the scale was first subjected to a factor analysis. This was done in order to investigate whether the structure of social competence in this recreational group was different from the structure of social competence in the school-based standardization samples. Moreover, it was assumed that the factor scores derived from this factor analysis would provide an index of competence best corresponding to the social cognitive and affect measures taken in the same setting.

Using all 24 items, including some that are designated provisional and not used by the scale authors in factor scoring, the internal consistency for the test, as measured by Cronbach's alpha coefficient is high, at .92. Items forming the three major sub-scales revealed in factor analysis of the data were also examined for within-scale reliability and ranged from .78 for Factor III to .92 for Factor I.

The factor analysis of the test, using Image Analysis with varimax rotation (following the Hightower, Work, Cowen, Lotyczewski, Spinnell, Guare, & Rohrbeck, 1985, method) produced four interpretable factors. As the first two factors had nearly identical patterns of items with loadings greater than .5, as the Hightower et al. (1985) studies, the factor names of Frustration Tolerance and Assertive Social Skills were adopted from the T-CRS.[1]

[1] The lack of complete identity is prevented by three facts: (1) that four provisional items were included in this analysis, (2) the item "Carries out requests responsibly" loads on the present study's Frustration factor and on the standardization study's Task Orientation factor, (3) the item "Faces the pressure of competition" loads on the present study's Frustration Tolerance factor and the standardization sample's Assertive Social Skills factor. These two items added to the present study's Frustration Tolerance factor seem quite appropriate given the camp context. The high degree of activity, many new demands, and presence of up to 60 other boys quite conceivably make the carrying out of requests and coping with competition an exercise in frustration tolerance at camp.

The third factor in the present study overlaps with the standardization sample's Task Orientation factor, but does not include such items as "Well organized" and "Completes work", which presumably take on a specific meaning in the school setting. As one counselor commented, being organized in the fast-paced, rapidly changing camp context, with others' demands constantly impinging, was a feat that none of the children he had seen mastered. Consequently, the present study's third factor, without item loadings pertinent to school, is considered to indicate Persistence.

The fourth factor in the present study, results from loadings over .5 on only two items, one a provisional item. These items are: "Has many friends and "Well liked by classmates". As this factor accounts for so little of the social competence variation (2.2%), and as a separate index of peer status was taken using sociometric methods, this factor was not used in subsequent analyses. A fifth factor with an eigenvalve of 1.01 has no item loadings of greater than .35 and is generally uninterpretable. This too was dropped from subsequent analyses.

The factors, their interpretations and the percent variance accounted for, is given in Table 14. The clarity of the first three factors and their overlap with the standardization sample, is taken as evidence of the appropriate use of the T-CRS as social competence measure in the camp context. The item loadings for all factors are given in Table 15.

Table 14

Factors in T-CRS When Completed by Camp Staff

Factors	Label	Percent Variance Accounted for	Cumulative Percent Variance Account For
I	Frustration Tolerance	36.1	36.1
II	Assertive Social Skills	9.9	46.0
III	Persistence	3.5	49.5
IV	Popularity	2.2	51.7
V	Uninterpretable	2.1	53.8

4.4 Multivariate Prediction of Social Competence

The criterion measures of social competence were: total score on Teacher-Child Rating Scale (T-CRS), scores on T-CRS Frustration Tolerance factor, scores on T-CRS Assertiveness factor, scores on T-CRS Persistence factor, the square root of average sociometric rating and the square root of the number of socially- directed behaviors in the dyadic game. The latter two variables were transformed from the initial scores to overcome skewed distributions. The negative skew of sociometric ratings was corrected by the addition of a constant and then computing square root. The simple square root transformation was applied to the number of socially-directed behaviors to normalize a mildly positively skewed distribution.

Table 15

Item Loadings for T-CRS

Question	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Accepts things not going his/her way	.696	.056	.303	.085	.110
Defends own views under group pressure	.045	.721	.036	-.001	.258
Completes work	.532	.144	.280	.161	.373
Has many friends	.457	.206	.142	.535	.298
Mood is balanced and stable	.712	.026	.353	.230	.049
Comfortable as a leader	.140	.700	.006	.037	.005
Well organized	.308	.258	.247	.176	.536
Ignores teasing	.288	.109	.506	.245	-.096
Accepts imposed limits	.741	-.123	.190	.103	.282
Participates in class discussions	.211	.590	.014	.121	.162
Carries out requests responsibly	.612	.088	.180	.102	.437
Copes well with failure	.682	.071	.379	-.031	.043
Expresses ideas willingly	.089	.668	.200	.088	.071
Works well without adult support	.333	.217	.525	.130	.330
Cooperates with classmates	.558	.159	.225	.306	.203
Generally relaxed	.674	.099	.222	.213	-.032
Faces the pressures of competition	.360	.466	.248	.230	.109

Table 15 (Cont'd)

Item Loadings for T-CRS

Question	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Functions well even with distractions	.410	.113	.478	.014	.187
Initiates conversations with peers	.246	.520	.253	.272	.032
Well liked by classmates	.506	.241	.219	.576	.148
Questions rules that seem unfair/unclear	-.091	.561	.131	.123	-.074
A self starter	.140	.255	.588	-.047	.154
Tolerates frustration	.363	.027	.559	.273	.117

These measures showed correlations of generally low magnitude with each other, as illustrated in Table 16. The fact that factor scores from the same test, constructed so as to be orthogonal, were used, is the partial cause of this independence among measures. Nevertheless, the separation of social competence into its components is considered to be desirable in examining which predictor variables are related to which criterion components. The higher correlations of factor scores with total T-CRS test scores are similarly a measurement artifact. The highest correlation reflecting separate measuring instruments, is .287 between square root sociometric status and the Persistence factor of T-CRS, indicating an association between popularity as a playmate and persistence in the face of distraction or interruption.

A hierarchical multiple regression analysis was conducted for each social competence criterion, using the SPSS^X Regression sub-program. As social cognitive variables were the major focus of this study, and as the analogue dyadic game method for identifying social-cognitive goals and social-cognitive strategies was of particular interest, proportion goal and strategy scores from this game were entered on the first two steps to determine the contribution to social competence from knowing distribution of goals and strategies. Since goals were already seen to explain some 11.2% of the variance in strategies, these were entered first so that the variance thus contributed would not be obscured by the variance associated with stategies. Further, goals logically precede strategies. In each analysis reported, all four goal scores, representing the proportion of responses coded as Performance-oriented, Relationship-oriented, Rule oriented or Uncodable, were entered as a block.

Table 16

Correlations Among Social Competence Measures

			T-CRS Factors			
	Sq. rt. Sociometric	T-CRS	1	2	3	Sq. rt. SDB
Square rt. sociometric						
T-CRS	.287*					
T-CRS Factors - 1	.145	.772**				
T-CRS Factors - 2	.136	.492**	0			
T-CRS Factors - 3	.269**	.523**	.186**	.07		
Square Root SDB's	.059	.08	-.117	.116	.035	

*p < .05
**p < .01

Strategy scores were entered second in the regression procedure for each analysis. The five strategy scores represented the proportion of behaviors coded Directive, Suggestion, Statement, Question and Orienting, and were similarly entered as a block.

On the third step, summary measures indicating the variety of goals and strategies were entered together to conclude the evaluation of potential contributions from goal and strategy coding.

The final social-cognitive measure was entered on the fourth step. This was the number of alternative solutions given to the two social problem dilemmas and is intended to represent a social problem-solving skill with the potential to augment prediction of social competence beyond the observation and interview - based measures. Subsequent steps entered the self-efficacy score (CSPI), the child's age, and sibling position, respectively.

4.4.1. Prediction of Sociometric Status

For the square root sociometric status, the results of hierarchical regression analysis are presented in Table 17. Consideration of goals in the dyadic game results in a modest 2.6% contribution to the variance. On the other hand, even with the shared variance between goals and strategies thus partialled out, the strategies variable uniquely contributes an additional 10.6% to variability in square root sociometric status. No significant additional variance is attributable to employing a greater variety of goals and strategies.

Table 17

Contributions to the Prediction of

Square Root Sociometric Status

Variable	R	R^2	sr^2	F	P
Goals	.162	.026	.026	2.60	n.s.
Strategies	.364	.132	.106	10.60	.005
Variety of Goals and Strategies	.372	.139	.006	.60	n.s.
Alternative Solution Thinking	.380	.144	.005	.50	n.s.
CSPI	.380	.144	.000	.00	n.s.
Age	.446	.200	.055	5.50	.05
Sibling Position	.449	.201	.002	.20	n.s.

The final social cognitive measure in the regression solution, adds only .50% to the variance in square root sociometric status. However, this is .50% unique variance, not already accounted for by goal and strategy measures. That is, the boys' goals and strategies in the dyadic game may have already explained the contribution of this measure. Indeed, this argument is made more tenable by reflecting on the nature of the alternative solution thinking dilemmas. They involve thinking up things to do in dyadic encounters, one of which centers around playing with a desirable toy. In the present study, thoughts about what to do in the play situation have probably already been expressed in the Strategies measure, and accounted for at the previous step.

Reviewing the remaining predictor variables in Table 17, it is clear that self-efficacy scores contribute a negligible amount of the variability in square root sociometric status, after social cognitive measures are partialled out. On the other hand, the boy's age still makes a substantial contribution, adding 5.5% to the variance. The simple correlation between age and square root sociometric status clarifies the nature of this contribution. The simple correlation is .246, indicating that the child's age is associated with square root sociometric status. Apparently, with social cognitive skills partialled out, the older children at camp tended to be more popular.

To summarize, the focal action-based social cognitive measures in this study, were the most helpful in contributing to prediction of sociometric status. The conventional measure of alternative solution thinking was either redundant or negligibly contributory, as were scores on Children's Self-Efficacy for Peer Interaction. Only age made a

remarkable additional contribution beyond this, and in an expected direction, such that older children were rated as more preferred playmates. Within this study then, higher square root sociometric status scores are optimally predicted by proportions of goals, and by proportions of strategies. In all, 20.1% of the variance is accounted for, 14.4% by social cognitive measures.

4.4.2 Prediction of Socially-Directed Behaviors

For square root number of socially-directed behaviors in dyadic play, the results of the hierachical regression analysis are presented in Table 18. As before, social cognitive variables are added first and suspected moderator variables are added on subsequent steps, in the same order as listed on Table 18.

In this case, the goals set performs well, by adding 8.5% to the variability in square root number of socially directed behaviors. After this variance is partialled out, the strategies block adds an additional 5.7%. Thus, in total, goals and strategies contribute 14.2% to the variability in square root socially directed behaviors. Beyond this, the summary measure of variety of goals and strategies contributes a large 11.2%, indicating variety has a unique contribution. Finally, the alternative solution thinking measure this time contributes an additional 3% of the variance, suggesting that it carries some unique properties pertaining to the number of socially directed behaviors, although not to a degree normally considered to be significant. Again, it is plausible that much of the variance associated with this hypothetical measure has been

Table 18

Contributions of the Prediction of Amount of Socially-Directed Behavior

Variable	R	R^2	sr^2	F	P
Goals	.291	.085	.085	9.44	.005
Strategies	.376	.142	.057	6.33	.05
Variety of Goals and Strategies	.503	.254	.112	12.44	.001
Alternative Solution Thinking	.536	.287	.033	3.67	n.s.
CSPI	.536	.287	.000	.0	n.s.
Age	.547	.299	.012	1.33	n.s.
Sib	.556	.309	.010	1.11	n.s.

accounted for in goals and strategies measures.

In this regression solution, once social cognitive variables have been partialled out, none of the suspected moderator variables makes any additional contribution of note. Thus the set of social cognitive goals proportions would appear to contribute most substantially to prediction of the number of social initiatives. The set of social cognitive strategy proportions augment the prediction. Finally, some unique aspect measured by variety scores improves the prediction again.

Overall, $(.556)^2$, or 30.9% of the variance is accounted for. However, unlike with the sociometric measure, a greater bulk of this variance, at 28.7%, is attributable to social cognitive measures.

4.4.3 Prediction of Persistence

For contributions to prediction of the Persistence Factor of counselor-rated social competence, the results of the hierarchical regression are presented in Table 19. In contrast with the results of previously reported social competence criteria, the social cognitive goals measure is of minimal help in predicting Persistence.

Only 1.2% of the variance in this factor can be thus accounted for. On the other hand, the social cognitive strategies measure used contributes 10.0% to the variability, and is the only social cognitive measure to make a substantive contribution.

Table 19

Contributions of the Predictions of Persistence

Variable	R	R^2	sr^2	F	p
Goals	.111	.012	.012	1.19	n.s.
Strategies	.342	.117	.104	10.00	.005
Variety of Goals and Strategies	.360	.130	.013	1.25	n.s.
Alternative Solution Thinking	.364	.132	.003	.29	n.s.
CSPI	.397	.157	.025	2.40	n.s.
Age	.404	.163	.005	.48	n.s.
Sibling Position	.404	.163	.000	.0	n.s.

Table 20

Contributions to Prediction of

Counselor-Rated Summary Competence Score

Variable	R	R^2	sr^2	F	p
Goals	.083	.007	.007	.64	n.s.
Strategies	.334	.111	.104	9.45	.005
Variety Goals and Strategies	.335	.112	.001	.09	n.s.
Alternative Solution Thinking	.336	.113	.000	.0	n.s.
CSPI	.340	.116	.002	.18	n.s.
Age	.340	.116	.000	.0	n.s.
Sibling Position	.341	.117	.001	.09	n.s.

4.4.4 Prediction of Total Counselor-Rated Social Competence

If the summary measure of counselor-rated social competence is used as criterion, again a somewhat different picture emerges. The results of the hierarchical regression analysis for this variable are displayed in Table 20. As revealed by the semi-partial correlations, the only entry contributing more than 1% to the total variance is the strategy set. This set contributes 10.4%, after the minimal variance overlapping with the goals set is removed. This means that, for counselors to discriminate more and less globally competent boys, without respect to specific factors contributing to competence, knowing proportions of strategies is of most unique value.

Diminishing contributions to the variance from additional social cognitive measures and suspected moderator variables produce an increasingly less satisfactory regression solution. In short, only the strategy set makes a useful contribution to prediction of omnibus social competence as related by counselors.

4.4.5. Prediction of Assertiveness

For the Assertiveness Factor criterion of social competence, the results of the hierachical multiple regression are give in Table 21. Again, the 6.6% contribution to the variance allowed by the entering of proportions of strategies, is unmatched in magnitude by any other step in the solution.

Thus, knowing the proportions of different strategies aids in predicting rated assertiveness. This is not unexpected, in that choices such as those between directive and question approaches or orienting and agonistic approaches, lend themselves to interpretation in terms of

Table 21

Contributions to Prediction of

Assertiveness Factor

Variables	R	R^2	sr^2	F	p
Goals	.109	.012	.012	1.09	n.s.
Strategies	.280	.078	.066	6.00	.05
Variety of Goals and Strategies	.293	.086	.007	.64	n.s.
Alternative Solution Thinking	.295	.087	.001	.09	n.s.
CSPI	.300	.090	.003	.27	n.s.
Age	.308	.095	.004	.36	n.s.
Sibling position	.320	.103	.008	.72	n.s.

differential assertiveness. For example, being directive would probably normally be rated as more assertive than asking questions of a playmate. However, it is not assumed that the relationship between proportions of strategies and rated assertiveness is simply a measurement artifact. Rather, the result is taken to mean that proportional use of variously assertive strategies in the dyadic game, predicts a more general assessment of assertion. This agreement is made more tenable by examining items on the criterion Assertiveness Factor scale. They include: defends own views under group pressure, expresses ideas willingly, comfortable as a leader, none of which is isometric to the social cognitive strategies codes.

4.4.6 Prediction of Frustration Tolerance

For the Frustration Tolerance Factor criterion of social competence, the results of the hierarchical regression are reported in Table 22. As is evident from the semi-partial correlation, the proportions of strategies adds the greatest percent contribution to Frustration Tolerance, while being of much reduced magnitude. This is so even with the variance associated with the goals set partialled out. In total, social cognitive measures only account for 5.1% of the variability in this criterion measure. This is problematic, as the Frustration Tolerance Factor has already been shown to carry the bulk of the variance, at 36.1%, in counselor-rated social competence (Table 14). It appears that this important factor cannot be predicted well from either the social cognitive or moderator variables as measured in this study.

Table 22

Contributions to Prediction of

Frustration Tolerance Factor

Variable	R	R^2	sr^2	F	p
Goals	.118	.014	.014	1.27	n.s.
Strategies	.207	.043	.029	2.64	n.s.
Variety of Goals and Strategies	.222	.049	.006	.54	n.s.
Alternative Solution Thinking	.226	.051	.002	.18	n.s.
CSPI	.228	.052	.000	.0	n.s.
Age	.268	.072	.020	1.82	n.s.
Sibling Position	.287	.082	.010	.91	n.s.

4.4.7 Summary of Hierarchical Regression Analyses

An expected finding in this study is that the criteria selected for social competence are optimally predicted with different linear combinations of variables. Nevertheless, social cognitive variables performed quite consistently. In the solutions for square root sociometric status, square root number of socially directed behaviors, a Persistence factor and an omnibus social competence rating, social cognitive factors contributed between 5.1% and 28.7% of the variance. Further, the social cognitive measures taken from the analogue game situation accounted for the bulk of this variance. It was not true however, that knowing the distribution of children's goals in the dyadic play situation enabled prediction of social competence in most cases. Knowing goals was only significantly useful in predicting the amount of social initiative in the same situation. In contrast, knowing the distribution of children's strategies, even with the influence of goals partialled out, allowed significant contribution to the prediction of all social competence measures except frustration tolerance.

Suspected moderator variables contributed twice. Age served to improve the prediction of square root sociometric status after social cognitive and affective motivational variables were partialled out. Moreover, the improvement was marked, accounting for an additional 5.5% contribution to the variance. The older the boy, the more he was preferred as a playmate. The affective-motivational measure of self-efficacy contributes 2.5% variance additional to social cognitive measures in the regression solution for the Persistence factor.

Finally, two regression solutions were unsatisfactory. Less than 10% of the variance in the Assertiveness and Frustration Tolerance factors could be accounted for.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

5.1 Evaluation of Hypotheses and Interpretation of Results

The results of this investigation provide support for some hypotheses while failing to support others. The first hypothesis, that children's goals and strategies can be reliably coded from a dyadic play sample, is supported. Moreover, children's goals when thus coded, show a pattern reflecting nearly equal emphasis on task and interpersonal issues.

It is interesting that this two-person game, which allows a competitive or challenge construal, elicited nearly equal proportions of Performance- and Relationship- orientation. As a group, these boys were not committed to winning at the expense of friendly relations. Each of these goals featured prominently, reflecting a balanced approach to play. Furthermore, in spite of the ambiguity of a game without rules, surprisingly little social behavior directed at rule-governed play occurred. The boys appeared to value friendly play and doing well, but seldom the regimentation of procedures. The usefulness of this coding scheme for describing children's goals in such play, rests partly on its reliability.

It is not possible to assess to what extent boys may have misrepresented their rationale. For instance, it could be argued that boys made up their goal responses during the interview and that these were not the actual goals held during play. However, several features of the study

mitigate against this interpretation. First, the use of the videotaped record of behavior is argued to allow the boys to re-experience their actual cognitive representations (Ericsson & Simon, 1984). Second, the goals could not be made up at will but needed to be congruent with the videotape. Third, the game situation and interview were designed to be casual and non-threatening and there was expected to be little motivation for the boys to distort. Indeed, most boys appeared to answer the goal questions quite easily and comfortably, and their proffered rationales were plausible. In additon, goals given were congruent with the videotaped SDBs under discussion as well as the general flow of the boys' narratives.

The goals that emerge in this study as reliably coded from a 5-minute play sample and interview overlap with those identified from a questionnaire by Taylor and Asher (1984). On the one hand, this is expected since the present observation coding scheme was derived from the questionnaire. On the other hand, there was no a priori reason to believe that what children said about their goal orientation in a questionnaire would reflect their real life play behavior. In fact, the proportions of goal use differ between this action-based coding scheme and the questionnaire. Relationship- and Rule-orientation were salient for the questionnaire, while Relationship- and Performance-orientation were salient for this study. These differences could partly be attributed to sample differences. However, it would appear that sample differences notwithstanding, the play-based goal coding used in this investigation has some advantages from the ecological validity point of view, while retaining the clearly useful code categories present in the questionnaire.

The second hypothesis, that knowing children's goals will reduce

uncertainty about children's strategies, is also supported. The ability to improve prediction of strategies by knowing goals suggests that goals may directly or indirectly exert some constraint on strategies. These constraints would appear to be partially underpinned by semantic factors. For instance, Relationship orientation implies reciprocation, and inviting reciprocation is incompatible with demanding obedience to Directives. Thus, it is consistent with a concern for relationships that a boy is more likely to make a statement apologizing for his error than he is to direct that the other player give up the ball. However this does not trivialize the connection between goals and strategies. On the contrary, if goals are associated with strategies by underlying social meanings, it would be increasingly important to consider both in describing social cognition. The strength of association reported here may be an empirical illustration of Harré's (1979) theorem that social acts, with their attendant motives and orientations to a relationship, share common meaning with the sequence of social actions by which they are executed.

The third hypothesis, that a composite measure of children's goals will show an effect of length of acquaintance is also supported. Moreover, children who have known each other longer, within the context of this study. show an increase in Relationship and Rule-oriented goals. The interpretation of this simultaneous increase in other-orientation and rule-following is difficult. It is rendered the more so by the simultaneous decrease in Performance-orientation which would seem to be a closer companion to Rule-following. One possible resolution of the apparent discrepancy is to consider rule-following a measure of automatizing the manner of play. Once the rules for play are thus

dispensed with, it is possible to focus on relationship with the playmate. The longer the acquaintance and the more relationship-focused, the less task achievement is salient, and the more it should be delegated to routinized or rule-governed approaches.

With respect to the fourth hypothesis, unlike goals, a composite measure of strategies was not influenced by the length of time children were acquainted. This indicates that strategies are not totally in the service of goals and do not vary as much over the course of the change in acquaintanceship observed during this study.

If these results can be replicated in other samples, it will become evident that measurement of social cognitive goals should take into account length of acquaintance. It may also be appropriate to do this for other social cognitive measurement problems. Investigation geared to the measurement of developmental changes in aspects of social cognition, are a particular case in point. If changes are measured from observational or questionnaire data reflecting interpersonal relations, it would seem important to know that change was attributable to only age and not length of acquaintance as well. If these investigations are conducted with a school population who have grown up and progressed from grade to grade together, age changes are quite confounded with changes in length of acquaintance. Even in hypothetical dilemmas about interpersonal relations outside of the school context, if the respondent casts the problem in terms of specific or generalized relationships, associated with length of acquaintance, different social cognitions may be reported. This is in no way intended to assert that different social cognition <u>will</u> be reported, as the generalizability of the results here is quite unknown. Nevertheless, a

potentially powerful moderator variable has been identified in length of acquaintance, requiring caution in interpreting age effects.

With respect to the fifth hypothesis, that knowing how children distribute goals and strategies in a dyadic game will contribute to the prediction of social competence variables, support is received differentially with competence variables. The game-based social cognitive variables contribute 14.3% of the variance in sociometric status. This percent variance is comparable to the up to 20% reported elsewhere in the literature for social cognitive measures (Pellegrini, 1980; Ford, 1982), but less than the up to 67% reported by Dodge (1985). However, the better fit obtained in Dodge's regression equation may be due to his criterion measures being less global. For instance, teacher rating of a child's response to peer provocation may be more easily tied to cognitive measures but, correspondingly, more situationally restricted with limited generalizability for global competence indices.

Similar to sociometric stutus, social cognitive measures contribute 14.2% of the variance in the number of socially directed behaviors. However, this is the only regression solution in which the goals variable contributes significantly. This better performance of the goals variable may be accounted for as follows. The predictor and criterion variables are based on the same situation. Thus, the measured goals can be regarded as directly organizing the amount of socially directed behavior in the game.

In the regression solution for the Persistence factor, the ecologically-based goal and strategy measures account for 12.9% of the variance. Little variance is contributed by demographic or affective variables. The hypothesis of Wheeler and Ladd (1982), that percieved

self-efficacy may mediate persistence, since the child who generally expects success is therefore not easily dissuaded, is not contradicted here; nor is it supported strongly. The CSPI score does not add a significant amount of unique variance to the regression solution. On the other hand, as perceived self-efficacy may also affect strategies that are chosen, the variance contributed by CSPI scores may already have been accounted for at the earlier strategies step. Therefore, the Wheeler and Ladd hypothesis cannot be ruled out by this analysis.

A steadily decreasing contribution of social cognitive variables characterizes the regression solutions for global counselor-rated social competence, assertiveness, and frustration tolerance, respectively. Indeed, neither social cognitive goals nor strategies make any significant contribution to the prediection of frustration tolerance.

One possible explanation for this peculiar result resides in the composition of the Frustration Tolerance factor. Several of the items refer to acceptance of conditions (e.g., Item 1: Accepts things not going his/her way. Item 9: Accepts imposed limits) while others refer to low reactivity (e.g., Item 5: Mood is balanced and stable. Item 17: Generally relaxed). Thus, it appears that this factor taps a state of equanimity. Such a state, while possibly related to arousability, is not logically related to social cognition. Nor is there a direct connection with feelings of self-efficacy, age or position in the sib-line. The result is therefore important in pointing up the limitations of social cognitive and moderator variables for all aspects of social competence. It may be speculated that temperamental variables would have been more useful in this particular regression solution.

Overall, for the multiple regression equations, the social cognitive goals measure used was somewhat disappointing in predicting social competence. This is at odds with the findings of Taylor and Asher (1984) that goals discriminated sociometrically popular and unpopular children.

The most parsimonious explanation for the different findings is the methodological one that Taylor and Asher used questionnaires while the present study used a brief play sample and child's commentary. The latter method just may not be adequate for predicting social competence on the measures employed here. Alternatively, the fact that the present study was concerned with the actual proportion of various goals rather than the rated strength of goals in the Taylor and Asher study, may create the discrepancy.

The hypothetical alternative solutions measure provided no unique contribution in predicting any criterion. There are two possible reasons for this. First, the goals and strategies measures may be measuring much the same reasoning ability. To the extent that the dyadic game represents a social problem, alternative solutions are enacted in the course of play. Further, the variety of goals and strategies measure would appear to tap the ability to generate many alternatives. A second reason for the failure of the alternative solution measure may have been its brevity. Although the two hypothetical problems did generate a moderate amount of variability in responses, this variability may have been insufficient to detect any unique contribution as it applied to the social competence criteria used.

All comments, however, must be qualified with a statement about the generality of the findings in this study. The participants do not represent boys in general. Further, they are believed to be homogeneous in

socioeconomic status and in attitudes associated with membership in Cub Scouts. Measures of social goals for these subjects are intended simply to illustrate a new methodology. The relationships obtained in this study are intended to offer a starting point for investigating relationships in other groups.

5.2 Social Cognition, Social Competence, and their Relation: Measurement

Most interestingly, from the measurement point of view, the brief measures of social-cognitive goals and strategies collected from action-based interview protocols made important contributions to the prediction of five out of six of the social competence indices. The measures' brevity and predictive power are satisfactory aspects. In addition, they have the advantage of ecological validity. Children's cognitions are reported as they experience them within a common context for social interaction - a dyadic game. This feature is primarily of value in reducing the error associated with measuring social cognition by questionnaire or hypothetical dilemmas, where inaccuracy is likely, due to the remoteness of the question either in time or in the child's life experience.

The brief measures made here are attached to a dyadic game of a certain kind. These measures accounted for between 11.1% and 14.2% of the variance in four social competence measures. Changes in the game situation or in the number of players may have produced other results, and more or less satisfactory prediction. Indeed, measurements based on a series of

situations and different play group sizes, representing children's diverse social experiences, may be assumed to augment prediction of social competence by offering more social-cognitive information. However, such an endeavor would scarcely be feasible as numerous situational samples would be time-consuming. Furthermore, as already evidenced in the present study, children would probably be resistant to numerous interviews.

The dyadic game situation serves well in the present study. However, a different situation may offer increments in prediction. The 'ideal' situation may differ from one competence index to another. The situation in which social cognitive measurement occurs, should probably be tied as closely as possible to the situation in which competence is to be displayed in order to highlight the contribution of social cognition. This would argue, for a combination of situation based measurement of social cognition and situation based measurement of social competence. Neither measurement practice is in common use in the literature. The present study illustrates the possibility of situation based measures of social cognition. A series of studies by Dodge and colleagues (Dodge, McClaskey & Feldman, 1985; Dodge, 1985) illustrates the possibility of situation based measures of social competence. These latter measures constitute a taxonomy of social situations discriminating rejected and popular children. In the Dodge studies, they are not related to measures of social cognition. However, a combination of social cognitive measurement and social competence measurement, based on the same situation, appears to be entirely possible.

An example of such an approach would be to interview children about their thoughts in a peer provocation situation and to relate the categories of cognition derived from such an interview to an evaluation of their competence in dealing with peer provocation. A closely allied strategy has

already been used by Goetz and Dweck (1980), who asked children to indicate their reasoning about their failure to gain acceptance to a pen pal club, and then observed the adequacy of a subsequent attempt. Such a yoking of social cognitive and social competence measurement in the same situation appears to be promising for understanding the relationship between social cognition and social behavior. Moreover, the clinical value is apparent, as a child may be found to be deficient in competence in a particular situation, and social cognitive training can then be geared to that situation.

In the present study, social cognitive strategies overshadowed social cognitive goals in explaining social competence. This is the more remarkable since any variance the two components shared was attributed to social cognitive goals in the hierarchical regression procedure. At the same time, goals, and not strategies, showed change over the course of the week in children's play behavior. Taken together, these results suggest that, while social cognitive goals were more sensitive to the relationship context, they were not as powerful as strategies in evaluations of social skillfulness. Extending this idea further, it may be speculated that goals are more appropriately reflective of background issues such as the nature of the relationship. This speculation is compatible with Dodge's (1985) model which sees goals as unconscious influences, combining with setting features to define the framework for processing of social events. Competent performance requires a suitable goal, but a suitable goal is not sufficient to successful outcomes.

The contrary findings from other studies, finding a substantive goals effect on social competence (Renshaw & Asher, 1983; Taylor & Asher, 1984;

Krasnor & Rubin, 1983), are difficult to reconcile with the present study. Methodological differences may be a partial explanation. For instance, no other study used children's verbal reports on a real-life interaction, in which they had participated. Further, the present study used a more time- and situation- limited basis for evaluating goals. Most particularly, formulation of goals which affect social competence may have been severely constrained by the tight situational control inherent in the game used in this study. Children may not have had sufficient liberty to choose goals which would have an impact on social competence.

The utility of the goals measured in this study is also worth considering in relation to other possible approaches to measurement of goals. The measures used here attended to the plan for each socially-directed behavior. However, as Harré (1979) points out, the capacity for people to monitor their goal-attainment also suggests that any goal is subject to evaluation in terms of higher order ones. Futhermore, not all these goals need be apprehended on a conscious level. It follows that various levels of goals could be recorded for each socially-directed behavior. For example, a relationship-oriented goal for making a statement could be in the service of pleasing an adult which could in turn be in the service of mastering the environment. The problem of selecting the appropriate level of measurement is not an unfamiliar one in psychology: the same behavior can be coded as pulling a trigger, shooting a gun, or murder. The level of goal coding used in this investigation was considered appropriate for prediction of social competence. This is not to say, however, that it taps the only, or even the best, level of children's goals.

In addition, it is important to note that the versimilitude of children's reports of goals with their actual goals in the situation cannot be known. Nevertheless, the videotape prompt with its demands for honest (or at least congruent) explanation, the ease with which the boys answered in the private interviews, and the benignness of the game situation, would all seem to mitigate against falsification. Further studies would be required to determine whether goal statements corresponded with other related measures, for instance attitude towards others in situations analogous to the situation for which the goal statement is given.

The failure in the present study of the social variables to contribute to frustration tolerance is puzzling in the light of the success of cognitive therapies with social impulsiveness. Many successful frustration tolerance training programs indeed assume social-cognitive precursors for these behaviors. For instance, as part of their clinical intervention, Hinshaw, Henker and Whalen (1984) train children to talk to themselves about the nature of peer provocation. Similarly, the stress and anger inoculation programs (summarized by Meichenbaum, 1984) use self-monitoring and strategy planning as a component of training. These programs however are not entirely cognitive. They are accompanied with supported behavioral practice which, while feeding back to social cognition, undoubtedly also has an impact on anxiety level during exposure to subsequent problematic situations. Indeed, it may be that an 'equanimity' factor, describing reduced arousability and tendency to easily re-stabilize after disruption, is a basic element in the success of social skill training for problematic situations where emotion plays a large part.

If this is the case, it is curious that perceived self-efficacy,

normally negatively correlated with anxiety (Wheeler & Ladd, 1982), does not predict assertiveness and frustration tolerance in this study. Indeed, a purer measure of arousal may have been useful in clarifying this unusual result. It is assumed here that feelings of self-efficacy as measured by the CSPI have, in addition to an arousal element, an element of cognitive appraisal, in which the child evaluates his previous successes and anticipates likely success. It is this cognitive element which may have detracted from detection of the relationship between the affective component of feelings of self-efficacy and assertiveness and frustration tolerance, in the present study.

5.3 Social Cognition: Change Over Time

Much has been made of developmental changes in social cognition (e.g., Damon 1977; Selman, 1980). Further, developmental factors have been useful in explaining different social-cognitive goals held by children. Taylor and Asher (1984), describe an increase in performance orientation and decrease in relationship orientation in higher status children as they move from grade three to grade six. Although the age group studied in the present investigation was similar to that of Taylor and Asher, this age effect was not detected, possibly due to methodological and group differences. In addition, it is possible that developmental factors are confounded with length of acquaintance factors in cross-sectional studies like that of Taylor and Asher (1984) and Gottman and Parkhurst (1980). The present study has pointed to the importance of disentangling these effects

in social-cognitive goal studies, as length of acquaintance emerged as relevant independent of age. In the present study, length of acquaintance was confined to two short conditions. Thus, it is all the more surprising that such a strong effect emerged. It is unlikely that many of the children became best friends as a consequence of a week at camp. Over a longer time interval, where friendships and acquaintanceships consolidated and changed, the potential exists for different or more dramatic length effects. Moreover the level of relationship - best friends vs casual friends - may also be found to interact with age and length in governing social cognitive goals. There is some research which indicates children are differentially responsive to peers of different friendship status (Serafica, 1982; Berndt, 1983). Different social cognitions are purported to underlie these behavioral differences. Therefore, in using social cognition predictively, due regard must be give to these contextual as well as developmental factors.

5.4 Social Competence: Situational Factors

Not only is social competence not a unitary factor, but also it may be structured differently from situation to situation. The present study used a structured recreational setting. There is no reason to believe that social competence, in this domain, is the same as social competence in less structured settings or in more task-oriented settings, such as school. Indeed, the factor structure of the social competence questionnaire in this study was different in the standardization, or school, samples and in this camp-based group. It may be argued that this difference was due to sample

differences. While this is undoubtedly one plausible explanation, it is less tenable as a sufficient explanation when the nature of the differences are examined. Specifically, task-orientation emerged as a factor at school, while persistence best described the comparable factor at camp. Furthermore, the frustration tolerance factor accounted for more of the variance at camp than at school. These differences in factor structure would appear to be tied to differences in environmental demands. To be competent at school, children need to be task-oriented. To be competent at camp, children need to be persistent. In addition, ability to deal with frustration is weighted more heavily at camp - presumably because of the large numbers of peers and the presence of new demands. Nevertheless, such differences are steadfastly ignored by much of the research literature. The only other known recreation-based study of children's social interaction is that of Sherif and colleagues (Sherif, 1966). In this investigation of Robber's Cave camp, children were seen to shift from cooperative to uncooperative and antagonistic depending on the demand of the camp situation.

Schools have been convenient arenas in which to conduct research on children's social competence. Therefore, many of the results may be dependent on this context. While social competence as evaluated in the school setting is certainly important, given the child's many social encounters during his school life, it is a mistake not to explore the rich and numerous out-of-school contexts in which the child's social competence can also be evaluated. As this study shows, contextual differences may restructure the concept and components of social competence. However, replication of these findings with randomly selected children would be necessary before any general statements about the structure of social

competence in recreational groups could be made.

5.5 Clinical Implications

It is important that the clinician be aware of the differential relationships between indices of social cognition and indices of social competence. If improved peer acceptance is a clinical goal, within a context and population similar to that described here, social cognitive training may be of greater utility than if frustration tolerance is the clinical goal. For most indices in this study however, the social problem solving approach to remediation receives modest support. The strategies that children choose in a dyadic game predict competence. A limitation of the study however is the rather restricted group of children studied: primarily Cub Scouts who attend camp. Furthermore, the participating children did not represent a random selection of even this restricted population. The observations made here therefore have generality only in as far as they are supported by research such as that of Dodge (1985). In agreement with the present study, Dodge also found social cognitive measures, including generating plans, to predict effectiveness.

Further, the present study replicates the findings of other researchers (Spivack & Shure, 1974; Spivack, Platt & Shure, 1976; Asarnow & Callan, 1985; Richard & Dodge, 1982) that social cognitive strategies contribute significantly to social competence, measured in different ways. The robustness of this effect, across populations, methodologies and instrumentation, argues for the continued use of social cognitive training

in preventative and clinical remedial programs (Camp & Bash, 1982; Oden & Asher, 1977). This study does not point to the necessary elements of social cognitive strategy training. At present, the evidence is strongest for the generation of alternative solutions (Spivack & Shure, 1974; Spivack, Platt & Shure, 1976; Asarnow & Callan, 1985; Richard & Dodge, 1982). However, recent studies by Dodge (1985), and the componential analysis of social cognition by Ladd and Mize (1983), propose other elements for study including: encoding ability, cognitive rehearsal, and recall. Further research is required to investigate the variance in different social competence indices accounted for by these elements.

In conclusion, social cognitive goals and strategies, as measured from interviews in this study, had a modest impact on those aspects of social competence, such as sociometric popularity, persistence and assertiveness, which were not largely composed of emotional non-reactivity or resiliency. As such, if replicated, they offer promise for clinical intervention when treatment targets include: increased peer acceptance, persistence, and ommibus competence ratings by teachers or counselors. Several cautions are raised by this study however, to the effect that not only the dimension of social competence, but also the setting and length of relationship, must be better accounted for in social competence training programs.

5.6 Recommendations for Future Research

The present study offers some support for social cognitive strategies affecting social competence. However, social cognitive goals were found to

feature less often in predicting social competence. This latter finding was unexpected and discrepant with previous research (Renshaw & Asher, 1983; Krasnor & Rubin, 1983; Taylor & Asher, 1984). Two possible explanations for the discrepancy are the different groups of children, and the different setting in which the study was conducted. Unfortunately, the possibility of differential social cognitive - social competence relations across populations and settings has received little attention. The majority of studies investigate the relationship between social cognition and social competence in school, or school playground, settings, using a random selection of school children.

The goals and strategies in the present study are reported as though variability is due only to individual differences in the children being interviewed. There is sound evidence for stable individual differences in children's goals and strategies. For instance, Dodge and Frame (1982) noted that in spite of changes in the partner and the message, aggressive children maintained hostile behavioral intentions. In addition, clinical intervention and training has been required to shift children's strategies from perseverative and unproductive, to more adaptive and productive (Ladd & Mize, 1983).

Nevertheless, in a dyadic game, the partner can also be considered to introduce a source of variability in the target child's goals and strategies. Therefore, an interesting line of investigation for future research would be the partitioning of variation in goals and strategies between actor and partner effects. A method for this is suggested by Kenny and LaVoie (1984), who propose numerous pairings of target children and partners in, for example, a 'round robin' design where actors and partners

are paired in every possible combination of pairs for an activity.

As the present study shows, social competence can display a different structure in recreational and school settings. Although this has not previously been reported, the nature of the differences illustrate just how pervasive context can be. For instance, by contrast with the school child, the socially competent child at camp is evaluated more by his frustration tolerance. Further, while his school counterpart's social competence is dependent on task orientation, he must demonstrate persistence. Both frustration tolerance and persistence are understandably qualities which are particularly adaptive in the camp context where boys need to discover new rules and learn new routines in order to attain their goals admidst up to 59 peers. The setting is demanding and competitive.
Therefore, future research may need to be more attentive to setting variables. This could be accomplished by studies which, for instance, compared factors emerging in a social competence scale for the same children across different settings. Moreover, a replication of the factor analysis for the T-CRS in other recreational groups of boys would help to determine the existence of a different composition for social competence in recreational groups.

Finally, future research might also attend to the difference in the relationship between social cognition and social competence across settings. As others have illustrated (Dodge, Coie & Brakke, 1982; Putallaz, 1983) socially skilled behavior accounts for settings. A molecular description of how social behavioral changes correspond with social cognitive ones would be of interest. For instance, a comparison could be made of a skilled and unskilled child's social cognitions in relation to a problem in different settings.

5.7 Conclusion

To be of most value, investigations of social cognition and competence must reflect the complexity of social life. This study has attempted to represent that complexity by attending to a real life situation. A dyadic game with a peer is a common event for pre-adolescent children. In this study, the dyadic game is embedded in the setting of a recreational children's camp. In spite of the importance of recreational settings for children, they are severely underrepresented in the literature. While theory-guided multivariate methodology for measurement of social cognition and social competence may become commonplace, this study also draws attention to the need to attend to ecological validity and setting factors in social cognition and social competence.

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APPENDIX A

Sample Sociometric Form

How much do you like to play with others at camp? How much do you like to play with:

Name	Not at all	Hardly at all	A little	Quite a bit	Very much

How much do you like to play with others at camp? How much do you like to play with:

Name	Not at all	Hardly at all	A little	Quite a bit	Very much
_____					
_____					
_____					
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APPENDIX B

Introductory Letter to Parents

7 June 1985

Dear Cub Parent,

While your son is attending Napinope Camp, a research team will be visiting the site. The research is part of a doctoral dissertation concerned with what goals different children set for group activity time. We believe that different children have a different goals or intentions when playing with others.

While small groups of boys are waiting for their turns on the archery and BB gun ranges, they will be offered a pinball game to look at and use. As they play together with this game, we would like to videotape them. Then, we would like to invite them to look at the videotape and talk about it.

This procedure has already been used with a group of Calgary girls, and appeared to be very enjoyable for them. Also, we think that it was helpful to children to see themselves on videotape and then think about and talk about what they were doing.

The study will not take away from camp activity time. It will be conducted while the boys are waiting for their turn at an activity or their turn at the tuck shop. Total time taken for this study will be less than one hour in the course of the week for each boy.

We suspect that different children will have different goals during the videotaped activity. Therefore, we would like to find out a little more about those differences. To do this, we would like to ask the Cubs and their camp counselors to complete checklists about:

(1) the boys' expectations of success in different situations,
(2) how the boys describe themselves, and
(3) whether counselors and other boys find them more outgoing or more reserved.

We are interested in the behavior of children in general and therefore checklists and videotapes that identify your child in particular will be destroyed at the conclusion of the study. Confidentiality will be preserved and at no time will any individual child be identified in the final report. During the study, all materials will be removed to the researcher's office daily, where they will be kept secured.

The study is designed so that children who do not participate will not feel left out. In addition, the parent, child or camp counselor may elect to withdraw consent for the study at any time during its implementation. However, we hope you will agree to your child's participation in this interesting study.

APPENDIX C

Example of Transcript Prepared from Interview Following Game

Socially directed behavior	Strategy	Goal statement	Goal
(Passes game to other)	orient.	ask other to show how	p. a.
"I have no idea how to do it"	state.	ask other to show how	p. a.
"You're pretty good at it"	state.	compliment him	r. a.
"Try it again"	direct.	find out more about how to play it	p. a.
"You try again after I have two balls"	direct.	to make it more fair	r. o.
"No, you go"	direct.	fair -- his turn	r. o.
"You go"	direct.	try be fair	r. o.
"Oh, that's really good"	state.	compliment to make him feel good	r. a.
"Whose turn is it?"	quest.	check out to be fair	r. o.
"Try and get past 3"	suggest.	suggest what he might do -- encourage him	r. a.
"Try that again"	direct.	trying to find out how I could do it	p. a.
(Gives other 2nd ball)	orient.	see if he could do it again so I could see how it worked	p. a.
"Your turn again"	direct.	to be fair	r. o.

Legend

orient. = orienting
state. = statement
direct. = directive
suggest. = suggestion
question = question

p. a. = performance approach
r. a. = relationship approach
r. o. = rule-oriented

APPENDIX D

T-CRS as Adapted for Camp Counselors

Teacher-Child Rating Scale (T-CRS)

Child's Name:_____

Counselor's or Leader's Name:_____

Date completed:_____

Please complete the following rating scale based on your impressions of the child.

References to class should be interpreted as meaning camp. References to classmates should be interpreted as meaning campmates.

II. Please rate each of the following items according to how well it describes the child:	Not at All	A Little	Moderately Well	Well	Very Well
1. Accepts things not going his/her way	1	2	3	4	5
2. Defends own views under group pressure	1	2	3	4	5
3. Completes work	1	2	3	4	5
4. Has many friends	1	2	3	4	5
5. Mood is balanced and stable	1	2	3	4	5
6. Comfortable as a leader	1	2	3	4	5
7. Well organized	1	2	3	4	5
8. Ignores teasing	1	2	3	4	5
9. Accepts imposed limits	1	2	3	4	5
10. Participates in class discussions	1	2	3	4	5
11. Carries out requests responsibly	1	2	3	4	5
12. Joins peer group activities	1	2	3	4	5
13. Copes well with failure	1	2	3	4	5
14. Expresses ideas willingly	1	2	3	4	5
15. Works well without adult support	1	2	3	4	5
16. Cooperates with classmates	1	2	3	4	5
17. Generally relaxed	1	2	3	4	5
18. Faces the pressures of competition	1	2	3	4	5
19. Functions well even with distractions	1	2	3	4	5
20. Initiates conversations with peers	1	2	3	4	5
21. Well liked by classmates	1	2	3	4	5
22. Questions rules that seem unfair/unclear	1	2	3	4	5
23. A self starter	1	2	3	4	5
24. Tolerates frustration	1	2	3	4	5

PMHP - Revised 8/84