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SOCIAL COGNITION SKILLS AND THEIR BEHAVIOURAL CORRELATES IN SCHOOL AGE CHILDREN

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To my patient family,

Diane, Matthew, Damien and Sally.

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ABSTRACT

Developmental research has shown a continuing interest in description of what social cognition skills children display at successive age levels. This kind of research has been matched by only limited attempts to examine the behavioural covariance of these experimentally defined latent trait skills. In consequence little is still known about the construct (ecological) validity of such skills and the empirical techniques employed to measure them.

This research took a sub-set of three role taking tasks - conceptual (after Flavell et al., 1968), affective (after Borke et al., 1971) and general social reasoning (after Selman, 1974), together with a new interactionist measure of referential communication based on peer teaching. These were modified and evaluated with local children, and then incorporated in a larger field-based study of 5 and 7 year olds together with concurrent observation by the children's regular teachers. The latter rated the children on a scale of social competence, academic achievement, and rated their own personal perceptions of the children. They further administered a class sociometric appraisal. The children were selected on the basis of teachers' nominations of whether they were well or poorly adjusted with their peers. Each child was also tested for verbal comprehension skills using the Peabody Picture Vocabulary Test.

The guiding theoretical concept was the generalised expectation that social cognition skills would differentially explain an important part of the variance of overt behaviour. The only specificity of prediction beyond that was provided by Selman's structural model

(Selman, 1974; Selman & Jaquette, 1976) regarding the central role of sequential stages of basic social reasoning processes. This general approach was supplemented by exploration of the concurrent validity of the social cognition tasks themselves, using the behavioural measures as criteria by which to determine in turn the social subtleties of what the tasks appeared to be measuring.

It was found that the tasks did differentially explain a varying amount of the variance of overt behaviour, in a manner commensurate with extant findings. More significantly though it accentuated the vital role of social reactance phenomena, and implied that a far more exploratory and open-ended strategy was warranted. In particular Selman's structural model was found to be quite inappropriate as a predictor of interpersonal parameters amongst peers.

The cross-sectional data was augmented by a longitudinal study that examined the same children after two years (66 of the original 82), in order to repeat and extend the teachers' original ratings and class sociometric appraisals. This was expanded by asking the new teachers to further observe the children using the Bristol Social Adjustment Guides (Stott, 1974). The latter provided additional differentiation of individual variability as regards social maladjustment, albeit in a post hoc fashion.

Results further accentuated the inappropriateness of any simplistic analysis of the relation between social cognition and overt behaviour. Of particular interest was the apparent role of peer group normative expectations in determining the differential use of social

cognition skills by boys and girls as a function of age. It was suggested that boys increasingly learnt to devalue the use of such skills in certain situations, while girls seemed to become more like their teachers in valuing the use of social cognition skills such as anticipating consequences and considering the position of others in routine interactions. Implications and suggestions for further research were discussed.

STATEMENT

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and to the best of my knowledge and belief, it contains no material previously published or written by another person, except when due reference is made in the text.

Signed _

G.H. Childs

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CHAPTER ONE

INTRODUCTION

The way that we appreciate what is happening psychologically within the 'skin' of another person has long been a central concern for both psychologist and philosopher. Yet the complexity and multi-faceted character of such a process has persistently made the construct a very difficult one to grapple with. Even to assume that there is an underlying identifiable capacity for such a phenomenon may be simplistic, although a label at least acts as a starting point for research.

The label most commonly associated with this capacity to appreciate what other people are thinking and/or feeling has been 'empathy'. This stands for some very diverse and complex phenomena, and by way of introduction one might list a few of its more salient features. Obviously it is a good thing; we assume that people should possess empathy. Yet our having and using empathy seem to be separable issues, for people are evidently selective in the way they display such processes. It would seem to depend variously on the social situation, mood-state, other motivational elements, and further input-process-output parameters of the particular encounter. Such a capacity, furthermore, would appear to be developmental in character, in that children are markedly less able to appreciate other peoples' 'insides' than adults. Yet at the same time both children and adults obviously vary enormously in the way they employ empathy.

The idea of empathy and its operation would appear to be generally appreciated within our society, even if not all could define the term itself nor articulate its operation. In recent times it has perhaps tended to become a catch-phrase within the helping professions. For them it has achieved important evaluative connotations, and a somewhat self-conscious status. Empathy is thence defined as a pre-requisite kind of skill, something akin to a teacher's control or a mother's warmth. But this professional dimension obviously represents only one highly polished face of a much larger crystal of complex inter-personal skills and processes. These are variously possessed, understood and applied by all of us. As a construct then empathy is a vital approximation of the social oil that lubricates all human interaction.

Over the years the term has been conceptualised in a number of diverse ways; it's relative significance as a construct has waxed and waned with the prevailing ethos of the day. It was recognized within the early introspective methodology (Titchener, 1910), and included in gestalt theory (Kohler, 1947). For present purposes an historical perspective need not go beyond a brief glance within psychoanalytic theory, the precursors of later cognitive theory, and the differential or psychometric attempts to actually measure individual differences in empathic ability.

First of all there would seem to be general consensus that it is possible and desirable to draw a major distinction between a 'sharing' or feeling component and an 'understanding' component

(Deutsch & Madle, 1975; Shantz, 1975; Hoffmann, 1977a, 1977b; Smither, 1977). Flavell (1977, p.129) distinguished between "inferential" and "non inferential" elements, but his choice of terms might be regarded as less than apt. The sharing component has been defined as "a vicarious affective response to others" (Hoffman, 1977a, p. 169), and leads variously to notions of sympathy and also a more prescribed form of empathy itself. The latter emphasizes the way a person responds in a particular setting to a particular alter, most commonly a real person. Predictably much of the antecedent theory for this approach has had a psychoanalytic origin.

The understanding component emphasizes the cognitive skills of how people perceive others and the cognitive processes they employ to make sense of both symbolic and specific social encounters. This naturally implies a more detached stance than the former. The most commonly cited theoretical antecedents for this approach have been the work of Mead (1934), in terms of general social behaviour systems, and that of Piaget (1932, 1959, 1962a, 1962b) mainly based upon his concepts of egocentrism and decentring. In recent times the two most common terms for the understanding component have been role taking, a construct mainly attributed to Mead, and the more general notion of social cognition. The latter has arisen more recently, and involves a distinction from Piaget's antecedent interest in what might be termed 'impersonal' or 'physical' cognition (Chandler, 1977; Damon, 1979).

The customary distinction that is actually drawn between the sharing and understanding components reflects the normal

practice of breaking things down into manageable units. But no-one would seem to argue seriously against the idea that:

> The two conceptions undoubtedly interact, since the ability to respond vicariously may depend on the extent to which one can cognitively infer another's affective state. And, conversely, vicariously aroused affect supplies inner cues to the observer that may add meaning to the affect that he or she infers in another.
>
> (Hoffman, 1977a, p. 169).

The continuing problem, of course, is how actually to untangle these two components in operation. The issue has been most readily illustrated in the continuing efforts of the psychometric test designers, as will be considered shortly.

The focus of the present research has been upon the understanding component, particularly as it appears to operate in children's normal social interactions with their peers. The objective has been to relate particular skills of social understanding to the manifest realities of observed social competence or adjustment in young school-aged children. The term role taking has generally been preferred to the more comprehensive notion of social cognition, although the latter has been employed when less sophisticated cognitive processes are included in the categorisation. This difference is a subtle one however, and ignored by many researchers.

The approach is developmental to the extent that it has focussed on a prescribed age range of children and attempted to adapt the instrumentation to their capacities. It is also developmental inasmuch as the empirical literature to which it

will refer has been concerned primarily with an 'ages and stages' description of just what children do understand about others as they develop. Beyond that it seeks to explore some of the subtleties of how these processes operate, and this leads to questions which go beyond a descriptive-developmental frame-work (Flavell, Botkin, Fry, Wright & Jarvis, 1968). That is, what contributes to the variance which is not accountable for in developmental terms?

These kinds of questions will be asked in the context of the link between a child's cognitive understanding of other persons, and the way that the child actually behaves in a social setting. Such a link might itself be considered self-evident and implicit; otherwise there would seem to be little point in postulating the operation of the empathy construct. Certainly the diverse clinical, psychometric and experimental approaches seem to have assumed this to be so. Yet the surprising thing is that empirical evidence in support of this vital link is relatively scarce and of recent origins. Shantz (1975, p. 303) has commented:

> Presumably this lack of research reflects the traditional insularity in the study of conceptual, motivational and behavioural processes.... In fact, the relation between social cognition and interpersonal behaviour may be one of the largest unexplored areas in developmental psychology today.

A general review of the available literature on this relationship has been withheld until Chapter five. Prior to that a number of preliminary concepts need to be defined, in order that the theoretical and methodological context might be clearly

established. First of all consideration will be given in this chapter to the sharing component, leading to an explanation for the present emphasis on the understanding rather than the sharing aspects. The understanding component itself will then be introduced in terms of its two seminal theoretical influences, Mead and Piaget. These pertain particularly to the developmental perspective, as part of the basic contributory framework. Finally the differential perspective will be considered in terms of the challenge of measuring individual differences. This will serve to introduce the problems encountered so far in actually trying to specify what the components are and how they go together.

Chapter two will elaborate on the structuralist approach initiated by Piaget, for this has dominated the developmental literature until recently. Other conceptual frameworks attempting to expand or otherwise modify Piaget's model will then be reviewed, as will the corresponding empirical efforts. Chapter three will examine the methodology that has been employed in the wider arena of social cognition research, and attempt to give perspective. Chapter four will turn to the other side of the interaction, the definition and measurement of social behaviour, and more specific notions of adjustment and social competence. Chapter five will then bring these threads together in an examination of the parameters of the relation between role taking skills and manifest social behaviours, and will lead to a rationale for the design of the present set of experiments.

1.1 THE SHARING COMPONENT OF EMPATHY

This deals with the way we feel about another person and make a "vicarious affective response" (Hoffman, 1977a, p. 169) to that person's current state or situation. As mentioned before this has generally been conceptualized and measured without systematic regard for its cognitive component, while the cognitive researchers have shown corresponding disinterest in the sharing or feeling aspects of their indices. Despite this insularity it is obviously necessary to consider both, even if it is primarily only an acknowledgement of their interdependence in an adequate formulation. The continuing difficulty of untangling cognitive and affective factors in explaining the variance of a particular episode has similarly been noted. Literature pertaining to the sharing aspect has most recently been reviewed by Hoffman (1977a, 1977b), while an independent contemporaneous critique of the emotional constituents of empathy has been made by Smither (1977). Pertinent themes from each have been included in this review.

Firstly there has been a long standing theoretical interest in the theme that the roots of empathy are to be traced to the early months of life, and to aspects of the infant's primary relationship with its caretaker. The idea stemmed predictably from psychoanalytic theory, according to which the infant's innately derived "primary process" disposed him to relate closely to his mother (Ferreira, 1961, p. 95). A more recent theoretical statement on the same idea of a biological disposition towards social interaction has been made by Wilson (1975). However the theme has been given its most tangible expression within recent

research on micro-analysis of early infant-mother interactions. Condon (1974) has demonstrated the infant's innate capacity for "behavioural synchrony" in its pattern of oral interaction with the mother, while a visual analysis of early interaction by Trevarthen (1979, p. 14) led him to recognize the role of "innate and self-transforming motives for cooperative understanding".

Parallel to this, and not necessarily conflicting with it, has been a more common emphasis on the role of the mother's interactions in promoting the infant's early responsivity. Again the idea was first enunciated within a psychoanalytic framework (Erikson, 1950; Sullivan, 1955; Cooper, 1970, p. 171), and later given a more cognitive context within personal construct theory (Bannister & Fransella, 1971, p. 87). It is also the subject of intense contemporary research, using microanalytic techniques to decipher specific behavioural interactions. This has highlighted many interactional subtleties, including the mother's intersubjectivity in assigning social meaning to the infant's initially haphazard gestures and utterances (Newson, 1974; Newson & Shotter, 1974).

From each of these themes has arisen the idea that such early experiences influence the operation of empathy in later childhood. Its most extreme statement was again a psychoanalytic one:

> The young child remains for a long time a very sensitive being, quickly able to grasp in toto moods and attitudes of the adult. The sensitivity of the child, this tremendous empathic ability, appears to be a continuation

> of that which in earlier days bridged and bound the infant to the mother.
>
> (Ferreira, 1961, p. 97).

The more commonly held view however might be epitomized by Erikson's (1950) psychosocial model, wherein the infant's initial "Sense of Trust" set the pattern for the capacity to adjust to succeeding developmental challenges.

Hoffman (1977a) has since tried to give perspective to the role of earlier forms of empathy in relation to the more sophisticated forms apparent in middle childhood. He identified five ostensibly distinct modes of empathy:

i. the reflexive cry of the newborn to another infant's cry.

ii. the emotional contagion idea of Sullivan, whereby the mother's affective state is communicated to the infant. Hoffman interprets this process of "automatically empathising" (loc cit, p. 177) as a type of classical conditioning.

iii. more general classical conditioning of affective responses.

iv. "an isomorphic, presumably unlearned 'motor mimicry' response to another person's expression of affect" (loc cit, p. 177).

v. the more sophisticated process of "imagining how it would feel if the stimuli impinging on the other person were impinging on the self" (loc cit, p. 179).

The continuing problem has been to find how these diverse phenomena go together; this list is to be regarded as but a starting point. The present focus of attention will obviously be the last of Hoffman's modes, but it is important to provide

a perspective as to how the wider set of phenomena might be related. Hoffman (loc cit, p. 181) commented:

> I do not regard these five modes of empathic arousal as forming a stage sequence in the sense of each mode superseding the previous ones. The first two operate in infancy and are superseded by the others. The remaining three, however, once operative, may continue to function throughout life and, indeed, they may all operate in the same situation. It is problematic, however, whether they facilitate or hinder each other.

Obviously any conclusions in this area remain highly speculative.

There would seem to be a consensus about a normal progression from the more organic to the more reflective forms of empathy, although even that sometimes appears an oversimplification. At present one can only review the salient elements.

One key facet of the more sophisticated mode of sharing would seem to be the development of the child's sense of self-other differentiation (Deutsch & Madle, 1975; Hoffman, 1977a). In particular, once the child is aware of the distinctiveness of the other's experience, he can begin to transform his own empathic response into "a more reciprocal feeling of concern" (Hoffmann, 1977a, p. 185). However it may be an oversimplification to regard self-other differentiation as the sole criterion or turning point for more sophisticated forms of developmental empathy, as has been argued by Deutsch and Madle (1975, p. 271).

For example, Hoffman (loc cit, p. 195), has pointed out that "an element of pure empathic distress may remain even in adulthood". Consequently:

> Insofar as the transformation of empathic into sympathetic distress takes place, the description of the stages should be modified to stress the interaction between affective and cognitive components and the important qualitative change in feeling tone that results.
> (loc cit, p. 186).

Thus on one hand the capacity to perceive the relativity of events may enable the child to put them into perspective. But on the other hand there are sufficient instances, albeit often anecdotal, to suggest that earlier modes of feeling are still very much operative and must be acknowledged. Certainly this continues to be an important part of modern psychotherapy and popularized accounts of interpersonal dynamics such as Transactional Analysis.

Supportive evidence for the continuing involvement of simpler processes in the operation of empathy comes indirectly from the finding of sex differences in its measurement; girls generally display more empathy than boys (Hoffman, 1977a, p. 205; 1977c). This holds true at all ages, including newborns, and supports the notion that a differential pattern of emotional responsivity has considerable developmental continuity. It is all the more striking when one notes a relative absence of sex differences in the more cognitive forms of role taking ability in childhood (Hoffman, 1977a, p. 206). This latter aspect will be elaborated subsequently. It would appear from the contrast that separable mechanisms are involved. The reason for the difference has been variously attributed to females' greater responsitivity to situational rather than facial cues (loc cit, p. 206) and to

males having a more instrumental set towards action rather than feeling (loc cit, p. 207). Hoffman's own tentative conclusion is that the difference is not due to empathic capacity but to a disposition to express empathy through different modalities (loc cit, p. 209). This, incidentally, is still consistent with the theme that earlier modes of empathy persist differentially for each sex.

The preceding argument that empathy as sharing needs to be conceptualized in terms of its developmental continuities must in turn be reconciled with other parameters of its operation. A further aspect of the interaction would appear to be the degree of emotional arousal initiated by the perception of a particular person experiencing a particular set of circumstances. It would seem that the characteristics of the stimulus, and the mode through which it is appreciated, would have a substantial bearing on a person's empathic response, and the kinds of affective/cognitive mechanisms that are thus implicated (Smither, 1977, p. 257).

Similarly it would appear that the particular emotion or set of emotions that are being responded to would influence the character of the empathic response. In this regard it is useful to note the point by Smither (1977, p. 262) that certain emotions, by their very nature, will need to be communicated and comprehended quite differentially. Smither (1977, p. 255) has distinguished in particular between recognition of the so-called simple emotions that have a discernible physiological expression, and those that are variously more subtle in operation. A person can feel for another in terms of matching feelings in only a very restricted

sense. Very few emotions are characterized by so-called natural expression (loc cit, p. 256); most rely heavily on complex context cues, or are appreciated only in continuous interaction (loc cit, p. 262). Thus they need to be portrayed by a story line rather than a set of expressions, however agile.

This leads to the point that the more sophisticated emotions that the child begins to encounter or experience in the operation of empathy can only be appreciated if he has "an adequate understanding of individual motives and contextual meanings" (Smither, 1977, p. 263). Any attempt to catalogue emotional states and their concomitant cues must be based upon:

> a framework of shared experience and conceptual distinctions. Hence we cannot determine a priori which cues to trust or even their psychological import (loc cit, p. 261).

To the extent that empathy is the recognition of emotional states in another person it is thus apparent that the process, in its somewhat more advanced form, must be addressed in terms of quite complex cognitive hierarchies. Earlier ideas of a global or intuitive process (Allport, 1961; Ferreira, 1961), or some kind of isomorphism of feeling (Arnheim, 1949) must thus be rejected (Cook, 1971). Hoffman (1977a, p. 211) concludes:

> Thus, while the vicarious arousal of affect may ordinarily occur regardless of cognition, cognitive processes do appear to be involved in all aspects of the empathic experience.

The next question pertains to the kinds of cognitive processes that actually do mediate our experience of, or disposition towards, empathy. One obvious step has been to look for a link between cognitive role taking and the affective experience of empathy. A lead came from Kerckhoff (1969, p. 233), who proposed that the interactive process of identification was "basically a special case of role-taking role-playing". More recently Deutsch and Madle (1975) have argued that role taking skills would provide the structural basis for empathy in its sharing or feeling sense, while Smither (1977, p. 267) has proposed a weaker link insofar as such skills might provide a kind of prerequisite.

In any event these ideas are only the beginning of the story. For one thing role taking measures have almost entirely been concerned with a more generalized and situationally determined kind of inference, while the sharing aspect of empathy has typically referred to a particular person and specific emotionally arousing events. Interpretation of such links is still largely problematical. In fact negative correlations have been reported in some recent work, with the effect being age-independent for 6 and 9 year olds (Ianotti, 1978).

At this point then one cannot draw meaningful conclusions about the interaction between the role taking construct as part of the understanding aspect of empathy and the available indices of its so-called direct feeling aspect. This is further complicated by the contrast of evidence pertaining to the link between the understanding and sharing aspects of empathy and

its manifestation or application in actual social behaviour. Links of a kind have been established between social cognition and social behaviour; these will be elaborated in Chapter five. However the corresponding links between the sharing aspect of empathy and social behaviour are not at all clear.

In the latter instance the main research interest has been in the relationship between empathy and prosocial motivation to respond to the situation of the target person. (Hoffman, 1977a, p. 186) noted:

> Although it has long been assumed that empathy provides a motivational base for prosocial action, a comprehensive explanation of how it does so has not yet been offered.

His own explanation stressed first of all the role of an optimal range of empathic arousal. This, he argued was

> determined by individuals' levels of distress tolerance - within which they are most responsive to others. Beyond this range, they may be too pre-occupied with their own aversive state to help anyone else (loc cit, p. 188).

Once people reach this hypothesised level their actions might be dictated rather by "egoistic, self-protective action" (loc cit, p. 189). Evidence for the role of the arousal function specifically in children is still scarce. Limited evidence from Barnett, Matthews and Howard (1979) found a significant relationship between empathy and competitiveness in 6 and 7 year old boys but not in girls. This paralleled earlier findings with aggressiveness by Feshbach and Feshbach (1969), and led Barnett

et al. (1979) to associate both aggressiveness and competitiveness in such boys "with heightened self-concern, which may serve to make the feelings of other individuals less salient" (loc cit, p. 222). They further speculated about the importance of sex-typing at this age, leading to a devaluation of empathy by boys but not by girls.

The role of under-arousal has also been highlighted by Hoffman (1977a, p. 198) who has pointed out that the other's emotional state may not have been salient enough for younger subjects. Their empathic capabilities were thus not even activated. In this context other elements such as the instructions from the experimenters may have been more salient.

More general correlational evidence pertaining to the link between empathy and various prosocial indices in young children has been inconclusive (Hoffman, 1977a, p. 199). The most recent evidence is still variously positive (Marcus, Telleen & Roke, 1979) and negative (Eisenberg-berg & Lennon, 1980) in its conclusions. Such inconsistencies continue to reflect primarily the operation of the particular methodology employed; it would be premature to look for pattern or generality. Obviously though the subtleties of sex and minor age variations may prove to be crucial.

Out of this somewhat confusing picture a few useful guidelines can be drawn. In particular there would seem to be no need for apologies about studying the way that the understanding component of empathy operates in relative isolation from its sharing component. The role of interacting cognitive and affective mechanisms in the latter is still poorly understood, particularly

so for children. The directness of the link between understanding and sharing aspects under conditions of everyday routine social arousal is unclear at best, and examination of the cognitive parameters would appear to be a logical first step. This is not meant in any way to derogate the role of affective factors per se; it merely acknowledges that little is to be gained from the theme of empathy as sharing in the present context.

1.2 THE UNDERSTANDING COMPONENT OF EMPATHY

A definition of social cognition in terms of the way we seek to understand others would seem to be a reasonable one, although considerable qualification will be needed. We typically associate it first of all with the way we function whilst in direct interaction with another person or persons. But this needs to be integrated with the diverse ways in which we function in more symbolic situations. These might variously include our response to actors on a stage, film and television viewing, and other private literary experiences such as reading a novel, poem or newspaper, or having them read to us by parent or teacher. Interest in these phenomena has quite early precedents, and has been frequently discussed if not often studied empirically (Flavell et al., 1968, p. 61; Stotland, 1969, p.275; Gribble & Oliver, 1973, p. 16; Smither, 1977, p. 262).

These various social cognition processes have never been brought together in any systematic formulation, let alone in an empirical framework. Many of them are obviously predicated upon a developmental sophistication in the use of symbols. The child's response to literature in particular and the author's implicit

intentions must be based upon a "schematization of experience" growing from a capacity to reify language itself through linguistic formulations of reality (Stone & Church, 1973). This also seems to be what Lennon (1970) was tapping in his factor-analysis of various reading test performances. He identified a fourth factor after the linguistic and comprehension ones that he termed appreciation of what the author was intending. Smither (1977, p. 262) has similarly pointed out that many of the more complex emotional states can only be appreciated in their cumulative form:

> as when we speak of enduring or pervasive hate, fear or resignation - the kind of emotion that often takes a novel to portray.

Closer reference will be made in Chapter five to the phenomenon of the creation of imaginary companions in young children (Manosevitz, Prentice & Wilson, 1973). This is yet another form of social cognition that needs to be included. Furthermore this mode of thinking is not limited to children; there is a widespread tendency on the part of mature adults to think and operate in an anthropomorphic manner. This may be readily observed in relation to domestic pets, but goes beyond that to the attributive perception of the animate and inanimate world by normal people, in addition to its accentuation in certain forms of psychopathology (Heider & Simmel, 1944; Brown & Thouless, 1965). Clearly people employ social cognition skills in a wide range of direct and indirect situations. The relativity, functional interdependence and cognitive complexity of these skills have never been considered in wider perspective.

Furthermore people engage in these social cognition activities in response to an equally wide range of motivational forces. People may spontaneously think about other people and wonder what they are doing on the basis of 'idle' curiousity - the natural urge to know (Flavell et al., 1968). Conversely they may employ their social cognition skills in highly premeditated and sometimes contrived ways, as in sales campaigns, therapeutic interventions, and a multitude of other social influence situations. This issue of motivation has led in particular to an emphasis on a genuine attitude on the part of the therapist if successful therapy is to take place (Rogers, 1949; Carkhuff, 1969). A comparable theme may be found in the need for a salesman to believe in his product if he hopes to sell it successfully. Out of this one can see the need for a uniquely social paradigm which acknowledges the extent to which behaviour is guided by "brain fiction"; we respond to what might happen rather than to what is (Gregory, 1974).

From these brief comments one can begin to see the complexity of social cognition in terms of its focus, intensity, affective connotations in a particular situation and so on. All of these parameters in turn take on a further dimension when such phenomena are examined in their developmental context. The major focus of attention in the present research has been on children aged from 5 to 7 years, with a follow-up of them after two years. This period is itself a crucial one in terms of cognitive development generally (White, 1970). But to put such matters into perspective it is first necessary to review the major

theoretical orientations on development which have proved so dominant and pervasive. The obvious starting point in an historical and theoretical sense is the work of Piaget on one hand and Mead on the other. Some reviewers (Shantz, 1975) have claimed comparable status for the theorizing of Werner (Werner, 1948; Langer, 1970), although for present purposes his contribution has been viewed as essentially complementary to that of Piaget.

1.2.1 Piaget

Piaget's structural theory and its philosophical assumptions have dominated developmental psychology for many years and warrant initial consideration. His model of an invariant sequence of stages pertaining to the style, sophistication or degree of abstraction in the child's developing cognition has achieved widespread currency. The major contemporary issue still pertains not to the general validity of this sequence but to the mechanisms and idiosyncrasies involved in children's transitions through them, and the way that cognitive restructuring actually occurs (Aebli, 1970; Wohlwill, 1973; Brophy, 1977; Flavell, 1977).

These questions are not unique to Piaget inasmuch as the discipline of developmental psychology has been dominated by stage theories, and the problem of the lack of clearly specified mechanisms for the transitions applies to all of them (Brophy, 1977). For present purposes most of these basic questions have only been examined obliquely. Attention has rather been focussed on aspects pertinent to social cognition; that is, the concept of egocentrism and the law of decentring (Piaget, 1959, 1962a, 1962b).

Egocentrism was first delineated by Piaget (1959) in 1926, and has remained a central construct ever since. The term originally characterized only aspects of the child's spontaneous language, with a profile suggesting that,

> Up until the age of about 5, the child almost always works alone. From 5 to about 7½, little groups of two are formed, ... These groups are transitory and irregular. Finally between 7 and 8 the desire manifests itself to work with others. Now it is in our opinion just at this age that egocentric talk loses some of its importance (loc cit, p. 41).

The idea was basically quite simple. The infant's thinking necessarily grew out of his own private experience of what the world was like and of his own central place in the sequence of known events. This inevitably generated an "embeddedness in one's own point of view" (Looft, 1972, p. 34) which persisted into childhood. The child's understanding of others and his capacity to communicate were thus impaired to such an extent that he was originally considered to remain in this kind of pre-social and para-social state till about the age of 7.

That children continued so long in this mode of thinking was:

> due, in the first place, to the absence of any sustained social intercourse between the children of less than 7 or 8, and in the second place to the fact that language used in the fundamental activity of the child - play - is one of gestures, movement and mimicry as much as of words (Piaget, 1959, p. 40).

Gradually social experience with peers did have an effect on the child's thinking, however, and operated in an interdependent and mutually facilitative manner, as expressed by Shantz (1975, p.304):

> In the first case, Piaget suggests that egocentric functioning decreases as a result of the child's confrontation with peers who differ in their wishes, perspectives, needs and thoughts. Thus, peer interaction in general, and peer conflict in particular, is the necessary condition for role taking to emerge and stabilize. In the second case, as role taking abilities emerge the child can engage in reciprocal social behaviour, such as cooperation, discussion and planning.

This special model of the reciprocal relationship between role taking (social cognition) and the child's social experiences with peers in particular has persisted. The "uni-lateral" relationships of adults were not regarded as alternatives in this sense. Further empirical work has effectively lowered the age level at which this reciprocal process is considered to take effect, but has not challenged the basic premise.

It has in hindsight taken developmental researchers a long time to free themselves from the appealing simplicity of Piaget's original insight. This was partly due to a longstanding looseness in defining precisely what one meant. For the original concept of egocentrism was basically a static description, not integrated into a larger developmental model (Flavell, 1970, p. 9). This came later when egocentrism was related to the concept of centration (Piaget, 1950), which originally denoted the tendency

to attend to only one thing at a time. Gradually the developmental law of decentring was formulated as a continuous process, to denote the change from egocentrism to perspectivism or whatever (Piaget, 1962b). The delineation of the specific subprocess of affective decentring came still later (Piaget & Inhelder, 1969), although the idea itself had been present in some form almost from the outset.

It was only much later that Piaget also acknowledged formally that the young child might possess a sense of social intent, even if the capacity to act upon it remained undeveloped (Piaget & Inhelder, 1969). This was a softening of his competence/performance distinction, although he continued to characterize social exchanges in the pre-operational years as "pre-cooperative" (Piaget & Inhelder, 1969).

A further problem was that affective decentring was not well differentiated from aspects of object or impersonal decentring. Piaget's classic 'three mountains' experiment on the coordination of visual perspectives gave a negative impression of the child's social thinking because this was confounded with the quite complex and slow-to-develop skills of spatial orientation and reasoning (Piaget & Inhelder, 1956). As will be seen in Chapter three these are still demanding for many adults (Freeman, 1979, p. 14).

Piaget's model was similarly misleading in that it referred obliquely to the notions of self and self-consciousness but did not formally come to terms with these concepts until much later work, and then only in relation to meta-cognition about objects (Piaget, 1977). These issues will be elaborated in Chapter two.

The point to be made then is that Piaget's original observations have had a profound and longstanding influence in areas of research for which they were not explicitly designed nor empirically validated. Only recently has there been any systematic attempt to put these matters in perspective.

1.2.2 Mead

A major source of insight into the truly social parameters of how people employ social cognition has come from the work of Mead (1934). His objective was a total model of the origins of social behaviour, with central constructs of mind and self emerging from social interaction as such. The social character of self had already been recognized (Cooley, 1922), but Mead developed a comprehensive system which formed the basis for later 'Symbolic Interaction' theory (Rose, 1962; Sahakian, 1974), as a major sociological orientation. The present review will be restricted to Mead's concepts about self, role taking, and the generalized other.

Self was very much a reflection of direct social experience in terms of the symbols and criteria of one's own society (Mead, 1934, p. 163). It was firstly a construction of all the roles known and played by each person in daily activities. This organization of social experience was the "Me", and acted as foundation for the"I", the immediate, reactive and self-conscious sense of being. Construction of these two interactive components was facilitated by play, especially the child's imaginative attempts to play at the roles of significant people or objects in his environment.

Mead thought that children did not begin to play interdependently until they progressed to the game stage, when it became increasingly necessary for each child to be aware of the relative role played by each other member. The child's growing sense of his own role in a particular game and its relation to the roles played by other children was thus basic to an integration of self and self-other perspectives with different people (loc cit, p.152). This growing self consciousness brought with it a sense of sympathetic identification with another person and the ability to take his viewpoint (loc cit, p. 300).

The latter notion of role taking has gradually become a widely recognized social process that is obviously paralleled in part in Piaget's law of affective decentring. The term role has of course many connotations; Mead himself used it in different ways (Coutu, 1951). In the present context it was synonymous with taking the attitude or viewpoint of the other person, and was quite distinct from 'role playing' or 'playing a role' (Coutu, 1951, p. 180), even if these were interdependent in practice.

Role taking was thus contingent on self awareness and the differentiation of self-other perspectives; they were mutually facilitative. The process developed from stereotyped imitation and immediate rule following to the capacity to make sophisticated inferences. This was clearly similar in content to Piaget's approach, but somewhat different in its contributory dynamics. Mead also differed in his conception of significant others. He saw no special role being played by peers to overshadow the influence of anybody else:

> What goes on in the game goes on in the life of the child all the time. He is continually taking the attitudes of those about him, especially the roles of those who in some sense control him and on whom he depends (loc cit, p. 161).

This wider sense of social reference led in turn to the construct of the generalized other, the child's growing sense of the expectations and attitudes of his larger community. Mead (1934, p. 155) noted:

> If the given human individual is to develop a self in the fullest sense, it is not sufficient for him merely to take the attitudes of other human individuals towards himself and toward one another within the human social process, and to bring that social process as a whole into his individual experience merely in these terms: he must also, in the same way that he takes the attitudes of other individuals toward himself and toward one another, take their attitudes towards the various phases or aspects of the common social activity or set of social understandings in which, as members of an organized society or social group, they are all engaged.

In general such issues have still to be addressed effectively by the developmental researcher. The notion of role-taking has been widely used, but mainly in a more simplistic experimental sense. The concept of a larger and more complex framework of social awareness is still obviously present as a background idea, but not as an accepted empirical construct. The work that has perhaps come closest to dealing with such phenomena is personal construct theory (Kelly, 1955, 1970) and

its repertory grid technique. Surprisingly this evolved quite independently of Mead's original influence (Kelly, 1970, p. 22). Kelly presented a "sociality" corollary within his broader theory which hypothesized:

> To the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person (Kelly, 1955, p. 95).

However this approach and its methodology have not been integrated with the tradition of purely developmental research on social cognition.

These two major theoretical positions with their similar developmental principle yet markedly different premises have set the context, to a large extent, for the research that has blossomed in the last two decades. The final task here is to give perspective to the presentation of these ideas and how the present design grew out of them.

1.3 A RATIONALE FOR RESEARCH

Chapter two will elaborate on what social cognition has come to mean in both its cognitive structural sense derived from Piaget and its social interactionist sense derived from Mead. This will lead in turn to consideration of an independent differential literature on individual differences, particularly the influence of a psychometric testing approach. Recent theoretical attempts to reconcile these dimensions have then been considered.

Chapter three will review the techniques variously employed to measure developmental aspects of social cognition, while

Chapter four will consider the theoretical and methodological aspects of measuring the child's manifest social adjustment. The latter includes direct observation by the teacher and sociometric preferences by the children's peers. These two chapters help define a context for a more detailed consideration of the actual interaction between social cognition skills and manifest indices of social adjustment in Chapter five. This in turn provides a rationale for the eight experiments then reported.

The experiments were conducted in three major phases, and have been reported accordingly. Firstly Experiments I-VI were concerned with the evaluation of techniques for measuring role taking skills. They were planned to ensure as far as possible that each instrument was developmentally suitable for the particular age range of 5 to 7 year olds, in an effort to respond to the legitimate criticism that much of the prevailing instrumentation was not really apt (Aebli, 1970; Cooper, 1970; Deutsch & Madle, 1975; Shantz, 1975; Smither, 1977; Rubin, 1978).

In this sense investigators have frequently not been cognizant of the role of parallel developmental processes, nor of the subtleties of the experimental situation itself. A common design has involved the administration of a single task to a variety of age groups, and then the attribution of the developmental pattern primarily to the specific task variables (Chandler, 1977, p. 111). This approach certainly has its place; but it would also appear that careful adaptation of task demands to a particular age level would greately enhance their ecological and construct validity. There is a real sense in which the researcher

needs to be more attuned to the idiosyncrasies of his subjects than to his hypotheses.

Experiment VII was a cross sectional study applying those instruments concurrently to a sample of normal 5 and 7 year olds. The focus was on the relationship between social cognition skills and social competence in the normal range of adjustment. The only special design consideration of individual variability was in the selection of two broad categories of well- versus poorly-adjusted children by the teachers themselves. The analysis of this data, aside from anything else, accentuated the need for more precise specification of characteristics of individual variability in research of this kind.

Experiment VIII was then devised as a response in part to this need for a closer look at individual variability. This meant that one facet of the work had a post-hoc character, but this was more than compensated by the possibility of carrying through with a longitudinal perspective on the same children. Certainly the utility and timeliness of longitudinal work in this area had been emphasized (Shantz, 1975, p. 313), and the findings of Experiment VII served to re-emphasize this.

The various rating scales were employed as before, but more subtle indices of sociometric status were incorporated. The post-hoc character of the study came from the addition of the British Social Adjustment Guides (BSAG; Stott, 1974) as another observational task to be conducted by the teachers. This focussed explicitly on modes of social maladjustment found in children from 5-16 years in the context of normal classrooms. Application of

this was intended to permit finer identification of certain groups of children with particular interpersonal problems. The original social cognition tasks were then evaluated as potential predictors of these patterns of behaviour, so getting closer to adequate indices of discriminant, predictive and construct validity.

A wider rationale for the use of Stott's instrument will be given subsequently; at this point one need only note that its psychometric properties were relatively strong. It further included a maladjusted behaviour syndrome known as Inconsequence, which described children who displayed poor social problem solving skills or social intelligence, including anticipation of means-ends relationships (Spivack, Platt & Shure, 1976) in their every-day classroom behaviour. This seemed especially pertinent to the present focus on the relation between social cognition skills and social behaviour.

Finally it needs to be emphasized that the research was increasingly conducted and analysed as an exploration of new ground. Speculative interpretation of data became more important than long-term generalizability as work progressed and one saw the need to redefine terms of reference and one's assumptions about the phenomena under scrutiny. In this sense the analysis became open-ended rather than an attempt to draw firm inferences from the interactions of fixed variables. The original multi-model design, and its implict assumptions, acted as a starting point for themes that made sense in hindsight but were not represented in foresight.

CHAPTER TWO

STRUCTURALISM AND BEYOND

This chapter has attempted to draw together the major contemporary views about the nature and development of social cognition. The first issue pertains to the distinctiveness of social cognition with respect to other aspects of cognitive development. The second and major issue involves the continuing dominant emphasis on a structuralist approach to development. In this regard Selman's model and methodology have provided an important, albeit controversial, reference point. The third issue concerns the growing critical awareness of the limitations of the structuralist approach. This review looks at the psychometric literature on the measurement of individual differences and the clinical/developmental literature on developmental and individual variability in order to find guidelines for further progress.

2.1 THE DISTINCTIVENESS OF SOCIAL COGNITION

A cornerstone of Piaget's original theorizing was that both effective and cognitive decentring were products of a "single integrated process" (Piaget & Inhelder, 1969, p. 26). This was based on the assumption that the "energetics" of behaviour, social or otherwise, must all reflect an inseparable, complementary evolution of personal experience and cognitive structures in continuous interaction (loc cit, p. 21). Such isomorphism of physical with social cognition was itself an accepted plank of Piaget's theory throughout the earlier period of replication and elaboration of his original findings.

An experimental validation was first provided by Feffer and Gourevitch (1960), who showed a concordance between projective role taking and performance in various Piagetian tasks for 6-13 year olds. This led to the generation of a centration or single factor hypothesis (Feffer, 1971); which was supported in a number of correlational studies (Wolfe, 1963; Brown, Matheny & Wilson, 1973; Rubin, 1973; Rubin, Attewell, Tierney & Tumolo, 1973; Damon, 1975). But there were dangers of oversimplification in assuming more than parallelism from such findings, and gradually this kind of interpretation was bypassed. The finding of distinct role taking and logical factors then accentuated the limitation of the notion of isomorphism (Hollos & Cowan, 1973; Tomlinson, Keasey & Keasey, 1974; West, 1974; Hollos, 1975). A general review by Shantz (1975, p. 303) concluded:

> The attempt to find specific, nonsocial logical skills relating to role taking ability has not proceeded far. The most frequent relation found has been with conservation performance, but even that is not consistent.

Even spatial perspective taking skills and social role taking skills proved to be not nearly as closely related as was first assumed. Chandler (1977, p. 118) pointed out:

> When the effects of age are partialled out...., the magnitude of the apparent inter-relations between these measures drops substantially, leaving considerable room for doubt about the unitary character of the ability dimension which they are thought to reflect.

Thus the general decentration factor envisaged by Piaget proved to be an elusive one in empirical terms (Shantz, 1975, p. 301).

Another variation on this general theme has been the notion that impersonal cognition preceded or anticipated social cognition processes in some way. Piaget's concept of decalage provided an obvious, if rather loose, analogy for what might be occurring (Tomlinson et al., 1974); whilst Cooper and Flavell (1974) tried to show that perceptual or spatial role taking skills would be critical primarily in the initial phase of acquisition. But only equivocal support ensued; uncertainty and ambiguity have certainly not been diminished:

> Although most researchers working with this framework have found that logical structures first appear in physical and later in social concepts, it is conceivable that under certain circumstances the opposite might be true. (Selman, 1976a, p. 174).

Most recently Keating and Clark (1980) have reviewed the issue and still found an absence of studies that actually compared the two domains adequately. Their own multi-trait multi-method study with adolescents revealed that:

> correlations between different measures within each domain were no greater than correlations between measures from different domains (loc cit, p. 23),

and suggested that interpersonal reasoning at the formal level was less common that physical reasoning. Clearly the speculation about such interdependence still lacks an empirical basis.

In view of the ambiguity encountered in attempts to take an isomorphic stance it then followed that a dichotomy might be drawn between social and non-social cognition. This theme has now become a well-established cornerstone for many workers (Lee, 1975; Selman, 1976a; Spivack et al., 1976, p. 10; Chandler, 1977, p. 93; Damon, 1979, p. 209). Such a recognition of the "unique intensive qualities of the social universe" (Selman, 1976a, p. 174) has gradually generated a theoretical milieu that appears to be firmly established.

A parallel idea has also emerged within the more psychometrically-oriented study of individual abilities (Shantz, 1975, p. 302; Spivack et al., 1976, p. 11). This has focussed on Guilford's structural model of the intellect, particularly the notion of "social intelligence". On the basis of this,

> The overall evidence would indicate that while skill in understanding certain aspects of social affairs is not totally independent of traditionally conceived intelligence, there remains good reason not to conceive of them as merely two facets of the same thing or manifestations of the same underlying process. (Spivack et al., 1976, p. 11).

In retrospect the initial attempts to include social cognition phenomena within the extant cognitive structural framework were understandable on the basis of prevailing paradigms and data. The trend now apparent towards treating social phenomena as distinctive may however prove to be more defensible empirically, even though rather inconclusive at present. Experientially at least this would certainly appear to be so, although these are

still early days, and the issue remains a lively one (Chandler, 1977; Damon, 1979).

The trend towary reifying a matrix of intercorrelated variables on the strength of their face validity has also emerged in another form. This has been the attempt to characterize various social cognition measures as themselves being unitary in nature (Rubin, 1973; Van Lieshout, Leckie & Smits-Van Sonsbeek, 1973). Fortunately, it would appear that such tendency to over-simplify has been short-lived (Chandler, 1977, p. 119), and the complexity of the phenomena are now being confronted realistically by the experimentalist. Recent work has thus attempted to define a hierarchy of complex skills (Urberg & Docherty, 1976; Kurdek, 1977; Rubin, 1977b), which at least opens the way to a multi-dimensional perspective (Kurdek & Rogdon, 1975; Chandler, 1977; Damon, 1979).

2.2 STRUCTURALISM

The second and major theme has been the continuing significance of the structural-sequential model. The term structural has itself been used to denote many diverse things. Some of its recent connotations, for example, have been anthropological (Turner, 1973), phenomenal (Blasi & Hoeffel, 1974), cognitive (Riegel, 1973) and methodological (Kuhn, 1978). In the present context cognitive developmental processes have been characterized almost exclusively as a unidirectional and invariant sequence of modes of thinking, guided ultimately by the CNS (Flavell, 1972, p. 341). In consequence contemporary research has in fact only

recently shown the confidence to tackle the more complex subtleties and interactions of cognitive process and individual social experience (Chandler, 1977; Damon, 1979; Light, 1979). However the present kinds of approximations will obviously be employed for some time to come, regardless of their limitations (Wohlwill, 1973).

Numerous models involving these structural assumptions have been developed, all sharing common features pertaining to the definition of stages and their assumed linear sequential operation (Feffer & Gourevitch, 1960; Kohlberg, 1963, 1968, 1969; Wolfe, 1963; Elkind, 1967a; Fishbein, Lewis & Keiffer, 1972; Flavell, 1974, 1977; Selman & Byrne, 1974; Selman & Selman, 1979). The focus here on the work of Selman partially reflects his content, but more particularly reflects his dominant contemporary status in the consensual assessment of major reviewers (Shantz, 1975; Flavell, 1977; Geber, 1977; Smither, 1977). At the present time that seems to be the most adequate criterion.

2.2.1 Selman's structural model

Selman's approach was strongly influenced by Piagetian theory, and may be introduced using three of Piaget's basic themes: the role of structure, the law of decentring, and the basic cognitive units of groups and relations. First of all his theory took the general logico-mathematical stages as the basic framework for all cognition, whether physical or social. A particular kind of deep structure was then proposed just for social cognition processes. At its most basic level this consisted of an invariant sequence

of perspective taking levels which were derived logically rather than by empirical analysis (Selman & Byrne, 1974, p. 7). Upon this basic sequence were built other successive levels of cognitive structures, each supposedly getting closer to the reality of manifest social behaviour. All finally operated within the constraints of the highest dominant mode of functioning currently attained by the particular individual. The central task was the defining of each child's developmental status with respect to his functioning level of perspective taking, which for Selman was the "basic reality" of the child (Selman, 1975, p. 41). Measurement involved the presentation of dramatized interpersonal episodes that took the form of open-ended social dilemmas. The format was typically 35mm colour strip-films with taped audio dialogue. Their main improvement over Kohlberg's preceding materials was in meaningfulness for the children, since Kohlberg persisted with content that was more adult-oriented (Damon, 1977, p. 17). The child's understanding was tapped by open-ended questioning and the interviews were taped for later transcription and scoring; details of this will be provided in Chapter six.

The invariant sequence was an elaboration of Piaget's original law of decentring which was initially differentiated into a three-stage sequence by Feffer (Feffer, 1959, 1971; Feffer & Gourevitch, 1960; Feffer & Suchotliff, 1966), with transition between stages at approximately 6 and 9 years. The place of Feffer's own methodology will be considered in Chapter three. Selman subsequently elaborated this earlier model by adding three more sophisticated levels which progressed into

adolescence and adulthood. This was derived in part from the earlier and parallel model of moral reasoning levels by Kohlberg (1963, 1964, 1968), which itself was an expansion of the original sequence of moral reasoning stages of Piaget (1932). The resultant sequence proposed by Selman warrants more detailed description in order to convey the suggested direction of developmental processes, even though the subsequent focus will be on the earlier period.

Level '0' (Egocentric perspective taking) characterized the child of 3 to 6 years who was thought to have progressed in his decentring to the point where he was able to separate his own viewpoint from that of another. This differentiation was incomplete in that it was still:

> contaminated by a confusion of the self's subjectivity with the subjectivity of other. (Selman, 1974, p. 11).

Level '1' (Subjective perspective taking) characterized the child of 6 to 8 years who was:

> able to clearly differentiate the subjective perspectives of self and other; he begins to understand that even under the same circumstances, other people's thoughts and feelings may be the same as or different from one's own, or that others may think differently about social events depending on the information available to them. In other words, all people have subjective interpretive abilities. (Selman, 1976A, p.159).

This in turn led to a focus on:

> the uniqueness of the covert psychological or subjective nature of others, rather than on other's overt actions. (Selman, 1974, p.12).

However the child was still thought to experience some difficulty in processing own-other perspectives simultaneously. Level '2' (Self-Reflective perspective taking) characterized the child of 8 to 10 years who achieved a sense of the reciprocal character of self-other perception; one which:

> generates an awareness that other's perspective on the self's own inner views is an important consideration in dealing with other and in understanding other's viewpoint. (Selman, 1976a, p. 159).

However this awareness was not thought to be generalized beyond a dyadic situation, and could only occur in a sequential fashion. A simultaneous grasp of mutual perceptions was not yet possible (Selman, 1974, p. 12).

Level '3' (Mutual perspective taking) characterized the child of 10 to 12 years who could begin to stand outside a relationship and take a third-person perspective:

> The preadolescent is able to step back from the reciprocal co-ordination of perspectives, perceive its "infinite regress" nature (I know that you know that I know, etc.), and construct a reality from interpsychic subjectivity. (Selman, 1976a, p. 159).

In consequence this meant that he,

> can now differentiate the self's perspective from the generalized perspective, the point of view taken by some average member of a group. (Selman & Byrne, 1974, p. 808).

Level '4' (Qualitative Systems perspective taking) characterized in turn the adolescent. Selman then emphasized the reflective and recursive thinking capacities of formal operations as applied to social phenomena:

> the subject can compare and qualitatively contrast sets and levels of perspectives. There is a recognition that mutual perspectivism can occur at a number of levels of inter-personal awareness within the dyad (from superficial to deep). (Selman, 1976a, p. 160).

Finally Level '5' (Symbolic-Interactional perspective taking) drew on Mead's theory to convey the adult's sense of social relativity and functioning within his social milieu. At an interpersonal level Selman (1974, p. 14) defined a process where each person,

> is aware that the subjective relation between self and other may have multiple meanings, some overt and factual, others which are symbolic.

This also permitted the capacity to focus on the interaction itself and the way it was construed by each participant (Kelly, 1955).

A third theme characterising Selman's general model concerned the cognitive units of groups and relationships. At a

surface level he examined social cognition in terms of the child's developing conceptions about various kinds of social content. This was itself categorized into two broad areas, Descriptive and Prescriptive, with the latter actually incorporating the model of moral reasoning defined by Kohlberg (1963, 1964, 1968, 1969; Kohlberg & Selman, 1973). The Prescriptive area involved the developing evaluative concepts of 'what ought to be', which were regarded as the other side of the coin to developing Descriptive comments about 'what is' in the child's social world. Both kinds of concepts were still based on the underlying deep structure of perspective taking levels (Selman, 1974).

Selman's framework of units within this descriptive domain closely followed Piaget's own logical classification of groups and the pattern of lattices between them. He hypothesized developmental sub-sequences for understanding categories of specific persons, dyads, groups and institutions. Relationships between these units could similarly be characterised as peer-peer, parent-child, sibling-sibling relations, and so forth. Developmental sequences for each of these content areas were then intended to fit within the logical model of sequential levels of perspective taking. Out of all this Selman saw an ambitious profile emerging to cover specific sequences for all different content areas, whilst still remaining consistent with the underlying structure.

In practice research has mapped out sub-sequences in only a few areas. Selman's initial research generated a sequence with scoring procedures just for the 'persons' category (Selman, 1974;

Selman, Byrne & Kohlberg, 1974), and this has been utilized in the present study. The sequence was:

1. Conceptions of simple subjectivity, i.e. awareness of the nature of conceptions of motives, thought, feelings, or other covert activities of persons.
2. Conceptions of self-awareness, i.e. awareness of the particular nature of the subjectivity of the self, e.g. defenses.
3. Conceptions of simple personality, i.e. awareness of the psychological relation of the different subjective attitudes of a particular self, e.g. traits, psychological dispositions, values, character etc. (Selman, 1974, p. 20).
4. Conceptions of the self system.
5. Conceptions of the co-ordination of relations and persons. (Selman, 1974, p. 21).

The character of the approach might be further illustrated by delineating a second sequence pertaining to recent work on conceptions of friendship between peers (Selman & Jaquette, 1976; Selman & Selman, 1979). In this the main levels were described as:

Stage '0', Non psychological relations (age 2½ - 5 years). The child understands only the purely overt and surface characteristics of friendship and its physical determinants.

Stage'1', One way relations (age 4-8 years). The child begins to differentiate subjective perspectives, but does not grasp their reciprocal relation.

State '2', Context - specific reciprocal relations (age 5-14 years). The child can see relations as the reciprocity of subjective viewpoints, but cannot understand their mutual or psychological basis.

Stage '3', Mutual relations (the young adolescent through to adulthood). The person can stand outside a friendship and view its qualities as a system with collaboration for mutual and common interests (after Sullivan, 1955).

Stage '4' Independent relations (mature adolescent or adult). The person can see how relationships are organized along multi-dimensional and qualitatively distinct levels. (Selman & Jaquette, 1976).

The status of structural models of this kind will obviously continue to be contentious. Some of the main issues of current debate warrant a brief perspective. From the outset one needs refer to the enthusiastic reception given this model by major researchers and reviewers (Shantz, 1975; Chandler, 1977; Flavell, 1977; Rubin, 1980). Its particular appeal would seem to be its ambitious attempt to bridge directly the gulf between manifest behaviour and inferred cognitive structures. At the same time it has received considerable criticism, albeit often because of its derivative status with respect to Kohlberg's equally contentious model of moral reasoning (Kurtinez & Grief, 1974; Simpson, 1974; Damon, 1977; Smither, 1977; Kuhn, 1978; Kurdek, 1978b; Levine, 1979).

The situation in turn is exacerbated by the openness of the theory itself. For example, Selman contends,

> each level of perspective taking may be a necessary but not sufficient structure for a parallel stage of interpersonal relations. A given interpersonal concept stage presupposes a specified level of perspective taking, but the perspective-taking level need not imply the corresponding interpersonal stage. (Selman, 1976a, p. 160).

This makes his deep structures difficult to evaluate empirically, but it is clear that the developmental mechanisms will prove to be far more complex and resistant to definition than originally envisaged by Selman. This leads to a consideration of recent attempts to conceptualize more adequately the complexity and subtlety of such phenomena. The first of these pertains to the interaction between the child's existing cognitive structures and the novelty of each new social situation in which he seeks to operate.

2.2.2 Cognitive structures and social content

The relationship between inner cognitive structures and the diversity of the social environment has captured the attention of many researchers, but the diversity of their approaches serves to accentuate the lack of consensus in defining the critical issues. Chandler (1977) has suggested that the research situation might be represented as a dichotomy between studies examining the object versus the subject side

of the interaction. These are worth reiterating here as a framework.

The object-oriented label characterized research in person perception that concentrated on what the child was attending to, and how the social cues were then processed (Chandler, 1977, p. 100). The subject-oriented label characterized the egocentricity/role taking research, emphasizing how the child assimilated social content into his framework of cognitive structures (loc cit, p. 107). Chandler argued that the weakness of past research had been the relative absence of overlap between the two, since both were necessary to begin to tackle the psychological reality of such phenomena. However he was optimistic about the way such integration was starting to occur:

> More recently, however, investigators working in this area have come to attach increasing importance to the manner in which the object environment exercises accommodatory controls over the more subjective side of subject-order interaction. This gradual equilibration is seen as bringing both of these research areas closer to the kind of assimilation-accommodation balance which Piaget regards as the hallmark of any developmental process. (loc cit, p. 141).

Despite this optimism one is still struck by the conservative structuralism that remains entrenched in much empirical work. This is particularly evident in American research, as noted by Kuhn (1978, p. 102):

> Another factor that has reinforced this tendency to ignore the environmental context of development has been the tendency of American cognitive developmental researchers in studying Piagetian concepts to regard Piaget's tremendously important structure-content distinction much less flexibly than Piaget intended. In his account of structuralism, Piaget (1970) makes it clear that in his view there is no absolute 'structure' or absolute 'content'. Rather, the structure-content distinction is a relative one: what is 'content' in relation to a given structure in turn becomes structure in relation to another more subordinate level of content.

This might certainly be taken as applicable to Selman's model and his logically derived methodology. The problem derives from an intrinsic inflexibility which does not permit dialogue with other dimensions. An unfortunate situation of stalemate persists as the inevitable consequence.

The problem is well illustrated by the question of universality of structuralist models. This has been particularly contentious for Kohlberg, who has attracted charges of ethnocentrism and over-simplification (Simpson, 1974; Damon, 1977). Yet Selman has still taken for granted that his perspective-taking levels will prove to have the kind of generality typically accorded to Piaget's stages. He has described them as "relatively universal" (Selman, 1979, p. 71), even though acknowledging their weaker status empirically:

> The application of the term 'stage' to our analyses of the development of interpersonal concepts must await both cross-cultural and longitudinal empirical evidence as well as a more complete analysis of conceptions of specific types of interpersonal relations. (Selman, 1974, p. 10).

The matter remains speculative due to the piecemeal and limited scope of cross-cultural data on social cognition. In practice the general question of Piagetian development has itself been challenged with respect to its cross-cultural validity. Buck-Morss (1975) argued that it is biased towards the abstracted, technologically-oriented mode of thinking typically associated with scientific problem solving in western society. This leads to the notion of multiple modes of cognition, corresponding to different cultural value systems, social structures and so on (Mangan, 1978). Yet a review of cross-cultural research (Dasen, 1977) led Piaget to comment firstly that the studies provided good support for his developmental sequence and secondly that the variability of emergent skills supported his interactionist view of the development process. However Dasen himself seriously questioned the reliability of such cross-cultural inferences with the tasks presently available, an opinion shared by Sinclair (1978, p. 211). A comment by Damon (1977, p. 12) that:

> what works best in one setting may be maladaptive in another, and so it makes little sense to evaluate disparate modes of dealing

> with the world according to a common standard

is obviously still pertinent. The contemporary European approach would thus appear to be more cautious about the validity of generalizing or extrapolating from responses to particular dilemmas by particular samples (Levine, 1979, p. 231).

2.2.3 Personal subjectivity

There has been considerable criticism of Piaget's theory for its inability to come to terms with the more idiosyncratic or figurative aspects of personal awareness, as distinct from the operative modes of cognition (Turner, 1973; Wozniak, 1974, p. 392). This has included the minimal role of self-awareness within any operative model of cognition (Turner, 1973, p. 358; Blasi & Hoeffel, 1974).

This same kind of criticism might be justifiably applied to Selman's model, insofar as his levels of optimal social reasoning do not sit comfortably with the essentially concrete and content-specific nature of affect as it is experienced by the individual self (Turner, 1973, p. 354). Selman's model nominally acknowledged the role of self in terms of the child's "construction of the relation between self and other's subjective viewpoints" (Selman, 1974, p. 7), but this was not self in its self-conscious or idiosyncratic sense as a main-spring for direct behaviour.

In that sense Selman came no closer than Piaget to the role of personal subjectivity and phenomenal awareness in either

thinking processes or their influence on manifest behaviour. Certainly his methodology offered no scope for considering the personalised, figurative and 'recentered' mode of social cognition characterized by Turner. The problem is not unique to Selman's work of course (Flavell, 1977, p. 120), but the limitation does need to be made explicit.

2.2.4 Subject-Object interaction

The way a child understands and responds to the particular personal and contextual cues in a situation will similarly involve a bewildering array of elements that have yet to be conceptualized adequately. One might begin with a consideration of the particular social object, in terms of the difficulty of actually inferring the pertinent aspects of another's motives, dispositions and other input into the interaction. This has been considered in terms of the therapeutic notion of behavioural transparency (Foa, 1958; Jourard, 1971) and the more complex interactional notion of congruence (Rogers, 1967). Attempts to apply these notions to children's interactions have been rare, although recent work has started to look at the genesis of impression formation and the growth of specific social interchanges amongst two and three year olds (Lewis & Rosenblum, 1975; Mueller & Vandell, 1977). This would appear to be a promising start towards defining the parameters of what a child will look for and how he will then respond to a particular peer partner. However these newly emerging interactional processes can obviously not be extrapolated to school-age children, in relation

to whom there is still a paucity of evidence. The problem is both a conceptual and methodological one, as will be considered more fully in Chapter four.

One key aspect of such interaction will be the child's own frame of reference, particularly the influence of assumed similarity (Cook, 1971). This will be given a broader context later in this chapter with respect to problems of measuring empathy (Cronbach, 1955, 1958). Firstly there would appear to be clear evidence that 'real' similarity in terms of age and sex does appear to facilitate the operation of empathy (Smith, 1966; Feshbach & Roe, 1968; Flapan, 1968; Daane & Schmidt, 1975; Deutsch, 1975). More recently, however, Hoffman (1977a, p. 297) argued that this may be too simplistic an interpretation with respect to the younger age group:

> Affective role taking ability is thus confounded with actual similarity, and young children can perform well by simply attributing their own past or probable response to the story character. This may account for the frequent finding that dissimilarity (as to sex, age, race) or use of unfamiliar situations results in decreased accuracy scores especially in younger children. Only at 9-12 years of age do children consistently recognize emotions of people dissimilar to themselves, who are in unfamiliar situations.

Apart from this it would appear that any incongruity of cues or uncertainty on the part of the younger child will lead him to be guided primarily by a principle of direct perceptual

salience (loc cit, p. 297). Such findings are certainly consistent with other person-perception research suggesting that personal variables contribute only a small proportion of the total variance in an interaction for adults and children alike (Rockway, 1969; Argyle & Little, 1972).

In this kind of context it may also be useful to consider the subtleties of how behaviour may be a product of rule following within specific social episodes. Harre and Secord (1972, p. 182) have pointed out how our sense of future directed rules determines our expectations of others' behaviour, as well as guiding our own immediation action. These social episodes might be variously concerned with role playing (loc cit, p. 183), formalized ceremonies (loc cit, p. 185), or lack apparent causal mechanisms altogether (loc cit, p. 112). They would contend that all can be analysed in terms of rule following (loc cit, p. 207), although again this awaits empirical examination. Certainly the concept makes intuitive sense.

Such an idea also leads to a "dramaturgical" model of social behaviour, guided by notions of style in the presentation of self to others (Goffman, 1969; Harre & Secord, 1972, p. 216; Argyle, 1973, p. 144). Of course this must be a highly selective process, one that will be specific to task and situation. There will also be many occasions when people follow the conventions blindly or habitually, learning a way of behaving that may perhaps have minimal recourse to social cognition skills at all (Harre & Secord, 1972; Turiel, 1977). Such subtleties

have so far been examined solely by field observation. An empirical definition is yet to be achieved, especially one that encompasses the developing child.

In conclusion it can be seen that the varied parameters of context cues, personal qualities, social conventions and rules for interaction will all be potentially pertinent, but vary inter-dependently with the social maturity of the child. No adequate framework presently exists for categorizing, let alone integrating, these phenomena. One of the few attempts to bring order has been by Sigel (Sigel, 1970; Sigel & Cocking, 1977). He used the notion of 'Distancing' behaviours, which:

> create temporal and/or spatial and/or psychological distance between self and object. 'Distancing' is proposed as the concept to denote behaviours or events that separate the child cognitively from the immediate behavioural environment. The behaviours or events in question are those that require the child to attend to or react in terms of the non-present (future or past) or the nonpalpable. (Sigel, 1970, p. 111).

Such a model is interesting as a first attempt to try to reconcile the child's representation of immediate social realities with those portrayed by the media of representation: pictures, verbalizations and gestures (Sigel, 1970, p. 209). This may add perspective to the diversity of social situations requiring cognition, and to the current gap between empirical definitions of them and real-life encounters.

2.2.5 The role of developmental sequence

It may now be appropriate to return to the sequential dimension of the structural model, and examine the details of how a child is actually thought to progress from one stage or level of cognitive functioning to another. Obviously this will be a central issue in any broader evaluation of a structural approach, and has long been recognised as an unresolved question with respect to Piaget's original logico-mathematical model (Aebli, 1970). Recent criticism has tended to be even more insistent:

> With the exception of some of his early work (Piaget, 1932, 1951), Piaget's theory pays little attention to social interactions; development is brought about by inner cognitive leaps during which the child begins to apprehend and enact new forms of operations. Since.... developmental leaps can be explained only by the discordance or asynchrony in the progessions along at least two dimensions of functioning, development, in Piaget's interpretation, always appears from nowhere, without inner or outer determination. (Riegel, 1975, p. 59).

Selman and Kohlberg's adherence to a linear sequence model similarly permits no variability in the mechanisms of developmental progession:

> It is only when the child has a firm command of one level of reasoning that he is ready to move

> to the next level. (Selman, Byrne & Kohlberg, 1974, p. 10).

They explained any transition in terms of "exposure to reasoning one level above the child's own level" (Selman, Byrne & Kohlberg, 1974, p. 9) and to the child's sense of conceptual conflict in handling the disparate elements that result.

With these kinds of assumptions Selman regarded socially maladaptive behaviour as a developmental process obeying the same kind of sequential pattern. In other words the child with a behaviour problem was classified in terms of an impaired rate of progression through the normative competencies expected at each age level:

> Our model helps us place Tommy's behaviour along a developmental continuum in which he can be compared with other children his age. Rather than focussing on his rebuff of the other child, our analysis looks at Tommy's strategies for interacting with others and sees him as not necessarily hostile or unfriendly, but as a child whose ways of making friends is developmentally far behind that of others his age (Selman & Selman, 1979, p. 79).

Selman himself would see this approach as having useful clinical and educational applications, so far characterized in terms of "friendship counselling" (Selman & Selman, 1979, p. 71). This can be regarded as an exploratory kind of humanistic therapy which still lacks any systematic evaluation. Its premises appear to have something in common with Rational-emotive

therapy (Ellis, 1979), although it is certainly not to be given the status of a therapeutic system. The most obvious problem pertains to its orientation towards the child's highest level of social reasoning potential. Selman (1975, p. 43) certainly acknowledged that people do not regularly function at their own optimum level, but saw no contradiction in applying this to a socially maladjusted child who was ostensibly lacking in social cognition skills, in addition to any other causal, associative or derivative factors.

The idea of defining a stage in terms of its ultimate end-point or climax of achievement has already been criticized (Flavell, 1971), while Wohlwill (1973, p. 237) pointed out that:

> the binding together of a set of concepts, notions, rules, operations, etc., into a total structure (Piaget's structures d'ensemble) may be a characteristic of the end-product of the development of that structure, but need have no implications for the manner in which its components develop.

The adequacy of end-of-stage markers of the child's competence might thus be questioned, along with the concept of a one-dimensional model of individual variability. These themes will be elaborated later in the chapter.

2.2.6 The goals of development

Another issue associated with sequential models has been the problem of defining their end points, for this has obvious implications pertaining to the implicit goal of development

itself. In this regard it is useful to review the recent literature on formal operations as the imputed final stage of cognitive development (Inhelder & Piaget, 1958). There is increasing suspicion that this may be an inadequate representation of the real diversity of mature cognitive functioning.

Piaget (1972) was one of the first to speculate that formal reasoning might in practice be employed selectively, which represented an important re-appraisal of his earlier notion of a steady progression towards a more abstract and relativistic mode of cognition. The theme has since been reiterated by a number of reviewers (Blasi & Hoeffel, 1974; Riegel, 1975; Flavell, 1977), but there is still little consensus on what the emphasis should be (Long, McCrary & Ackerman, 1980). It ranges from a continuing acceptance of earlier assumptions (Brainerd, 1978) to wide criticism of their inflexibility (Riegel, 1973, p. 351). The present review has drawn from this selectively in order to convey the diversity of emphases (Riegel, 1973; Blasi & Hoeffel, 1974; Berzonsky, Weiner & Raphael, 1975; Chandler, 1975; Elkind, 1975; Cropper, Meck & Ash, 1977; Strauss & Kay, 1977; Wason, 1977; Labouvie-Vief, 1980; Long, 1980; Long et al., 1980).

First of all a number of theorists have examined the phenomenal and behavioural limitations of the adolescent's repertoire even within a framework of so-called normal formal operational functioning. The first and best known was Elkind (1967a, 1967b, 1976), who coined the notion of "adolescent egocentrism". He argued that the young adolescent was, in effect, still grappling

with subject-object differentiation, albeit at a more complex level of interpersonal awareness:

> these ideas are egocentric only because the individual assumes they are shared by others when in fact they are not, or that they are not shared by others when in fact they are. Many of the interpersonal interactions among young adolescents are governed by assumptive psychologies, and this accounts, in part at least, for the self-centredness of these interactions (Elkind, 1976, p. 175).

With this model Elkind sought to explain many of the short-term adolescent idiosyncrasies of self-consciousness, the sense of imaginary audience, difficulties of communication with parents, and object-oriented peer relations. Such problems were viewed as the inevitable consequence of a newly emergent reflective mode of thinking within the structuralist framework. As such the adolescent duly grew out of them in turn through increasing self-awareness and social experience. The idea remains plausible, both experientially and conceptually (Blasi & Hoeffel, 1974, p. 345), but lacks empirical verification.

Chandler (1975) similarly saw various negative affective consequences following from the adolescent's growing capacity to reflect on self-other relationships. This led to what he called "epistomological loneliness", the heightened sense of individuality and isolation of the phenomenal self (loc cit, p. 172). He then identified three maladaptive consequences of the adolescent's attempts to come to terms with this reflective capacity: excessive cliquishness and artificial

peer-group consensus, stereotyping of 'out group' people and viewpoints to avoid their implied contradictions, and self-conscious use of abstract thought to force contradictory opinions into "a kind of elegant, if somewhat syncretic, consensus" (loc cit, p. 175). Thus formal thought still hinged on affective rationalization and canalization processes and could therefore be employed maladaptively or contradictorily as with any other mode of cognition.

In contrast Blasi & Hoeffel (1974) suggested that the operation of mature social cognition might be parsimoniously explained just in terms of the concrete operational mode. That is, the difference between concrete and formal structures in the social domain may have been a question of style rather than the actual products of cognition (loc cit, p. 350). Effectiveness of functioning hinged rather on the extent to which the individual had:

> accumulated a rich and varied experience. It is a domain, moreover, that constantly has offered problems for which practical solutions were required, and for which internal insights as well as external teaching and feedback were available (loc cit, p. 351).

Direct empirical validation has again not been forthcoming, although Blasi and Hoeffel drew oblique support from analogous work on physical cognition, wherein it has been shown that most people do not customarily function at the formal operational level (Blasi & Hoeffel, 1974; Labouvie-Vief, 1980; Long et al., 1980).

Finally a fifth stage of cognitive development has been variously proposed, following on from formal operations (Dulit, 1972; Riegel, 1973; Arlin, 1975; Mirza, 1975; Cropper, Meck & Ash, 1977; Long et al., 1980). This included the idea of a further stage of "problem finding" (Arlin, 1975) or equivalent (Cropper et al., 1977), multiple paths (Dulit, 1972), and a different kind of extra stage that would permit interdependence of form and content (Riegel, 1973, p. 361). The latter dialectic model stressed that mature thinkers would continue to utilize their earlier modes of cognition in different situations, as well as going beyond these to cope with the conflicts and contradictions of everyday life (Riegel, 1973, p. 366; Long et al., 1980, p. 17). This has also generated a debate on whether Piaget's approach was intrinsically dialectic in the first place (Youniss, 1974; Wozniak, 1974; Sinclair, 1978); but that issue will not be elaborated here.

It would be futile to try to draw any coherence or direction out of these diverse themes at the present time. But it does serve to highlight that children cannot be assumed to be progressing towards an orderly end-point of skill or understanding. Empirical validation is still very limited (Berzonsky, et al., 1975; Long et al., 1980), but available research has variously indicated that the end-point of the Piagetian sequence, and its social derivatives in Kohlberg and Selman, will prove to be far more diverse and multi-faceted.

One might anticipate the methodological review of Chapter three by noting that the task performance of adolescents

and adults was readily influenced by language sophistication (Moran & Joniak, 1979), primacy effects (Palmquist, 1979), and so on. These parameters of functioning are clearly not restricted to young children.

2.3 VARIABILITY IN SOCIAL COGNITION

It may be necessary to reiterate the basic consensus that there is a broad, general order to the way a child's cognition develops. That has been shown longitudinally (Damon, 1980), and is not at issue here. The key question pertains rather to the subtleties and variations in development as they apply to the individual. The variance of empirical indices which could actually be accounted for in structuralist terms may really not be that great. In practice the data has seldom been expressed in that form anyway. Is it possible then to put more into the equation and account for more of the error variance?

These issues are examined here in two ways. Firstly it may be useful to step outside the developmental framework altogether for a moment and adopt a largely differential perspective on the child (Cronbach, 1957; Wohlwill, 1973). This sideways step into the psychometric literature will provide a pragmatic view of the way individual differences in empathy have been explicitly measured. A consideration of these quantitative issues will provide a useful perspective, albeit one that is not often adopted by the developmentalist (Wohlwill, 1973).

Secondly attention is directed to the scope and adequacy of attempts to deal with individual variability within the

developmental literature. This leads in particular to the efforts to conceptualize the development process in order to reconcile individual variability with the limitations implied by a structuralist model. These two sections serve as a framework for defining the components of social cognition. The third section will then review recent empirical efforts to establish the identity and structure of the measurable skills.

2.3.1 Measuring individual differences

Numerous attempts have been made over many years to develop appropriate instrumentation in this area. But in order to review and characterize such material it is appropriate first of all to revert temporarily to the original term of empathy. This has been preferred amongst the clinical and industrial psychologists for whose use these tests were intended. Such work tended to be consumer-oriented with respect to an industrial or clinical setting, so global generalities about modes of cognition or developmental sequences aroused little interest. What was at issue was simply whether a perceived psychological construct could be measured with sufficient rigor to facilitate the selection of appropriate personnel, measure the success rate of therapeutic intervention, or whatever.

The following review stresses the methodological aspects in order to illustrate the problems that have arisen and how they have been tackled. The literature is classified under three headings - the 'paper and pencil' tests, 'ranking and rating' techniques, and the use of 'direct' techniques for the evaluation of therapeutic encounters.

The paper and pencil tests. These have been the best known and most visible aspect of the measurement of empathy for many years. A diverse collection of published standardized tests has evolved, in response to the clinical and industrial market. In retrospect the psychometric appraisal of the instruments has been largely negative (Buros, 1965, 1972), a situation that has not ostensibly altered much over forty years. Yet continued sales attest to the commercial need for viable instruments, and the willingness of purchasers to believe that such tests will give the effective differentiation of clients which they require.

One can readily assess the instruments available from a survey of Buros' yearbooks, which convey the diversity of definitions, modes of measurement and levels of sophistication (Fine, 1948; Sargent, 1953; Moss, Hunt, Omwake & Woodward, 1955; Engel, 1958; Peixotto, 1960; Engel & Richenberg, 1961; Kerr & Speroff, 1961; Cassel, 1963; Peters, 1964; O'Sullivan, De Mille & Guilford, 1965, 1966; Laing, Phillipson & Lee, 1966a, 1966b; Shutz, 1967; Gough, 1968; Huessenstamm & Hoepfner, 1969; Comrey, 1970). Several do not possess evident face validity, as in the case of the Test of Social Insight (Cassel, 1963), the Scale of Socio-Egocentrism (Peters, 1964) and the Empathy Test (Kerr & Speroff, 1961), while others attempt to generalize from a restricted functional definition of interpersonal skills, as in the Inter-Person Perception Test (Huessenstamm & Hoepfner, 1969).

Somewhat greater relevance was subsequently achieved by a factor analytic approach, through the use of subscales from multi-dimensional self-report tests of personality. The most promising of these so far has been the Comrey Personality Scales (Comrey, 1970). The empathy sub-scale, one of eight, appeared to be distinct and homogeneous (DeMaree, in Buros, 1972), although its construct and predictive validity have not been examined. Greater subtlety is needed in the wording of items before the measure can be considered seriously.

A different non-projective approach altogether has been the compilation of a multi-faceted profile of empathy. One of the earliest was the Social Intelligence Test (Moss et al., 1955), although its content and design have again been severely criticized (Thorndike, in Buros, 1941). More recently the Tests of Social Intelligence (O'Sullivan, De Mille & Guilford, 1966) attempted to generate specific instrumentation from Guilford's broader model of the intellect (1959, 1967). The model hypothesized 30 different facets of social intelligence, although only six sub-tests have so far been published. It was not a developmental model, although it allowed various degrees of complexity, and showed potential despite the limited reliability and validity of these tests (Jackson, in Buros, 1972, p. 371). The model complemented contemporary literature on social cognition, although no reference was made to it till much later (Shantz, 1975; Spivack et al., 1976). This apparently reflected the prevailing insularity of empirical work.

A third approach to paper and pencil measurement in mature subjects has been the multiple choice questionnaire. The best

known example was the Chapin Social Insight Test (Gough, 1968), in which subjects chose one of four solutions to a series of hypothetical interpersonal problems. The aim of the test was,

> to assess an individual's ability to appraise others, to sense what they feel or think, and to predict what they may say and do, (loc cit, p. 1),

thus trying to tap the higher-order evaluative aspects of empathic skill. But the questionable face validity of the 'correct' answers was readily apparent, and the test did not withstand psychometric scrutiny in terms of reliability or validity (Orr in Buros, 1972, p. 99; Lake, Miles & Earle, 1973, p. 311).

Another well-known test has been the FIRO-B Scale (Schutz, 1967), which measured subjects' perception of their own interpersonal processes rather than the way they perceived others. The concepts are linked but the distinction is a significant one, so the test has been excluded from examination here. The review has likewise refrained from examination of projective techniques for measuring empathy (Fine, 1948; Sargent, 1953; Engel, 1958; Peixotto, 1960; Engel & Kechenberg, 1961). None achieved an acceptable level of inter-judge reliability, whilst the issue of construct validity was never tackled satisfactorily. The decline of interest was inevitable, although this possibly reflected a reduced enthusiasm for projective techniques generally (Buros, 1970).

It is apparent then that the multitude of attempts to measure

empathy by a paper and pencil test format encountered severe methodological difficulties. Their credibility was further eroded by the influence of key methodological critiques (Cronbach, 1955, 1958; Gage & Cronbach, 1955), which argued that accuracy of understanding needed to be analysed in terms of various components rather than an overall score of competence. These components included stereotype accuracy, for predicting the average response from a category of persons, and differential accuracy, for predicting how responses varied amongst individuals within a target group. A third element was assumed similarity, wherein the subject responded as if his own viewpoint was shared by others, or that the others were in fact similar to him (Johnston, 1978, p. 22).

Identification of these components tended to channel subsequent interpretation towards the view that stereotype accuracy and assumed similarity were artifacts that needed to be removed from the data before 'true' differential accuracy could be tapped (Cook, 1971, p. 89). Yet Cronbach himself never intended such an interpretation, for he regarded all three areas as important components of social understanding. This is an important point, often overlooked in subsequent work:

> They are not artifacts in the sense of trivial, methodologically induced results, and they should properly be reflected in any measure of interpersonal understanding. Indeed, the distinction between stereotype and differential accuracy is somewhat arbitrary depending on the experimenter's frame of reference. Both terms can be given precise

> meanings only if the experimenter defines a specific group of individuals to be judged (Johnston, 1978, p. 23).

Taft (1966, p. 601) similarly observed that

> When the categories are simple, readily observable, or broad, we speak of the stereotype accuracy of the judgements and when they are complex, covert or narrow, we are more likely to talk of 'differential accuracy'.

These difficulties in sorting out the role of such subtleties have obviously weighed heavily on subsequent test designers (Vernon, 1964). The issues remain highly pertinent to any attempt to conceptualise skill elements in a developmental model. This point will be expanded upon below.

Ranking and rating techniques. These refer to laboratory-based research which approached empathy not as a trait but as a dynamic process. Subjects were typically asked to engage in direct social interaction with specified others, whether strangers or close acquaintances. Typically this impression-forming phase was followed by an evaluation session, when trait rating scales or inventories were completed pertaining to a particular person or perhaps several group members (Dymond, 1949, 1950; Hastorf & Bender, 1952; Lindgren & Robinson, 1953; Taft, 1966). The accuracy criterion was often provided by the experimenter in a somewhat arbitrary fashion, or else consisted of the self-ratings of the person(s) being judged. The literature on this has been thoroughly reviewed elsewhere (Cook, 1971; Cohen, 1973;

Cook & Smith, 1974). One might note that empirical interest has generally faded with time.

The other other recent interest has been in the Interpersonal Perception Method (Laing, Phillipson & Lee, 1966b). This enabled an established dyad (particularly a married couple) to describe their multiplicity of perceptions of one another. It attempted to conceptualize a series of levels of perception in terms of spiralling metaperspectives, up to a heady fifth possible level. The validity of such an approach has been questioned repeatedly:

> ....the infinitely regressing images of our images may be functionally nonexistent after one or two spirals of this kind. If so, the authors are playing with mere logical possibilities rather than significant psychological events. (Gage, in Buros, 1972, p. 199).

But one needed to go no further than the instrument itself to be daunted by the complex and demanding exercise in emotional disclosure required. The method is of interest now mainly as an example of how difficult it has been to put sophisticated theory into practice.

The preceding discussion makes it clear that a complex mixture of psychometric and psychological artifacts is involved in the use of numerical rating scales (Cronbach, 1955; Gage & Cronbach, 1955). This apparent complexity generated widespread pessimism about empirical progress. One of the few recent attempts was a group ranking technique (Cook & Smith, 1974). This required people to think in relative terms and seemed closer to the natural

process, so representing an interesting methodological development. In perspective however the underlying problem of measurement has not changed appreciably in twenty years of empirical work and current interest appears to be limited.

Direct techniques. This area of research has arisen within a therapeutic setting of the delineation and training of helping skills. The major theoretical model came from the phenomenological/ existential school of psychotherapy, with its primary antecedents in Rogers' client-centred approach (Rogers, 1949, 1965, 1967). This emphasized three critical attitudes on the part of the therapist as necessary for effective intervention: congruence or genuineness, acceptance of the client, and accurate empathic understanding of the client's phenomenal world. Attention has been confined to the third, although there might well be a parallel between congruence and the psychoanalytic notion of sharing. Accurate empathy was defined as the ability to understand the other's perspective and also the ability to communicate this understanding. Measurement of the way this empathy operated has been tackled in two ways: by independent ratings of the therapeutic process in toto, and by the participants' self-report evaluations.

The use of independent ratings is particularly associated with Carkhuff (Truax & Carkhuff, 1967; Carkhuff, 1969). Most recently this has taken the form of eight distinct sub-scales, each with five Guttman-type ratings (Carkhuff, 1969, vol.II, Appendix B). All were defined in terms of observable communicative behaviour towards the client and have attracted widespread

interest as a means of bringing precision to the training and application of counselling skills. But this enthusiasm has clouded an objective appraisal of what was actually being measured.

Carkhuff (1969, vol.II, p. 83) defined empathy in functional terms insofar as it was only said to operate successfully when there was an effective interaction with the client leading to behavioural change. Obviously there were complex issues in this multi-level process (ideation, communication, interaction and behaviour change), although the rating scale dealt only with communication of levels of meaning. This simplified the measurement criteria, but in consequence the parameters were not sufficiently explicit to permit adequate inter-judge reliability (Chinsky & Rapaport, 1970). Beyond this the validity of the ratings was also uncertain; perhaps they reflected the subjective quality of "communicated commitment" of the counsellor (Kiesler, Mathieu & Klein, 1967, p. 305), or even his personal style of language usage. Such questions have yet to be resolved satisfactorily.

The second approach involved a combination of independent observations with the participants' self-report evaluations (Barrett-Lennard, 1967). This gave promising coefficients of reliability (Lake, Miles & Earle, 1973), and appeared to be a better predictor of outcome than Carkhuff's rating approach (Barrett-Lennard, 1974, p. 14). However relationships between variables still need to be examined, as their independent meaning is not clear. Barrett-Lennard's (1974, p. 16) own appraisal

tended to re-echo the points made previously:

> Empathy as a generalised ability or trait is a knotty, important, related but also different sphere from the one I have focussed on.... My own analysis of the process suggests (at minimum) that any adequate measure of such capacity would involved a cluster of abilities and of values rather than a unitary trait.

In conclusion the construct of empathy has remained elusive in varied psychometric attempts to measure it in mature subjects. It is obviously insufficient to define it simply as a unitary ability; this cannot do justice to the dynamic, interactional and multi-dimensional processes at work. It must be viewed as something more than a highly distilled spirit that is left after all the other intervening variables have been controlled. The so-called response-set artifacts such as stereotype accuracy, acquiescence, halo effect and assumed similarity must be viewed as significant elements; they cannot be dismissed simply as sources of error (Cronbach, 1955, 1958; Cook, 1971; Cook & Smith, 1974). A wider conceptual framework is needed to clarify what to look for and how to interpret it. The contribution of the adult-oriented differential research would seem to be a substantial list of what the pertinent elements in this framework might be. How they actually operate remains to be seen, but certainly there can be no illusions about the complexity of the empirical task.

2.3.2 Individual differences within a developmental framework

Despite this long-standing psychometric interest in individual differences there has been no acknowledgement of their importance by developmental researchers until quite recently. This apparently reflected their predominant concern with tasks that demonstrated age-based trends, and methods of analysis that presumed or emphasized structural homogeneity within each age level. Ontogenetic research thus progressed in a separate manner from more clinically-oriented studies which sought to document the nature and extent of difference in various disturbed or disadvantaged populations. Within the latter category might be included studies pertaining to deaf children (Hoemann, 1972); emotionally disturbed children (Neale, 1966; Thompson, 1968; Chandler, 1971, 1972, 1973a, 1973b; Filer, 1972; Chandler, Greenspan & Barenboim, 1974; Selman, 1976; Selman & Jaquette, 1976); autistic children (Anthony, 1959); schizophrenics (Cameron & Margaret, 1951; Milgram, 1960; Suchotliff, 1970); juvenile delinquents (Gough, 1948; Stein, Gough & Sarbin, 1966; Feshbach & Feshbach, 1969; Chandler, 1973c; Rotenberg, 1974); brain-damaged (Milgram, 1960); the senile (Looft, 1972); and the effects of normal ageing (Papalia, 1972; Rubin, Attelwell, Tierney & Tumolo, 1973). Acknowledgement of the contradiction to be resolved between the heterogeneity of these abilities and the homogeneity of a structuralist approach has only appeared recently in developmental research.

The awareness of individual differences was further reinforced by studies demonstrating the measurable effects of

certain social environments on the development of social cognition skills in normal children. The relative absence of peer interaction amongst those reared in isolated rural settings was cited as the reason why such children were deficient or at least slower in developing certain role taking abilities (Hollos & Cowan, 1973; West, 1974; Hollos, 1975). Whatever the disadvantage, it only appeared to operate up to a kind of threshold level of early social interaction (West, 1974, p. 1121). Beyond this point the relative experiences of childhood peer interaction appeared to make little measurable difference.

These kinds of deficit-based and environmental-based illustrations of variability have all contributed to the realization of how flexible a structuralist framework will need to be. This obviously extends to the limit the explanatory capacity of the present developmental sequences. Wohlwill (1973, p. 236) commented:

> the usefulness of the stage concept remains an open question today, and its potential promise is as yet unfulfilled. This is because investigators have thus far failed to undertake the type of multi-variate yet fine-grained analysis of qualitative response patterns undergoing development that would be required to reveal the potential contribution.

That appraisal would still seem to be highly pertinent at present. Nonetheless Wohlwill still pointed out the:

> degree of order and regularity.... of constraints on the forms which the inter-relationship of developing elements of a structure may take (loc cit, p. 239),

which justified continued use of the stage concept.

More recently Chandler (1977, p. 121) argued for a less rigid use of stages when explaining social cognition in particular. He emphasized that the role taking tasks made different kinds of cognitive demands, requiring varied reasoning skills from pre-operative to formal.

Flavell (1972) went further in emphasizing the need for even greater subtlety if the structural approach was to do justice to the idiosyncracies evident. He distinguished five different kinds of sequences in the prevailing literature, and tried to delineate a whole range of interchangeable and overlapping mechanisms. He further acknowledged a possible sequential dimension (loc cit, p. 336), leading to a larger "polysequential" model:

> One suspects that something very like this sort of process - tortuous and spiral-like, cyclical and recursive, sequence violating and sequence transforming - may be characteristic of most cognitive activity and development, however micro or macro in its time scale.... Indeed it may not be confined only to the cognitive domain. (loc cit, p. 343).

Other variations on this same theme have been proposed by Van Den Daele (1974) and Riegel (1972). Within this kind of theorizing

Piaget's work was regarded as contributing some but by no means all of the sequences delineated (Flavell, 1972).

One other recent model purporting to be a more behaviourally oriented approach to the same problem has been the Interpersonal Cognitive Problem Solving model (Shure & Spivack, 1974; Spivack & Shure, 1974; Spivack et al., 1976). But in practice its methodology is comparable with Selman's in its reliance on the child's verbal elaboration, whilst its component skills cannot be clearly separated from those implied in the work of Flavell or Selman. For example the 'awareness' component of the ICPS is similar to Flavell's 'existence' (Flavell, 1977, p. 120), while 'considering consequences' and 'understanding and appreciation of social and personal motivation' overlaps with Flavell's 'inference' (loc cit, p. 121) in the latter's Existence - Need - Inference - Application model of social cognition in operation (Flavell et al., 1968; Flavell, 1971, 1974, 1977). Similar parallels can be drawn with Selman's work.

Efforts to deal with this variability in an empirically defensible way have been infrequent. Brown and Thouless (1965) made an interesting attempt to show the variability of operation of animistic thinking, but that sparked no replication or elaboration. Most recently Davison, King, Kitchener and Parker (1980, p. 129) proposed:

> a stage model that is consistent with disjunctive theories of stage development and the scaling procedures for testing the stage ordering embodied in any such theory.

They found 70% of their undergraduate subjects displayed responses consistent with a stage ordering model (loc cit, p. 130), but pointed out that:

> a subject's predominant response type may only weakly be related to any single real-life behaviour and that studies of stage structure in real-life behaviours would require study of a large number of such behaviours (loc cit, p. 130).

Consequently:

> it would seem that if measures of cognitive-social development are important at all, it is because of the breadth of behaviours to which they relate, rather than because of the strength of their relationship to any single behaviour. (loc cit, p. 130).

Damon (1980) made a rare longitudinal investigation over two years of children's social reasoning about positive justice and parental authority. Amongst his 4 to 9 year olds:

> Although there were a few subjects on both interviews who showed no change from year 0 to year 2, the strong tendency was for subjects to move in a forward direction. Particularly striking.... was the tendency for children to progress during one year of the study if not during both. Lateral or downward movements seemed to be corrected the following year by positive change, as were excessive movements forward by subsequent lateral or negative change. This evening-out tendency was also evident in the finding that children who initially performed

> at low levels for their ages were disproportionately likely to advance by more than one level in the following year, thus catching up with their peers. (loc cit, p. 1016).

The pertinence of Flavell's polysequential model to begin to explain such changes is evident.

Damon (1980, p. 1016) noted that one possibility for the evening-out process would be

> that children with modes of reasoning unusual for their ages are particularly susceptible to both short- and long-term change through social-cognitive conflict with peers. The latter explanation would be consistent with recent experimental work by Doise and his colleagues (Doise, Mugny & Perret-Clermont, 1975; Mugny & Doise, 1978).

This hypothesis has been pursued most recently by Perret-Clermont (1980).

What is emerging then is confirmation of the reality of developmental sequences for much of the child's social-cognitive processing, parallel with confirmation of the importance of the individual child's own style of making progress (Damon, 1980, p. 1017). If and how these components work together, and what personal and socialization factors operate therein, still remains clouded. At present the role of peers is receiving particular attention (Hartup, 1978; Damon, 1980; Perret-Clermont, 1980).

2.3.3 The structure of social cognition

What then can be said of the current research situation? Is a more subtle model of social cognition starting to emerge in response to these kinds of finding? Two major emphases can be discerned in the last five years. The first has been a centration hypothesis, emphasizing the role of a common underlying factor. The other has been a multi-dimensional one, stressing the notion of a diverse and complex pattern of sub-skills. So far proponents of both approaches have tended to operate within the implicit framework of a structural model. However the very nature of a multi-dimensional approach would seem to lend itself eventually to greater differentiation of component skills. The latter would also appear to offer the prospect of accounting for more individual variance than is presently possible.

The centration theme emerged initially as a logical step from the application of correlational matrices and subsequently factor analysis (Rubin, 1973, 1974; Rubin & Schneider, 1973). Rubin (1978, p. 431) subsequently emphasized the poor discriminant and convergent validity of available instrumentation, which he regarded as a contaminating factor in attempts to get at this underlying general skill. The same theme was explored by Van Lieshout et al. (1973), Hudson (1978), and most recently by Leichtman (1980). The latter two have tried to refine their task batteries in terms of greater homogeneity of content and demand characteristics. In this way they hoped to achieve a 'purer' measure of the assumed underlying general factor. Hudson also tried to utilize "a mode of analysis which only treated

larger variations in scores as meaningful" (loc cit, p. 226). This was in preference to correlations that seemingly confounded all of the other error variance (loc cit, p. 225). The idea was an interesting one, but the chi-square analysis could not be extended beyond its exploratory form within the simple design.

Leichtman's (1980) factor analytic procedures similarly confirmed Rubin's earlier finding, with a first principal factor accounting for 51% of the variance of the five tasks given to 9 year olds (loc cit, p. 302). Obviously one can expect a moderate or even strong relation between a set of tasks, depending on the particular selection used. The problem however is that this general social factor may then prove hard to distinguish from general intelligence, particularly verbal IQ. Consequently the correlations within the matrix and in turn the factor loadings diminished considerably once the effects of verbal IQ were partialled out (Rubin, 1973; Leichtman, 1980). No one would of course suggest that the factor is merely a sub-section of general intelligence. Although there is plenty of evidence pertaining to their inter-relatedness (Kurdek, 1978b, p. 15), there would seem to be stronger consensus that social cognition warrants a more distinctive status, as already discussed.

But it would seem to follow that any factor analytic study of role taking tasks would reveal a major underlying factor. That might be termed inevitable in view of the aforementioned commonality of many of the demand characteristics of these tasks, and their reliance primarily on elicited verbal responses. It might similarly be expected that general intelligence, more

particularly its verbal IQ component, will account for an important part of this shared variance. However, as Shantz (1975, p. 302) pointed out:

> Even if social cognitive skills were substantially related to intelligence, the relation would not be very helpful in clarifying what processes are involved in social cognition. Most intelligence tests tap many abilities.

What then will be gained by looking for the way a set of loosely defined tasks go together? It is presently a pragmatic rather than a theoretical question, and the pragmatic answer would seem to be not very much.

The failure of these more simplistic models has led to attempts to create a multi-dimensional approach to the structure of social cognition tasks. Urberg and Docherty (1976, p. 202) first suggested an hierarchical clustering of role taking tasks, which accentuated their distinctiveness in terms of various sub-skills. They distinguished initially between tasks requiring sequential decentring and those requiring simultaneous decentring, and claimed that Selman's structural model in particular integrated, and thereby compounded, these two separable and potentially important aspects (loc cit, p. 203). Furthermore their mean age of acquisition of structural levels was "several years lower" than suggested by Selman (loc cit, p. 203). Consequently they argued that "looking for the sequence of development in these skills is futile"; it was better to explore individual skills and their interactions (loc cit, p. 203).

Most recently Kurdek (1978b) has re-emphasized the potential significance of the distinction between "successive" and "simultaneous" decentring aspects of cognitive perspective taking. He cited Selman's methodology as an example of the former, whereby the child constructs a viewpoint likely to be similar to his own, without needing to "employ a balancing or coordinating cognitive operation" (loc cit, p. 4). However empirical evidence on how children really do respond to Selman's tasks is still lacking, as acknowledged by Kurdek (1977b, p. 1509), so the point is still speculative.

Guessing games and tasks with public versus privileged information have also been cited as examples of successive decentring (Flavell et al., 1968; Chandler, 1973b). They typically involved a contrived distinction between self/other perspectives, which the child needed to be able to coordinate simultaneously. But evidence to support the distinction between successive and simultaneous decentring is itself still limited (Urberg & Docherty, 1976; Kurdek, 1977b).

It is evident then that the multi-dimensional approach as yet has more good intentions than hard data. It is little more than a generalized acknowledgement of the reality of individual variability. What has emerged perhaps is the specific acknowledgement that each experimental task will need to be considered on its own terms; this is the focus of Chapter three.

CHAPTER THREE

MEASURING SOCIAL COGNITION

Recent reviewers in this field (Shantz, 1975; Chandler, 1977; Flavell, 1977) have alluded to its watershed character. All have emphasized the need to consolidate, to take stock of what has been learnt and reflect from this on where to go next. But this is a difficult task given the diversity of material, and reviewers might be forgiven if they tended to seek direction rather than offer it. The difficulty of the task is of course consistent with the issues discussed in Chapter two, and attests the need for more integrative research to link the disparate elements together.

Shantz (1975) divided the extant research into nominal content areas:

> what did the other person see?
> how did he feel?
> what did he think?
> what was he intending to do?
> what was he like?

The same classification was later utilized by Flavell (1977). Chandler (1977) saw rather a distinction between research concentrating on person perception on the one hand and that concerned with subjective or assimilatory processes inferred within the subject on the other.

The present review has found features of value in both, without purporting to have improved upon either. The approach

here has rather been more selective, as befits the present emphasis. Thus the growing literature on metacognition has been bypassed (Flavell, 1977, 1980; Lloyd, 1980), as has the work on self awareness (Leahy & Huard, 1976; Lewis & Brooks-Gunn, 1979). It has however been seen as appropriate to refer to the affective aspects of empathy (Hoffman, 1977a).

3.1 THE COGNITIVE CHARACTERISTICS OF THE CHILD

As a first step it would seem appropriate to review the broader cognitive characteristics of school-age children as they pertain to any of the social cognition tasks considered herein (Shatz, 1977). These will be considered in terms of information processing, the use of language, and the notion of cognitive style.

3.1.1. Information processing

The information processing capacities of the child have too often been ignored or relegated to the status of error variance in research in this area. Of course it would be impossible to design an experiment that adequately covered all these eventualities. But consideration needs to be given at least to what the parameters are, in order to define more precisely what is actually being tapped. A survey of the usual information processing components of perception, memory, generation of hypotheses and evaluation in particular will help to give perspective (Mussen, Conger & Kagan, 1979, pp. 242-274).

It is evident first of all that children's capacity to process information of any kind is increasing rapidly and significantly during the period from 5 to 7 years (Mussen *et al.*, 1979,

p. 245; White, 1970). In particular there are marked changes in focussed and sustained attention, interpretation of appropriate clues, retrieval strategies, use of more adaptive categories, and problem-solving skills. The first of these, focussed attention, has been of particular interest because it has typically been interpreted by developmentalists in terms of Piaget's concept of centration. More recently this concept has itself been found wanting because its actual information processing context has been overlooked or underestimated.

Shatz (1977) has restated the need to view children and adults alike as limited capacity processors which use a variety of techniques for coping with the demands imposed by complex tasks (loc cit, p. 5). In this context centration was but one information strategy to be selectively adopted by child and adult alike. Shatz illustrated via referential communication tasks the point that redundant messages might sometimes be the optimal way of describing something (loc cit, p. 31). That is, the young child's centration strategy might even be the most appropriate in view of task demands and the child's own sense of his present abilities. Under different circumstances he might well employ a different strategy altogether.

A second theme is that the child's actual mode of problem solving will reflect the particular concepts and rules with which he is familiar (Shatz, 1977; Donaldson, 1978; Mussen et al., 1979). Shatz has again pointed out that children will obviously perform best when the demands:

> are confined to their level of knowledge and are consonant with their suppositions about the world (loc cit, p. 13).

Under such circumstances the child is more able to concentrate on what the experimenter wants, and deliver accordingly (loc cit, p. 13). A ready example of this can be seen in the difficulties faced by the younger child in dealing with tasks couched in hypothetical terms (Answer as if you were the motor car etc.). If the child is unable or unwilling to accept the implicit premises of the question then his response will be superficial and invalid (Mussen et al., 1979, p. 265). Warmth, enthusiasm or insistence on the experimenter's part would arguably make little difference.

Another dimension of this same theme will be the child's capacity to handle the constituent elements of a particular problem. A task may require too many things to be remembered simultaneously, and failure may be essentially an information overload in terms of memory capacity. This has been acknowledged empirically in terms of the characteristics of the stimulus used in visual perspective taking tasks (Donaldson, 1978; Hughes, 1978; Hughes & Donaldson, 1979). Its application to other kinds of social cognition tasks remains largely problematic.

From these examples one might reasonably form an expectation that the child will make his own sense of the task, regardless of what the experimenter intends. This sense will be based on the child's implicit processing limitations, in interaction with his efforts to devise strategies that work and are meaningful for him (Donaldson, 1978). The key question may be whether the experimenter

is able to cue in on the relevant parameters at each stage of experimental design, administration and data analysis.

A final point in this context pertains to the very nature of the experimental task. The empirical literature in the present chapter will be seen to employ a diverse range of visual and aural media in conveying an impression of a social episode. This raises the question of the informational and/or emotional salience of such presentations. For example, are posed photographs perceived as more or less realistic than line drawings? Recent work has shown that school-age children display clear visual preferences for different kinds of picture-pair presentations (Myatt & Carter, 1979). Photographs were most preferred, followed in order by full-line drawings, paintings, collage, simple line drawings and cartoons. There were also significant age and sex differences. Obviously the distinctions were important to the children, although it is not known whether their preferences will relate to their ability to perceive and derive explicit social meaning.

One significant research task would seem to be an evaluation in its own right of the art-work of experimental presentations. Criteria of realism versus stylism might obviously prove crucial for younger children in particular, bringing emphasis to the child's potential naivety and misinterpretation of many artistic conventions. The importance of this kind of information has been underscored by Hutt, Forest and Newton (1976, p. 65), who showed that young children depend more on the perceptual salience of the stimulus than its affective content.

Yet again the role of visual information needs to be put in a wider context of the meaning conveyed by visual versus other media. The best known illustration of this effect was the demonstrated superiority of videotaped over verbally presented moral dilemmas (Chandler, Greenspan & Barenboim, 1973). At another level still picture recognition has been shown to be partly a function of verbal labelling (Nelson & Kosslyn, 1976). The interactive role of these varied modalities, together with any differential styles of preferred visual and auditory functioning, obviously create a complex matrix. One attempt to place them in some kind of context of salience has found:

> overall, the visual mode elicited the highest comprehension scores, being superior to the auditory-visual as well as the auditory mode. In contrast, the highest empathy scores, especially for the younger children, were obtained with the audio-visual mode (Kuchenbecker, Feshbach & Pletcher, 1974, cited by Feshbach, 1975, p. 28).

The result only touches the surface of such issues, but it does pose important questions about the interaction of content and modality for a given task as perceived by a particular child. This interaction may well have an important developmental component (Feshbach, 1975, p. 28), and may also be associated with sex differences. These aspects will be considered in Chapter four.

3.1.2 Use of language

An aspect of task demand more commonly acknowleged has been the experimenter's use of language, both in explaining the task to the child and in any follow-up questioning that is needed (Flapan, 1968; Flavell et al., 1968; Aebli, 1970; Blank, 1975). The original Piagetian research has been criticised for the way the experimenter might be influencing the child's comprehension just by his choice of questions (Aebli, 1970, p. 22). But a consistent lack of effect has so far been found due to task instructions (Brandt, 1978). Beyond this work there is little evidence available, so the issue remains open.

The main research into the experimenter's wording of questions, and the kinds of answers they tend to generate, has come from a socio-linguistic tradition rather than anything directly pertaining to social cognition (Robinson & Rackstraw, 1972; Balnap & Steel, 1976; Kearsley, 1976; Hudson, 1978; Pickert & Furth, 1980). Some idea of the scope of question types was provided by Robinson and Rackstraw (1972, p. 4), who distinguished open-ended (who, which, what, where, when, how and why) and closed (disjunctive; confirmation or denial). They further illustrated how different kinds of questions could place different restraints on the child, so eliciting different kinds of answers.

More recently Pickert and Furth (1980) have shown how primary age children adapted to situations of conceptual or linguistic difficulty by using ambiguity and qualifers in their answers, in order to maintain the rules of conversation. They also demonstrated how children transformed the intended meaning of a question

to better suit what they chose to answer (loc cit, p. 166), or made even more specific changes to meanings of words (loc cit, p. 170). This explicit focus on what the children were doing in their use of language might well add a useful dimension to existing social cognition methodology. Such adaptive procedures are obviously telling, yet are typically lost within the experimenter's imposed framework.

Efforts to examine experimental procedures in this light have so far been limited. Donaldson provided significant direction through her analysis of what occurs in visual perspective taking tasks (Donaldson, 1978; Hughes & Donaldson, 1979), whilst Karmiloff-Smith (1980) further accentuated the role of differing "dialogic rules" of asking questions as perceived by the child as compared to the adult. She emphasized the inappropriateness of many adult questions that violated the young child's sense of the rules of what it was pertinent and proper to ask. How this may apply to implicit affective content is not yet clear. One would suspect however that these subtleties of questioning and the child's adaptive transformations of meaning will prove to be exceedingly important.

It is further pertinent to note that children below the age of 8 or 9 typically report social phenomena in a very literal and factual manner (Flapan, 1968; Bromley, 1977; Livesley & Bromley, 1977). They will similarly focus spontaneously on outcomes of actions rather than sources (Whiteman, Brook & Gordon, 1974). This might suggest that young children are not spontaneously

oriented towards expression of psychological content because it is beyond their level of comprehension. Yet it might also be a question of how comfortable children, particularly boys, feel with such material (Hoffman, 1977). They might be expected to invoke the aforementioned conversational rules in order to avoid or transform the questioning. For example it has been shown that young children will skillfully reconstruct a story to permit a situationally based response instead of a psychological explanation (Gove & Keating, 1979).

Clearly one is well advised to consider the criteria employed in categorizing a child's judgement. It is evident that such understanding must be elicited very carefully and interpreted with considerable caution. It is hardly necessary to add that children know far more than they can express in words (Ginsburg & Koslowski, 1976, p. 46).

3.1.3 Cognitive style

Another dimension that has received more systematic attention has been the notion of individual variability in the way the child processes information generally. A number of such 'styles' have been identified, typically as one dimensional entities of uncertain concurrent and construct validity. The best known has been Kagan's distinction of reflective versus impulsive modes (Kagan, 1965a, 1965b, 1966; Kagan & Kogan, 1970; Kogan, 1976). Others include field dependence and independence (Witkin & Goodenough, 1977), breadth of categorization, and styles of conceptualization (especially descriptive versus categorical-

inferential). These have been comprehensively reviewed by Kogan (1976) and Messner (1976), and do not warrant elaboration here.

Knowledge of the relationship between cognitive style and social cognition remains exploratory. It would seem that the reflective-impulsive mode does mediate spatial perspective taking (Zelniker & Jeffrey, 1976; Brodzinsky, 1980), while field independent children have been found to be less egocentric (Finley, Solla & Cowan, 1977). Beyond this the empirical evidence is scant, and one can only extrapolate that there should be considerable generality across tasks (Kogan, 1976; Messer, 1976; Zelniker & Jeffrey, 1976). One aspect of interest is the frequent finding of sex differences in the various styles of processing (Kogan, 1976); this will be considered more fully in Chapter five. Age interaction effects are still uncertain; most work has been with preschoolers (Kogan, 1976) and extrapolation is not justified.

One aspect of the available literature that bears strongly on the present research is the finding of a link between modes of cognitive style and observed social adjustment (Kogan, 1976; Brown & Quay, 1977), or peer popularity (Dryer, McIntire & Dreyer, 1973). Again there appears to be a pattern of sex differences (Kogan, 1976; Burstein, Bank & Jarvik, 1980). There is still confusion however about interpretation of specific indices, such as the significance of error and latency scores in the reflective-impulsive mode (Salkind & Wright, 1977). There is also no clear framework for interpreting the relative contribution and interaction of the various cognitive modes themselves (Kogan, 1976).

It is not yet clear whether these issues can be resolved separately or need to be examined by cross-validation in a multi-dimensional design. But more convincing evidence on the construct validity of available measures in this area will be needed before it is appropriate to consider them at length.

3.1.4 Conclusions

It can be seen that the role of receptive dimensions of information processing, expressive aspects of language usage, and their varied interactions have typically been underestimated in this area. Far more caution and sensitivity is required in the design and definition of age-appropriate tasks and in the way the child's verbal meaning and conversational style are interpreted. These various parameters and themes will be seen to recur and provide context for most of the following categories of task demands, although only a few will be made explicit. Some of the issues have conventionally been subsumed in terms of the distinction between competence and performance, although this provides only a gross kind of label. A much more subtle, integrative and multi-faceted approach to research design will be needed to represent the child's eye view of events and his adaptive skills in an interactive and interdependent experimental setting.

3.2 A SURVEY OF RESEARCH TECHNIQUES

It has been found useful here to categorize techniques in terms of the way they present their ostensible demands to the child. The social objects that are the focus of the child's social cognition activity may of course be real persons, symbolic representations, or hypothetical cases. In each instance it is assumed implicitly that the child will respond as if the situation is socially real and meaningful to him. This assumption will often be seen to bring important connotations and possible restrictions.

Firstly there is the demand of prediction by the child of another's inner processes from the incomplete information made available. This can in turn be contrasted with the task of description of the characteristics of another person, using available social knowledge. The former demand might involve prediction of visual perspectives, cognitive strategies, affective states, and so on; the latter demand might rely on social roles, stereotypes, and other personal labels. These two demands will be seen to account for the bulk of research conducted. The next two kinds of demands are those of projection and simulation. These will be seen to be particularly characteristic of some of the earlier experimental work. Their inclusion in the present survey has been considered appropriate, even though their direct role in recent research has been minimal. The fifth demand has been termed communication, although in practice it might be limited to referential communication. Such tasks have required the child to interact with another person about some

assigned social or physical referent. Focus has been on the child's capacity to adapt his message to the particular needs of his listener. The sixth type of demand might be contrasted with the directness of approach of the preceding five, for it has entailed the structuring of situations to permit naturalistic assessment of manifest forms of social cognition. The term 'non-obtrusive techniques' is not really apt; perhaps a better label is that of indirect task demands. Its present scope will be seen to be very limited. The seventh and final demand to be included here is the way the child responds to a deliberate programme of training in the use of certain social cognition skills. This does not purport to be an exhaustive list, but it represents the range of present methodological options.

3.2.1 Tasks of prediction

These provide a particularly appropriate starting point, since the key early research on egocentrism was about prediction of another's visual perspective. The tasks represent the largest single category of instrumentation presently available and have been conveniently subdivided here into four types. These have been termed perceptual, putative and affective perspective taking, and the generation of alternative solutions.

(a) Perceptual perspective taking

Piaget's pioneering work on children's prediction of another's visual perspective employed stimulus objects that were clearly visible or could be understood by predominantly visual processing. Such a skill has been variously termed 'spatial egocentrism' (Piaget

& Inhelder, 1956), 'impersonal decentring' (Chaplin & Keller, 1974), 'perceptual role taking' (Flavell et al., 1968; Selman 1971), and 'coordination of viewpoints' (Hughes & Donaldson, 1979). The generic title should be perceptual rather than visual perspective taking since it might also include perception of another's hearing, tactile sensation (Flavell et al., 1968, p. 172) and attention (Flavell, 1977, p. 128). But research in these other areas has been minimal. The original three mountain task (Piaget & Inhelder, 1956) provided a prototype for work on visual perspectives which has dominated the research (Masangkay, McCluskey, Knight & Flavell, 1974; Hughes & Donaldson, 1979; Hobson, 1980).

Yet there continue to be numerous difficult issues relating to the effectiveness of these techniques, and wider issues of their construct validity. These warrant brief elaboration. Numerous researchers have now shown that considerable variation in performance will be mediated by relatively minor changes in the tasks employed. These tend to accentuate the function of many of the aforementioned parameters of information processing. The list includes the stimulus complexity of the task itself (Fishbein et al., 1972; De Villiers & De Villiers, 1974; Hoy, 1974; Minnigerode & Carey, 1974; Nigl & Fishbein, 1974; Borke, 1975; Liben, 1978), the actual presentation of task demands (Fishbein et al., 1972; Huttenlocher & Presson, 1973; Eiser, 1977), the functional significance of the task for the child (De Villiers & De Villiers, 1974; Hughes, 1978; Hughes & Donaldson, 1979; Hobson, 1980), the nature of the response required (Houssidas, 1965, cited in Fishbein et al., 1972; Fishbein et al., 1972;

Eiser, 1974; Hoy, 1974), the effect of feedback on own/other perspectives (Cox, 1977), and most recently the effect of active locomotor interaction with the spatial task (Weatherford & Cohen, 1980).

Most of these tasks were obviously demanding for younger children, prompting Hoy (1974, p. 462) to comment that "egocentric responding is the younger child's reaction to information overload". Fehr (1978, p. 306) emphasized in particular the influence of the orientation of the alter and who that alter is, whether animate or inanimate (loc cit, p. 312). He pointed out that none of the research has so far considered these variations in methodology simultaneously (loc cit, p. 314).

A second point pertains to the wider issue of construct validity. It is clear that such tasks are in practice tapping a multi-faceted range of abilities. These include the differential acquisition of language concepts (Kuczak & Maratsos, 1975) and the spatial reference system (Long & Looft, 1972; Coie, Constanzo & Farnhill, 1973; Pufall & Shaw, 1973; Masangkay et al., 1974; Nigl & Fishbein, 1974; Pufall, 1975). The role of other conceptual and information processing factors such as memory, object permanence, and the ability to name something not present visually has been acknowledged but not studied systematically (Masangkay et al., 1974).

It has also been suggested that the spatial reasoning abilities may be acquired more slowly than those involved in a more general understanding of viewpoints (Salatas & Flavell, 1976). This has not been resolved, but the debate accentuates the continuing

uncertainty of definition. Cox (1978, p. 422) has even suggested that visual perspective taking ability:

> may derive from formal thought and is
> not fully mastered even at 12 years of age.

Thus the very character of this ostensibly basic skill appears more complex the more it is examined.

To this list of complications one must add a degree of concern about whether such tasks have real social psychological significance anyhow. Only recently has there been progress in making such tasks relevant and meaningful (Hughes, 1978; Hughes & Donaldson, 1979; Hobson, 1980). The effect has been a growing appreciation of the capacity of quite young children to coordinate visual perspectives (Hobson, 1980). But beyond this still open question of competence is the issue of the pertinence of such skills to other aspects of social cognition (Shantz, 1975, p. 273). Significant intercorrelations have been obtained with a variety of other social cognition and behavioural measures; but this could be normal developmental synchrony. No demonstration of a deeper structural connection has yet been achieved. Such techniques have thus been deleted from further consideration in the present context.

(b) Putative perspective taking

This covers a range of techniques that have tried to measure children's predictions of how someone else will be thinking or what he will be responding to. Another term has been 'conceptual perspective taking' (Mossler, Marvin & Greenberg, 1976; Selman, 1971), although the latter refers to any subjective experience.

'Putative' better conveys the distinctiveness of tasks having specific and controlled content of an ostensibly objective nature.

One of the earliest examples was Piaget's demonstration of how the young child typically failed to differentiate his perspective on sibling relationships from that held by another sibling (Piaget, 1928). This was subsequently shown to be confounded by the child's difficulties in sorting out class and relational meanings (Elkind, 1962). The more recent research has utilized three main techniques; guessing tasks, recursive thinking tasks, and restricted information tasks.

The guessing tasks have typically involved a binary choice situation in which the child was asked to predict how an alter would choose the cup or fist concealing a higher denomination coin (Flavell et al., 1968, task 1B; Devries, 1970). Scoring was in terms of the younger child's pattern of guessing and hiding the coins (Devries, 1970), or by rating the older child's verbal explanation (Flavell et al., 1968).

Recursive thinking tasks attempted to tap the child's conceptualization of the recursive or embedded nature of representational thought from a set of cartoon depictions (Miller, Kessel & Flavell, 1970).

Restricted information tasks typically involved two or three dimensional visual stimuli that contained a separate sub-set of information about a social episode or contrived situation (Flavell et al., 1968, task ID; Selman, 1971; Chandler, 1973b; Chandler & Helm, 1974). The child's task was to differentiate and predict this other meaning as it would be perceived by the other person who only held the sub-set of information.

All three types emphasized the difficulties faced by the child in sorting out differences in mental perspective or meaning. These difficulties became especially pronounced when the child had to respond verbally. It seemed that children generally did not achieve such proficiency till about 9 years, although this threshold age depended on how well the task was adapted to the children themselves. It could be lowered significantly (Mossler et al., 1976). Similarly it was shown that the child could make a correct inference somewhat earlier than he could verbally justify it (Mossler et al., 1976, p. 86). The guessing and restricted information tasks in particular have been used in varied correlational studies (Chandler, 1973b; Hollos & Cowan, 1973; Rubin, 1973; Van Lieshout et al., 1973; Chandler, Greenspan & Barenboim, 1974). The various tasks obviously made quite differing demands on the children, but no systematic attempt to compare them has been made, so no broader perspective is possible.

(c) Affective perspective taking

This denotes tasks concerned with prediction of how the other person might feel, what his intentions might be, and other related phenomena. It is difficult to be precise about classification at either a methodological or conceptual level, given the inevitability of overlap and the multi-faceted nature of most experiments. Firstly the distinction between predictive and descriptive tasks is itself rather blurred. The criterion for descriptive studies is usually their focus on the child's direct knowledge of real people and everyday social roles, while predictive studies rely on contrived simulations. But this division

cannot always be meaningfully maintained.

Secondly the distinction between putative and affective tasks is itself blurred. Some of the latter tasks are also tapping knowledge of cognitive processes in the other person, as in the work of Selman and Kohlberg.

Thirdly it may be possible to draw further content subdivisions in the area (Shantz, 1975; Flavell, 1977), although this has not been considered necessary for present purposes. Specialist reviews pertaining to intentionality (Keasey, 1977) and attribution (Guttentag & Longfellow, 1977) will not be elaborated here beyond noting that the techniques have much in common with the above.

Having made these qualifications let us turn to a general review of the varied methodology so defined. One of the earliest attempts employed attribution of animistic qualities to moving geometric shapes using cartoon film (Heider & Simmel, 1944; Polkinghorne, 1965). More recently researchers have used as their stimuli excerpts from commercial movies (Flapan, 1968), specialist silent films (Wood, 1978), sound film (Berndt & Berndt, 1975), videotapes (Feigenbaum, 1973; Deutsch, 1974; Greenspan, Barenboim & Chandler, 1976), orally presented adjectives (Gordon & Williams, 1973), verbal evaluation statements (Solomon & Ali, 1972), orally presented stories (Rothenberg, 1970; Borke, 1971, 1973a; Whiteman et al., 1974; Berndt & Berndt, 1975; Pearce & Shanfield, 1975), slide sequences of enacted behaviour with simulated dialogue (Selman, 1974, 1976a; Selman, Byrne & Kohlberg, 1974; Selman & Jaquette, 1977), line drawings with stories

(Imamoglu, 1975, 1976), line cartoons (Van Lieshout et al., 1973), and posed photographs in comic strip style (Saarni, 1979).

There is great diversity amongst these in the nature and meaningfulness of the social stimulus, as already discussed in terms of the child's general information processing capacities and preferences. So far there have been few attempts to reconcile the significance of these variations and their associated information processing parameters. The problem itself has been alluded to by most reviewers, and at times received a more intensive appraisal (Girgus & Wolf, 1975, p. 118; Kuhmerker, 1975, p. 29; Brandt, 1978, p. 206). However it has not culminated in systematic investigation of any substance.

Most recently Brandt (1978) attempted to vary systematically the explicitness of differentiation of the cognitive perspectives of tasks, and the kinds of responses required. He argued that ostensibly similar tasks "may vary in relatively subtle ways that have important effects on performance" (loc cit, p. 211). Yet there has also been research arguing that the concern about stimulus characteristics is unwarranted or at least overrated. For example, Girgus and Wolf (1975, p. 118) found that:

> younger subjects tend to perceive many everyday social interactions as essentially identical to each other and, presumably, tend to respond accordingly.

That generates a different kind of empirical orientation altogether. Perhaps each child only takes the social information that is immediately relevant or salient to him? One might link this kind

of interpretation with the information processing parameters discussed earlier, especially the notion of perceptual salience (Kurdek, 1978b, p. 12). Research has so far done little to clarify these matters.

(d) Generating alternative solutions

A final kind of research can be included, involving tasks which have sought to measure the child's capacity to consider a hypothetical social problem and then verbalize about alternative strategies for its resolution (Shure & Spivack, 1974; Spivack & Shure, 1974; Spivack et al., 1976; Ladd & Oden, 1979; Enright & Sutterfield, 1980). In one sense there are parallels with the social dilemma methodology of Selman and Kohlberg, although the latter are scored in terms of the mode of reasoning employed rather than the quantity of different responses.

Generating alternative strategies has been regarded as but one skill within a model of 'Interpersonal Cognitive Problem Solving Skills', as discussed in Chapter two (Spivack et al., 1976). The problem solving skills have been correlated positively with indices of manifest social adjustment, and have been used as a model for a variety of training programmes (Spivack et al., 1976). Most recently Ladd and Oden (1979) scored strategies of helpful behaviour by distinguishing a uniqueness score of deviation from peer norms and a flexibility score of different helpful strategies (loc cit, p. 403). Both indices predicted sociometric acceptance amongst 8 and 10 year olds.

As previously noted there is need to be cautious about such methodology however, especially with younger children. It

undoubtedly relies heavily on children's verbal fluency (Shapiro, 1970), general confidence with language, and capacity to deal with the hypothetical mode. To that extent it can be compared with the tasks of simulation and projection that will be considered shortly. A further difficulty found by Enright and Sutterfield (1980, p. 160) was that:

> Social problem solving possibly did not relate to behaviour except in one instance because the former does not measure components of cognitive complexity or sensitivity. In other words a high score could be obtained by a child who suggests many asocial alternatives such as hitting, threatening, frightening, or manipulating another child.

That need not imply that negative behaviours of this kind are not employed by a child with well-developed social cognition skills. As will be discussed in Chapter five this may well prove to be part of a child's normal repertoire (Light, 1979, p. 18). The point however is that the problem solving methodology, as presently constituted, is very much lacking in both conceptual and behavioural subtlety. It must obviously be regarded with caution.

(e) Conclusions

The available techniques have displayed a fairly consistent pattern of development in the predictive component of social cognition between the ages of 4 and 7. However this is primarily associated with affective and/or putative content. The methodology in perceptual perspective taking and in the generation of alternative

solutions has made it far more difficult to define developmental skill patterns. All of the tasks do tend to constrain the child, albeit implicitly, and so underestimate his competencies as they would function at home or in the playground (Kuhmerker, 1975, p. 29). This would appear to be caused by a wide variety of factors, as discussed earlier.

The most obvious of these is the aforementioned reliance of the researcher on what the child actually says. It has emerged sharply in general criticism of the social and moral dilemma methodology of Selman and Kohlberg, most particularly the inability of instrumentation to tackle the difference between an active and a reflective judgement (Simpson, 1974, p. 83; Damon, 1977, p. 17; Kurdek, 1978b). The combination of these various methodological issues makes it very difficult to compare and equate different sets of data (Damon, 1977; Brandt, 1978; Kuhn, 1978). This contributes to the problem of combining tasks in order to explore wider patterns of social cognition phenomena, as will be discussed in Chapter five.

3.2.2 Tasks of description

These again cover a variety of techniques which have been variously labelled as studies of 'interpersonal perception' (Cook, 1971), 'impression formation' (Livesley & Bromley, 1973), and 'attribution' (Peevers & Secord, 1973). Content has ranged from more general notions of personality to specific domains such as perception of other children's fears (Lazar, 1969), and specific role knowledge (Flavell et al., 1968; Heise & Roberts, 1970).

Such studies require the child to use a complex array of

social cognition skills in terms of attaching and discriminating psychological labels, establishing conceptual priorities, and organizing an implicit framework of constructs. One might therefore expect descriptions of people to be potentially important predictors of manifest social behaviour and to display concurrent validity with other social cognition measures. In practice however these links have rarely been sought. The techniques have been reviewed here under three headings: Structured and open-ended personality description, Grid techniques, and Role concepts.

Structured and open-ended personality description

The earliest work stressed selection of traits from fixed checklists, and was epitomised by the studies of Dymond (Dymond, 1950; Dymond, Hughes & Raabe, 1952). This structured methodology fell into disrepute and was replaced by an open-ended approach that encouraged spontaneous verbal descriptions of known persons (Scarlett, Press & Crockett, 1971; Livesley & Bromley, 1973; Peevers & Secord, 1973; Gault, 1974; Bromley, 1977). The review by Bromley (1977) might be taken as its most contemporary evaluation.

Grid techniques

The former approaches can be contrasted with the more penetrating methodology of the repertory grid technique. This derived from Kelly's original personal construct theory (Kelly, 1955; Bannister & Fransella, 1971), as referred to in Chapter one. The best known developmental studies using these techniques have been those of Brierley (1966) and more recently Ravenette (1975). The technique required the child to rank a given set of elements with

respect to a set of social situations. These elements could be "any set of people, situations or objects" (Ravenette, 1975, p. 80). The product was an evaluative framework of the significance of the child's various personal constructs with respect to these elements. The methodology has been thoroughly reviewed by Livesley and Bromley (1973, p. 62) and Ravenette (1975).

Role concepts

This work has similarly relied primarily on verbal responses (Heise & Roberts, 1970; Friedland, 1973; Van Lieshout et al., 1973), although there was one attempt to define a purely behavioural index with pre-schoolers (Flavell et al., 1968, task IIIB). As before some kind of predictive validity might well be expected with respect to manifest social competence. However in practice such correlations would represent only a very general kind of concordance; more specific differentiation of social behaviours or cognitive skills could certainly not be expected to follow. This renders them inappropriate for anything more than simple developmental description.

The descriptive tasks have rarely been used in concurrent designs with other predictive tasks; a reflection of research insularity rather than any conceptual division. The difficulty with them in the present context however pertains to developmental parameters. Children below 7 or 8 do not want to talk spontaneously about such things; they are elicited at best by arduous questioning (Livesley & Bromley, 1973, p. 209; Ravenette, 1975, p. 82; Bromley,

1977, p. 12). Consequently the descriptive methodology might be expected to yield insufficient individual differentiation in this age range, particularly amongst the children sampled. In any case, if the format were modified to actually elicit such information, then the approach would become a less controlled variant of the predictive tasks.

3.2.3 Tasks of projection

The work on projective role taking might be viewed first of all in its historical context, as a reaction against the literal character of early research focussed solely on visual perspective taking. Feffer (Feffer, 1959; Feffer & Gourevitch, 1960; Feffer & Suchotcliff, 1966) sought a task that was more socially meaningful, and required his subjects to generate a story about imaginary characters and contexts. They were then asked to retell this story from the perspective of each of the characters. Scoring was in terms of their flexibility in inferring the subjective orientation of the individual characters. This sequential scoring schedule actually became the prototype for much later developmental work with a structuralist orientation, including that of Selman.

Yet the projective approach to task design was itself short-lived. There proved to be too many problems of content validity in separating social cognition processes from the complex array of skills involved in spontaneous and imaginative story telling. As with visual perspective taking it was not a question of merely demonstrating a pattern of intercorrelation with other tasks; for this could certainly be achieved. It was rather an issue of

not being able to specify with sufficient clarity what was actually contained in the resulting experimental indices. Interpretation was thus too generalized in nature to be of use in an empirical context (Kurdek, 1977b, p. 1508).

3.2.4 Tasks of simulation

Experimental attempts to ask subjects to simulate certain social behaviours or strategies have suffered a fate similar to that of the projection tasks. Significant parallels might well be drawn. The idea grew originally from a long-standing assumption of the importance of the relationship between a capacity for role playing and the child's manifest social adjustment (Cameron & Margaret, 1951; Coutu, 1951; Mouton, Bell & Blake, 1956; Sarbin & Allen, 1968). Systematic measurement was first attempted by London using a 'Dramatic Acting Test' and a 'Children's Hypnotic Simulation Test' (London, 1963; London & Bowers, 1964; Bowers & London, 1965). In these the child was asked to act out a playlet with the experimenter, utilizing standardized opening lines but extemporizing thereafter. The problem however was that this required skills heavily reliant on verbal intelligence (Bowers & London, 1965, p. 507).

Greater construct validity was later achieved by assessing role playing in terms of verbal persuasive skills and behavioural enactments (Flavell et al., 1968, tasks IIC, IID). But the problem of general verbal skills still dominated, together with factors such as shyness and self consciousness.

Another variant has been the research on children's production of facial expressions of emotion (Odom & Lemond, 1972; Hamilton,

1973; Zivin, 1977). This suggested that children could discriminate emotional expressions better than they could produce them, and that inhibition of such production occurred due to normal socializing forces. From both kinds of research it was evident that any kind of simulation involved very complex processes, even if it could be judged globally with good inter-rater reliability (Sieber-Suppes, Katz & Traviss, 1973).

In conclusion it is apparent that the kinds of elaboration required in both projection and simulation tasks involve a complex mix of linguistic, social and meta-social factors. These proved to be so pervasive in earlier studies that the role taking component could not be differentiated or quantified with sufficient precision. A decline in empirical interest followed, and perhaps explains to some extent why later researchers have typically concentrated on such artificial and controlled techniques.

3.2.5 Tasks of Referential communication

The way that a child communicates with another has long attracted attention as an obvious way of tapping the application of his role taking skills as implicated in Flavell's (1977) model. The prime focus has been the child's capacity to adapt his propositional knowledge about something to the informational needs of his listener (Robinson & Robinson, 1980, p. 104). Referential communication has itself also received attention from the psycholinguistic researcher (Schachter, Kirshner, Klips, Friedricks & Sander, 1974). But the objectives of analysis of the developmental researcher have been quite distinct; the latter typically regarded

language as but a medium through which he could tap the underlying cognitive skills. In this sense the referential task might be treated as another specialized kind of role taking task.

The present review will examine the literature on referential communication in terms of characteristics of the speaker, characteristics of the listener, and the recent tendency to approach the situation as a broader dyadic encounter encompassing all elements in interaction. The review will then focus upon the available conceptual models, the experimental indices employed, and the kinds of elements that need to be considered in any adequate formulation of the way children interact with peers.

(a) The techniques

The possibilities of context, content and function of communication between children are myriad, although developmental researchers have tended to confine themselves almost exclusively to structured dyads talking about specific things. The prototype task established by Glucksberg, Krauss and Weisberg (1966) was for the child verbally to distinguish a target referent from the other potential referents to another child. The latter possessed the same set of referents but was dependent solely on the verbal input. This approach has hardly altered; it still provides the dominant empirical baseline. The continued emphasis on the original technique has itself been a tacit acknowledgement of the complexity of issues involved and the need to proceed from the simplest point experimentally (Glucksberg, Krauss & Higgins, 1975, p. 305).

Another kind of experimental technique that has attracted increasing research attention involves teaching a game or activity to a child and then asking the child to teach it in turn to a peer, usually of the same age and well acquainted with the speaker (Flavell et al., 1968; Cooper & Flavell, 1974; Novik & Waters, 1977; Pratt, Scribner & Cole, 1977; Boyle, 1980; Calam, 1980). The opening up of the form of communication certainly facilitated the child's adaptation to his listener (Calam, 1980, p. 14), although 5 to 8 year olds were still unable to formulate good verbal explanations (loc cit., p. 14). This verbal limitation however needs to be seen in context in that "the child's mode of explanation involves action and gesture" (loc cit, p. i).

Boyle (1980, p. 16) found a major development in children's organization of their teaching directions from age 8 to 10 years:

> Differences emerge at the more complex levels of textual control. These differences seem to reflect what Flavell (1977) terms meta-communicative abilities. The older children seemed to "stand back", reflect upon their explanations and organize them in a controlled way. The younger children seemed to go straight into the explanations. There was less control from above and more dependence on the features of the context to support the descriptions.

Other kinds of tasks such as retelling a story to a third party (Flavell et al., 1968, task IIA; Cooper & Flavell, 1974), adapting a message to special listener needs (Flavell et al., 1968, task 1E and IIB) and characterizing communicative maladaption

(Flavell et al., 1968, task IIE) had more complex cognitive demands. This made them too difficult for children below the age of about 8 years.

Results in relation to developmental changes in simple teaching tasks for children from 5 to 8 years appear to be somewhat more equivocal. The task used by Novik and Waters (1977) revealed a major developmental trend, whilst Calam's (1980) task found no age effects on comprehension (loc cit, p. 8) nor adequacy of rule references (loc cit, p. 9), and an actual "decrease in the amount of information passed on before play, with age" (loc cit, p. 9). At present then one may not generalize beyond the point that performance depends heavily on task-specific parameters (Glucksberg et al., 1975, p. 317), although Calam's most recent work has accentuated that an adequate metric of the child's performance must take full account of both verbal and nonverbal modes of communication (loc cit, p. 14).

A further approach to referential communication examined its occurrence in a natural play setting (Mueller, 1972; Garvey & Hogan, 1973; Shatz & Gelman, 1973; Keenan, 1974; Schachter et al., 1974). This was originally a reaction against the contrived character of the earlier experimental tasks, and clearly demonstrated that the young child could communicate far better on his own terms and display greater social skills under these conditions (Mueller, 1972; Martlew, 1979). Flavell (1977) proposed that the difference in performance reflected the extra demands upon the child in meta-communicative ability in the more formal task, although the role of meta-cognition per se has so far been considered only in relation

to the traditional kind of task (Robinson & Robinson, 1980). This will be considered in the next section.

Effective reconciliation of young children's performance in different tasks employing different response modalities and utilizing different metrics has not yet been achieved. While Piaget may have emphasized egocentrism unduly there is no escaping the fact of children's communicative failures (Robinson & Robinson, 1980, p. 102). Progress in this area is accelerating, but the total picture remains clouded.

(b) Deficits in performance

The most recent research has been of some interest in demonstrating just how specific younger children's weaknesses in this area may be. They need to be viewed in a context of continuing social role taking skills rather than in terms of the earlier global label of cognitive egocentrism deficits. There appear to have been two major approaches. The first continued to emphasize that young children's poor performances could be attributed to informational characteristics of the referential situation itself. Communicative failures were thus shown to be contingent on the type of referent used (Dickson, 1979) and the influence of contextual effects and perceptual supports (Garmiza & Anisfeld, 1976; Warden, 1976; Scribner & Cole, 1977; Dickson, 1979). Other such complexities have been surveyed and analysed in terms of further parameters of information processing capacity by Shatz (1977).

The second approach has emphasized young children's specific weakness in not making the necessary comparisons between the

intended referent and the other potential referents. Robinson and Robinson (1980) found that they could make appropriate comparisons per se, but did not typically see the relevance of this in the communicative setting, whether as speaker or listener (loc cit, p. 113). Children typically knew if a message was good but could not recognize the ambiguity of a bad one (loc cit, p. 114).

These themes have been explored by the Robinsons by means of metacognition, the child's awareness and understanding of what was actually occurring in the task situation. They asked children to identify who was at fault in a referential communicative failure, and found that 5 year olds were mainly 'listener-blamers', whilst by 7 years most had become 'speaker-blamers', who

> reveal specific knowledge of the need to take into account the listeners' information requirements (loc cit, p. 112).

Their own preliminary work suggested that the ability to coordinate the roles and joint responsibilities of speaker and listener did not occur till around the age of 9 or 10 (loc cit, p. 115). Acquisition of the understanding that the speaker needed to identify the intended referent uniquely for the listener appeared to be a function of social learning, especially mother/child interaction (loc cit, p. 120). It also seemed to be possible to teach this awareness to 6 year olds, within empirical restraints.

Such findings indicate that egocentrism might be further analysed in terms of constituent components that fit well within a conceptual framework of developmental social role taking. They further suggest that the interaction between social and cognitive

elements might prove to be much closer than recognized heretofore.

(c) The child as listener

The focus so far has been primarily on the young child's capacity to perform as a speaker. Equally important is his capacity to listen, although research interest in this has tended to follow behind. Dittman (1972) first demonstrated that younger children produced far fewer listener cues (nods, smiles, 'yes', 'mm-hmmm') by way of social feedback to the speaker about the meaningfulness of the message. This was later confirmed by Cosgrove and Patterson (1977), who found large developmental differences from 4 to 10 years. In particular younger children do not spontaneously request more information from the speaker (loc cit, p. 562). This was attributed by the authors to social expectation rather than cognitive differences as such:

> initial failures resulted not from production deficiencies in the usual sense of the word, but rather from a belief (despite instructions to the contrary) that question asking was inappropriate behaviour, and not "allowed" in this situation. (loc cit, p. 563).

It would seem from this that the process of dyadic referential communication amongst 5 to 7 years can be characterized as a gradual but very significant development of skills and expectations about what speakers and listeners can and should do. Speakers want to be successful but do not recognize their communicative ambiguities. Listeners do not spontaneously provide feedback or question the appropriateness of the situation itself.

Even if feedback is provided children do not attend to its subtleties till about the age of 8 years (Peterson, Danner & Flavell, 1972). The possibilities for ineptitude in the total situation are thus only gradually appreciated by both parties (Asher, 1976; Asher & Oden, 1976; Robinson & Robinson, 1976, 1977, 1980).

(d) Communicative competence

There is an emerging theme that young children are not necessarily lacking in problem solving skills as previously considered. This is found in specific referential literature (Cosgrove & Patterson, 1977; Robinson & Robinson, 1980) and elsewhere (Donaldson, 1978; Hewson, 1978) while it has also been shown that children below 5 years can distinguish intentional from accidental (Imamoglu, 1975, p. 42). In the present context it may rather be a question of their understanding, awareness and expectations about the subtleties of the social interaction process that are lacking. Knowledge about this area however is still limited. There is some evidence that even very young children show linguistic adaptation to their partner in terms of number of utterances (Garvey & Ben Debba, 1974), speech pauses (Welkowitz, Cariffe & Feldstein, 1975) and mutual sound play (Keenan & Klein, 1975). This fits in with the earlier work on basic social turn taking (Garvey & Hogan, 1973; Garvey, 1974a, 1974b, 1974c). But this kind of evidence pertains to unstructured spontaneous interactions; its relevance to the demands of a referential task is not at all clear.

More recently Evans and Rubin (1979) demonstrated the importance of hand gestures in young children's communication, and

saw this as a non-linguistic alternative and possible precursor to later verbalizing. They argued in fact that the young child's reliance on gestures might be a key to his poor referential performance (loc cit, p. 189). In any case it highlights the need for a more global look at children's interaction. There may not be much direct contact through gaze at this age level but there may still be vital non-verbal elements to be considered. These may need to be incorporated with the prevailing linguistic indices such as use of the definite/indefinite article (Maratsos, 1974, 1976; Warden, 1981), words per utterance, mean utterance length, coding style (Johnston & Singleton, 1977) or the other more specific analyses of message content (Robinson & Robinson, 1980). Only when these parameters can be integrated with the child's information processing capacities will it be possible to describe effectively what is going on (Hoy, 1975; Shatz, 1977; Palmer, 1979).

3.2.6 Indirect techniques

A diverse range of methodologies exists for measuring social cognition non-obtrusively in its more manifest forms. In a sense these begin to bridge the gap between experimental indices of cognitive functioning and field indices of its manifestation. The major content areas for these techniques have been prosocial behaviours such as helping, sharing, cooperation, thoughtfulness and so on (Bryan, 1975; Mussen & Eisenberg-berg, 1977). They can thus be appropriately included as indirect measures of social cognition, in a manner similar to referential communication. Alternatively they can be seen as dependent but separate behaviours

at a different operational level, able to be used as interactive measures or as concurrent or discriminative validity criteria for the social cognition measures.

In the present research they have been employed in the latter role, and assessed via teacher ratings, as will be described in Chapter four. But it is useful to mention them in the present context, albeit briefly, in order to emphasize their potential status as multi-dimensional measures of underlying social cognition processes. Mussen and Eisenberg-berg (1977) delineated four major methodologies: situational tests, sociometry, naturalistic observation, and ratings. They are best viewed as alternatives with varying strengths. Their common essence lies in tapping the operation of the behaviour in its natural form. As soon as the experimenter intervenes by asking the child to justify or explain his behaviour (Eisenberg-berg & Neal, 1979) the task is transformed to a predictive or descriptive one in its demands.

3.2.7 Training

A diverse and complex literature exists pertaining to the way children might respond to procedures designed to enhance their social understanding or direct functioning in an interpersonal context. The present review has merely attempted to give the flavour of these studies. Some have been short-term exercises designed to enhance specific cognitive skills like spatial perspective taking (Laubengayer, 1965). Others have involved extended training programmes within an institutional setting (Chandler, 1973c) or educational programme (Van Lieshout *et al.*, 1973; Ahammer, 1975).

A number of studies have investigated the influence of training on children's capacity to show social or moral reasoning at or beyond their previous level, usually within the structural framework provided by Kohlberg and Selman (Kohlberg & Selman, 1973; Selman, Byrne & Kohlberg, 1974). These have typically focussed on the theoretical dilemmas as discussed in groups (Jensen & Hafen, 1973), or as examined in role play activities (Arbuthnot, 1975; Walker, 1980). The latter have also been utilized in training older children to articulate and coordinate their perspectives (Iannotti, 1978; Marsh, Serafica & Barenboim, 1980), or creating awareness amongst preschoolers (Van Lieshout et al., 1973; Rosen, 1974; Ahammer, 1975; Burns & Brainerd, 1979).

The other most common use of training techniques has been in connection with communication skills. Such studies have focussed on the more general aspects of communicative fluency and social role taking. The techniques employed have included role switching within a story telling task (Ianotti, 1978), active participation and modelling procedures (Lefebvre-Pinard & Reid, 1980), and role rotation and group discussion (Shantz & Wilson, 1972).

The literature has been most recently reviewed by Robinson and Robinson (1980, p. 119). They have interpreted the findings as corroborative of their aforementioned theme that the key element in successful referential communication is comparison activity between intended and potential referents (loc cit, p. 120). The circumscribed nature of this work has given it limited generality beyond its immediate empirical objectives. It has been shown

however that appropriate training procedures can be applied to young children from about the age of 4 years; the degree of their success being again a function of the particular task.

Training studies have so far been conducted in a somewhat insular manner. Eventually it would seem productive to incorporate their strengths and subtleties as more dynamic process-measures into the multi-dimensional designs. The latter have so far relied exclusively on rather static indices. Greater depth and interactive vigour might well be attained if the element of experience and specific training were included.

3.2.8 Conclusions

The review has given some idea of the diversity of techniques and the uses to which they have been put in seeking to understand the processes of social cognition. This very diversity however has tended to make it very difficult to compare and integrate the findings that have emerged in the last few years.

The problem has been exacerbated firstly by the common thread of imprecision about the relative role of the allied parameters of information processing mechanisms such as perception, short-term memory, problem solving strategies, and so forth. The dangers of assuming a simplistic kind of synchrony between these diverse developmental processes have been amply illustrated.

Secondly the instrumentation has shown its broad reliance on expressive language, in particular how children will respond to questions from a strange adult pertaining to novel materials. Much of the current knowledge about social cognition of young children is contingent on assumptions that the transcripts or

protocols can be treated as veridical data. But there are obviously many subtleties and relationships yet to be specified. This leads to questions pertaining to the precise social parameters and contextual demands of the various experimental situations. The effects of demand characteristics render much instrumentation suspect in its construct validity until more work is conducted.

CHAPTER FOUR

MEASURING SOCIAL ADJUSTMENT

In the course of this research three different methodologies have been employed for studying children's social behaviour. Initially the focus was on a general notion of social competence, encompassing concepts such as pro-social behaviour, social participation, and popularity among peers. The two methodologies considered appropriate for this were a series of rating scales of manifest behaviour at school, as judged by the children's regular teachers, and the use of sociometric indices based on peer nominations. Subsequently the research focus was extended to the other end of the spectrum, in terms of explicit measurement of social maladjustment, or, in a sense, social incompetence. This was again achieved by the use of teacher rating scales.

Each of these represents a relatively distinct methodological and theoretical tradition, even though in this research they have been treated as complementary and interdependent sources of data. The differences between these traditions might be delineated firstly in terms of measures provided by familiar adults as compared with those provided by the child's own peers. Secondly the observational approach may be considered in terms of qualitative ratings as compared with more objective quantitative techniques. Thirdly one needs draw a contrast in content between behaviours generally cast as socially competent versus those used to detect and define aspects of social madladjustment. The following review will attempt to place these issues into perspective as a preliminary

to a discussion of the selection and development of the instrumentation to be used. Observational methodology and Sociometry will be considered in turn.

4.1 OBSERVATIONAL METHODOLOGY

This discussion will try to give perspective to the various approaches prior to a focus on the use of ratings.

4.1.1 The observational tradition

Systematic observation of children's naturally occurring social behaviour has altered considerably in stature and in style over the years. Research was first conducted in the 1930's, focussing almost exclusively on infants and preschoolers (Parten, 1932; Bridges, 1933). Interest then faded, partly due to the focussing influence of prevailing developmental theory (Parke, 1979, p. 16). An even stronger factor perhaps was the perceived lack of experimental control (Hutt & Hutt, 1970, p. 4), which was in turn linked to a "need for scientific respectability". As a result the descriptive phase was virtually bypassed in favour of attempts to measure cause-effect relationships more directly by precise experimental methods. For whatever reason, the development and implementation of the methodology of natural observation was slow and low-key (Weick, 1968, p. 360).

That situation has now changed markedly. Firstly the ecological validity of much earlier experimental work has been questioned (Bronfenbrenner, 1974, 1979; Parke, 1979). Secondly there has been a resurgence of interest in descriptive methodology in its own right, spurred on in part by the new technology of

video with playback and frame analysis facilities. Recording devices such as the multi-channel event recorder have similarly permitted coverage of a far greater range of phenomena within the processing limits of the trained observer. This has been accompanied in turn by multivariate data analysis of various kinds (Colgan, 1978; Cairns, 1979; Van Hooff, 1979).

Application of these techniques and technologies to the study of children also received much of its later impetus from the work of the European ethologists (Hutt & Hutt, 1970; Blurton Jones, 1972; McGrew, 1972). This has since gathered even greater momentum in the field of developmental psychology, particularly with respect to the study of naturally occurring social behaviour amongst pre-school children. Yet the ethological constraints of the natural study of phenomena have in practice tended to restrict the application of quantitative procedures. Younger children have been observed quantitatively far more than school-age children. This would appear to be partly because their spontaneous play activities were more amenable to direct observational procedures, and partly because they themselves were more accessible psychologically.

Studies of school-age children have presented a different set of methodological challenges that reflected their physical and social mobility, privacy, and the increasingly symbolic character of many of their spontaneous activities. A heavy reliance on the classroom setting was consequently inevitable. This was not only because it was an important behavioural context but because it offered accessibility and situational control. The majority of

studies of social behaviour in older children have also been more qualitative in character. Rating methodology in particular has been used extensively in studies of child psychopathology (Kohn, 1977b; Achenbach & Edelbrock, 1978), relying variously on mental health workers, parents and teachers.

The main focus here will be on teachers as sources of information about children. But teachers are obviously very busy people, and any sort of observational task assigned to them can only be peripheral to their central pedagogic role. From this might be inferred another very pragmatic reason why rating scales rather than quantitative observation techniques might need to be employed. The teachers' available time, let alone their information processing limitations, cannot and should not be taxed by onerous observation. This is the obvious reason, for example, why the experimental methodology of behaviour modification has never attracted much interest in schools other than in a global and non-metric manner. However the issue of qualitative versus quantitative techniques is itself embedded within a much larger methodological framework which first needs to be considered separately.

4.1.2 Qualitative versus Quantitative techniques

The contrast between direct observation using quantitative measures of some kind and ratings that rely more heavily on the subjective judgement of the observer has itself been a long-standing one. It has customarily been expressed as a sharp

methodological dichotomy that continues to induce heated debate (Cairns, 1979, Appendix A).

Quantitative techniques have typically used discrete categories of behaviour that were capable of some operational definition. The most typical dimensions of measurement have, until recently, been frequency of occurrence, mean duration and/or time (Hutt & Hutt, 1970, p. 33). The objective at all times was to achieve precision of measurement (Cairns, 1979). As will be seen shortly this was more easily said than done.

Qualitative techniques have typically assumed the form of rating scales or checklists. Rating scales typically require judgement by the observer on an ordinal scale, with the number of categories determined by the behavioural context. Checklists on the other hand typically require a judgement on a dichotomy (yes/no, present/absent, competence/incompetence). Yet checklists such as the BSAG (Stott, 1974) have several nominal categories per item, while rating scales can be effective with as few as three ordinal categories. The distinction between them is thus not important, and it is appropriate to conduct the discussion in terms of the larger contrast between objective observations and subjective ratings. Each will be considered in detail, leading to a rationale for the use of rating methodology in the present research.

4.1.3 Quantitative techniques

In recent years these have been employed in a diverse range of developmental studies. Some have utilized video playback (Eisler, Hersen & Agras, 1973; Garvey, 1974b; Gillingham, Griffiths & Care, 1977), others have preferred contemporaneous scoring techniques (Bijou, Peterson, Harris, Allen & Johnston, 1969; Fagot & Patterson, 1969; Blurton Jones, 1972; Roper & Hinde, 1978, 1979; Wright, 1980). Whatever the mode, the actual matching of sampling technique, category system and recording technique to the objectives and restraints of a particular experiment has remained a largely intuitive process on the part of the experimenter; systematic guidelines have been minimal.

Until fairly recently the main sources of guidance were ethologically oriented reviews (Hutt & Hutt, 1970; McGrew, 1972), but the "slow pace" of the development of methodological sophistication (Weik, 1968, p.436) offered limited assistance. The content areas to which observational methodology had been applied at that point included nonverbal aspects of facial expression, eye contact, body movements, spatial behaviour (particularly proxemics), extra-linguistic aspects of verbal behaviour such as vocal characteristics, temporal patterns and speech continuity, and the diverse aspects of linguistic behaviour itself (loc cit., p. 380-401). Yet it was significant that such a review did not begin to address the issue of how to put these elements together.

There have since been significant improvements in methodology, although the problems associated with construct validity still persist. In the interim there have been reviews dealing variously

with sampling methods (Altmann, 1974), analysing face-to-face interaction (Duncan & Fiske, 1977), recurring interactional routines (Forgas, 1979), and guidelines for quantitative analysis from the ethologists (Colgan, 1978; Van Hooff, 1979). These have paved the way to more dynamic models of multidimensional and sequential aspects of analysis (Frey & Pimental, 1978). A recent review by Cairns (1979) has put these issues into wider perspective and will serve as a reference point for the present review.

At present it appears that the fruitfulness of research in this area is constrained by the intractability of two related problems. The first is the construct validity of each of the behaviour variables being coded, and the second that of the dynamism of their analysis in terms of how adequately it represents the ongoing process and sequencing of those behaviours. Each will be given a brief consideration.

(a) Construct validity

It is apparent from recent literature that the various dimensions of social behaviour, both verbal and nonverbal, continue to be studied in a predominantly insular fashion. This might be said of vocal behaviour (Scherer, 1979a, 1979b; Scherer & Giles, 1979), gaze and mutual gaze (Levine & Sutton-Smith, 1973; Argyle & Cook, 1976; Exline, 1979), body orientation and movement (Rosenfeld, 1979), facial expression (Ekman & Friesen, 1978; Ekman, 1979), and adherence to proxemic norms (Kendall, Deardorff, Finch & Graham, 1976). The problem is well recognized, although there is no immediate prospect of a usable framework for moving

from the level of discrete observational units to the level of their functional interrelatedness, and in turn their goal-directed character (Von Cranach, 1979).

It is also necessary to be especially cautious about the social meaningfulness of the behaviour units that are thus being studied. The point might be illustrated with respect to eye gaze and contact. Lord (1974) studied people's perception of whether an alter was actually looking at them. She demonstrated that the error rate decreased with age, but cast doubt on the ability of younger subjects to discriminate eye contact anyway. Even more telling was a re-analysis of dyadic eye contact data, suggesting that up to 95% of variance in eye contact duration could be accounted for as "a chance product of individual looking" (Rutter, Stephenson, Lazzerini, Ayling & White, 1977, p. 192).

(b) Levels of Analysis

The objectivity of the observer declines as he is required to transfer judgement from smaller to larger units representing different levels of possible analysis. There have been few attempts to grapple conceptually with this problem. Indication Theory (Fassuadt, 1979, cited by Von Cranach, 1979) may be a promising development, but few methodological guidelines are presently available (Cairns, 1979, p. 203). One of the more pragmatic ways suggested for improving the reliability in some situations has been simply to increase the number of observers. One might then take an average of their judgements (Cohen, 1977) or even conduct independent analyses of the results of different observers (Yarrow & Waxler, 1979).

But this precision is typically possible only in controlled observational settings where multiple observers can be used. It will be seen to be of little assistance in field study designs where there can typically be but one informant, as in the case of a parent or teacher. The point will be taken further in the subsequent analysis of rating methodology.

Furthermore the behavioural units are themselves often static and discrete in nature. The issue of behaviour sequences and multiple interactions between elements has so far been tackled most successfully by the animal ethologists (Fagen & Young, 1978; Van Hooff, 1979). Their application to the subtleties of children's social behaviour has proved far more difficult, although some of the statistical procedures might well be applied (Castellan, 1979). The most noteworthy efforts so far have perhaps been in terms of linguistic analyses of inter-personal episodes (Mueller, 1972; Garvey, 1974a, 1974b, 1975; Garvey & Ben Debba, 1974; Mueller & Lucas, 1975; Mueller & Vandell, 1977).

The particular use of quantitative techniques in the study of social competence has been very limited. The focus has almost exclusively been on the pre-schooler at play (Roper & Hinde, 1978, 1979; Wright, 1980), and extrapolation of this work to school-age children must be considered risky. However Roper and Hinde (1979) conducted a cross-validation of quantitative and qualitative techniques, which was invaluable in evaluating the relative strengths and weaknesses of each, and demonstrating their comparability in most instances.

4.2 RATINGS

Observer ratings have long been viewed with some suspicion because of the inevitable influence of various kinds of observer bias or implicit behaviour constructs (Vernon, 1964; Bruner & Tagiuri, 1968; Weick, 1968). Various recommendations have been made to reduce these kinds of 'error variance', including the partialling out of the affective involvement component (Vernon, 1964, p. 59) and tightening of the behavioural definition of the rating scale itself (Weick, 1968). Generally though the weak reliability of rating methodology has been taken for granted, and the larger issue of validity has not been considered. At present a reappraisal is obviously taking place, with experimentalists acknowledging the clinical stance that ratings are as good as the rater who makes them. The key issues pertain to ways of structuring a particular rating instrument and training the observers appropriately (Eisler, Hersen & Agras, 1973; Gillingham, Griffiths & Care, 1977; Cairns, 1979).

The use of ratings for the particular study of social behaviour can be traced to two sources: experimentally oriented work on social competence, and clinically oriented work on maladjustment or psychopathology. This reflected a difference in approach rather than manifest behaviour, for there can be no clear division in practice (Stott, 1978, p. 130). However the literature on each will be reviewed before a synthesis is attempted. More general issues of validity and reliability will then be considered.

4.2.1 Ratings of social competence

A continuing problem is that of deciding what one means by the term social competence in the first place:

> Use of the term social competence varies considerably not only because of real differences of opinion about the nature and scope of positive behaviours but also because of differences of approach. The absence of agreement or rationale for unifying these alternative views produces a lack of clarity in the field that limits the analysis of relationships with other variables and the design of instruction to encourage competence. (O'Malley, 1977, p. 29).

The term 'competence' was itself not even a recognized descriptor in Psychological Abstracts until recently.

At a more functional level researchers have applied diverse criteria to suit educational or social policy planning needs (Anderson & Messick, 1974; Greenberger & Sorensen, 1974; Frost & Kissinger, 1976). For present purposes focus was placed upon the child's capacity to establish and maintain mutually satisfying relations with peers. The importance of relations with adults was recognized but excluded, an approach since corroborated by Wright (1980). Her quantitative work on preschoolers' social competence suggested that child-adult interactions needed to be considered quite separately from child-child interactions. Furthermore the former correlated negligibly with a general cognitive competence factor (loc cit, p. 23). This contrast among preschoolers seemed to remain applicable to school-age

children. The significance of this distinction will become more evident in later analysis.

For many years the main empirical definition of social competence has been in terms of statistically derived factors, with social competence regarded as the best quadrant of social behaviour clusters defined by orthogonal dimensions (Kohn, 1977a, 1977b; O'Malley, 1977). Some consensus about the form and stability of these dimensions has been achieved. Kohn's labels for these bi-polar factors were Interest-Participation versus Apathy-Withdrawal, and Cooperation-Compliance versus Anger-Defence (loc cit, p. 3). It will be seen that variants of these recur in the clinically oriented literature, further re-emphasizing the basic continuity of competence and maladjustment (Achenbach & Edelbrock, 1978).

Attempts to define social competence in developmental terms have proved fruitless. Sinclair (1979) pointed out that the affective domain has always lacked a structural framework of social processes of the type provided by Piaget and his followers in the cognitive domain. Perhaps the nearest approximation has been a longstanding model of social participation within the context of free play behaviour (Parten, 1932; Wintre & Webster, 1974). But the inadequacy of that sequential model has long been recognized, even though this has failed to dampen its continued popularity.

The relevance of any developmental sequence of social competence has in a sense been found to diminish rapidly with age. Sequences have been successfully applied to the operation of

dyadic relations during the first two years (Mueller & Vandell, 1977), and also to three year olds (Mueller & Lucas, 1975; Mueller & Brenner, 1977). Beyond that however the preschoolers' social behaviour is too complex to fit within such restraints. An obvious example has been the recent reappraisal of solitary play, which is now recognized as a complex and potentially beneficial activity rather than simply an indicator of immaturity or poor adjustment (Moore, Everton & Brophy, 1974; Rubin, 1977b; Roper & Hinde, 1978, 1979). A similar reappraisal has occurred with respect to fantasy behaviour (Sanders & Harper, 1976). The situation with regard to the interactional subtleties of school-age children is even more resistant to attempts to designate precise parameters of normative expectations.

For present purposes the most appropriate strategy for delineating possible content areas for ratings of social competence seemed to be a pragmatic one of examining the areas of interpersonal research presently attracting empirical interest. Three major content areas were so discerned. These were pro-social behaviours (Bryan, 1975; Mussen & Eisenberg-berg, 1977; Payne, 1980), social participation or activity level (Halverson & Waldrop, 1976), and most recently social influence effectiveness (Wright, 1980). The latter has so far been considered only among preschoolers, but does appear to be relevant. Each will be examined in order to evaluate its discriminant and construct validity and the empirical feasibility of tapping it meaningfully by means of ratings.

The obvious guiding criterion for selection seemed to be a statistical one, in terms of factor analytic item clusters and acceptable threshold levels.

(a) Pro-social behaviours

These might include content areas such as helping, sharing, cooperation, sympathy, thoughtfulness and so forth. No precise definition is yet possible because of continuing lack of agreement about whether these are characterized by cross-situational consistency (Mussen & Eisenberg-berg, 1977; Bar-tal & Raviv, 1979) or inconsistency (Payne, 1980). One integrating element at least appears to be the alter involved, for example strangers versus class peers (Payne, 1980). However there has been a methodological problem in reconciling the considerable differences between qualitative ratings and various quantitative indices of pro-social behaviour; they obviously tap different processes and have poor cross-validation (Payne, 1980). Ratings in this area in particular seem to reflect a strong and unwarranted tendency on the part of raters to assume an underlying unitary character. This effect is found in teachers and peers' ratings alike (Payne, 1980). That is not to imply that ratings per se are invalid as generalities of pro-social behavioural disposition, but they will not predict with any precision the child's response to a specific set of contextual demands.

The situational specificity of much pro-social behaviour also seems to be largely responsible for the lack of agreement as to when certain behaviours become manifest developmentally (Yarrow & Waxler, 1976; Hull & Reuter, 1977; Mussen & Eisenberg-berg, 1977, p. 66). Cross-situational generalization is certainly not possible for any particular pro-social dimension amongst school-age children.

A similar situation prevails with regard to sex differences in both experimental and field-based studies (Maccoby, 1974; Bryan, 1975; O'Bryant & Brophy, 1976; Yarrow & Waxler, 1976; Mussen & Eisenberg-berg, 1977; Roper & Hinde, 1978, 1979). If there are any sex differences they must operate in a situation-specific manner. They do not appear in work on people-versus object-orientation (Jennings, 1975, 1977), which implies that any pattern must be more subtle than that implied in the stereotyped image of girls as more oriented to people. The one stable sex difference that does appear repeatedly pertains to helping or nurturant behaviour; girls do show significantly more helping behaviour in most situations (Mussen & Eisenberg-berg, 1977).

In general then the adoption of a methodology based on teachers' ratings of pro-social behaviour appears to be empirically defensible within circumscribed limits of available concurrent and discriminant validity findings. It does necessitate however a very cautious and open-ended interpretation; the available guide-lines are really of very little use.

(b) Games

A number of researchers have attempted to describe the organized games of children in the school yard or other settings (Opie & Opie, 1959, 1969; Sutton-Smith, 1972; Avedon & Sutton-Smith, 1979; Lindsay & Palmer, 1981). This would appear to offer empirical possibilities for the measurement of specific aspects of social competence. In practice this work has not progressed beyond a global analysis of rules and the nature of the group activity involved. It does not presently offer a means of

differentiating individual differences in terms of the qualitative or quantitative aspects of participation.

(c) Social participation

The second content area has emerged as an important albeit complex predictor of social competence. Empirical evidence is still limited in scope, and based mainly on preschoolers (Halverson & Waldrop, 1976; Billman & McDevitt, 1980; Buss, Block & Block, 1980). However it does appear to be a major dimension of temperament that is stable from an early age (Thomas & Chess, 1977).

It is not yet clear whether the specific concept of social participation is a meaningful component of general activity level per se, including the latter's particular association with motoric functioning. Halversen & Waldrop (1976), examined activity level as a general factor based on ratings and as a social participation factor based on quantitative observations of two year olds. Their longitudinal study over five years found that the high activity factor correlated only with dominance in the social domain ($r = .41$, $p < .001$), whilst the social participation factor correlated variously with the tendency to play with others, social ease and dominance. They concluded:

> These relations show some predictability of the social participation factor for peer relations at 7½ but only marginal predictability for other facets of high-activity behaviour as examined in the present study (loc cit, p. 111).

More recent work has emphasized the generality of activity level in its total motoric and social participation sense (Billman & McDevitt, 1980; Buss et al., 1980). Children high in this factor were perceived as more energetic, restless, assertive, aggressive, competitive and manipulative. But such findings do not disentangle how this activity level operates; the global concept still requires refinement. For example Roper & Hinde (1978, 1979) found a sociability factor that was age related among their 4 year olds' while other factors of aggressiveness, perseverance and anxiety were not at all developmental in character. The generality and stability of the implicated components have thus not been resolved satisfactorily.

Despite these uncertainties it would seem that ratings can be used to tap this basic dimension of temperament in everyday interactions. It is still not clear though how this will operate developmentally through childhood. One might intuitively suspect the operation of socialized modes of channelling or transforming this as a function of age and experience. But little is yet known of this. Similarly one can only speculate on the link between this and various styles of clinical maladjustment, as considered in the next section.

(d) Social influence effectiveness

Wright (1980) found that the most effective behavioural discriminators of social competence amongst preschoolers were:

> Event scores for positive/successful instances of leading peers, seeking their attention, and using them as an instrumental resource. (loc cit, p. 26).

These might be jointly considered as a quantitative index of effectiveness in influencing other children. Such an index correlated significantly with general cognitive competence and various measures of social cognition, and was moderately stable over 7 months. Wright argued that this might prove to be a very economical way to measure social competence, and replication is warranted to see if her claims are justified, particularly as they apply to school-age children. It remains to be seen if this dimension can be tapped by means of ratings.

In conclusion it is apparent that any definition of content for a possible rating scale of social competence among school-age children presently has minimal guidelines available.

4.2.2 Ratings of social maladjustment

The negative side of social behaviour, as it were, has been examined primarily within a clinically-oriented framework, although the methodology has differed little in practice. The broader goals have been improved aetiology and taxonomy in order to facilitate diagnosis and treatment of specific cases. Rating methodology has been used extensively, as reviewed by Achenbach & Edelbrock (1978). The present review has drawn on this and added to it an appraisal of a limited number of British studies and their derivatives.

Factor analysis in particular brought a semblance of order to what had been a crude and unreliable conceptual field of study based on individual clinical experience (loc cit, p. 1276). But this growth has itself suffered from lack of coordination and consolidation due to variability in design, instrumentation,

selection and training of raters, and sampling. No single study has produced definitive results (loc cit, p. 1276). However two 'broad-band' concepts of overcontrolled as compared with under-controlled aspects of maladjustment have emerged consistently in virtually all studies, regardless of the rater (parent, teacher, clinician) or of the behavioural context (Stott, 1974, 1978; Kohn, 1977b; Achenbach & Edelbrock, 1978). Attention here will be focussed on ratings made by teachers.

The American literature on teachers' ratings has achieved little consensus in going beyond these broad band concepts to more specific narrow bands of maladjustment. In this respect it has been less successful than more clinically oriented work (Achenbach & Edelbrock, 1978, p. 1285). Work in Britain however has been dominated by one instrument, the Bristol Social Adjustment Guides (Stott, 1974, 1978; Stott, Marston & Neill, 1975). This has been used extensively in the National Child Development Study (Davie, Butler & Goldstein, 1972) and in a large Canadian study (Stott, 1978). The BSAG indicated five distinct narrow band syndromes and one other associated grouping within the two broad bands. These have achieved widespread acceptance among many British teachers and researchers, and the instrument was a logical choice for the present research on these grounds at least.

Stott termed his broad band syndromes 'under-reactive' and 'over-reactive', corresponding to overcontrolled and under-controlled or personality disorders and conduct disorders. Within the under-reactive category he found three specific syndromes of Unforthcomingness, Withdrawal and Depression. Within

the over-reactive category the syndromes were Inconsequence and Hostility, with an associated non-syndromic grouping termed Peer Maladaptiveness which could reflect either of these (Stott, 1974).

A reappraisal of Stott's standardisation sample for the revised BSAG found significant internal validity regarding the specificity of three of the syndromes, Unforthcomingness, Inconsequence and Hostility, and the associated Peer Maladaptiveness (McDermott, 1980a). Specificity for Depression and Withdrawal was reduced in the normal sample but enhanced in a clinical sample, emphasizing their greater clinical integrity (loc cit, p. 227). The latter two also displayed a greater tendency in practice to incorporate features of other syndromes, albeit idiosyncratically.

This kind of internal validation of narrow band syndromes has not been achieved in American studies because they simply lacked enough items to achieve the same kind of differentiation (Achenbach & Edelbrock, 1978, p. 1286). At present then there is simply no other instrument of comparable scope with which to compare and cross-validate the narrow band syndromes proposed.

Unfortunately this relatively convincing display of internal validity by the BSAG has not been matched by corresponding external validation, concurrent, predictive, or whatever. This has been a failing of Stott's instrument just as it was for the American instruments (Achenbach & Edelbrock, 1978). A recent study by McMichael (1980) compared the BSAG with the Children's Behaviour Questionnaire (Rutter, 1967); but the gross screening function of the CBQ did not provide an appropriate reference point for finer

discrimination of the narrow band syndromes. The BSAG has certainly been shown to make meaningful gross discriminations of delinquent/nondelinquent, good and bad readers etc., but the behavioural validity of the key syndromes remains uncertain.

Another source of uncertainty in external validity pertains to the cross-cultural applicability of all such instruments, including the BSAG. Stott (1978) found quite important differences between his standardization work in Ontario and the British National Child Development Study (Davie et al., 1972). Further cross-cultural work is obviously needed to clarify the parameters involved. The contradictory evidence on the role of socio-economic status variables serves as an obvious example of this. SES factors have been largely discounted in American research (Kohn, 1977b; Achenbach & Edelbrock, 1978; Goyette, Conners & Ulrich, 1978), yet have been emphasized repeatedly in British research (Stott et al., 1975). The Australian context will obviously necessitate a fresh appraisal; no generality can be assumed.

Apart from the particular syndromes there has been fairly consistent evidence of the discriminatory capacity of such rating scales with respect to age and sex of the children. More recent work has shown significant age patterns in both cross-sectional (Stott et al., 1975; Goyette et al., 1978) and longitudinal designs (Gersten, Langner, Eisenberg, Simcha-Fagan & McCarthy, 1976; Kohn, 1977a, 1977b). There is however an apparent discrepancy between cross-sectional and longitudinal findings which may prove to have serious methodological implications

(Gersten et al., 1976, p. 120).

The nature of these developmental patterns would in turn appear to be linked to sex differences in interaction with particular forms of maladjustment. Kohn's longitudinal study of 4 to 9 year olds found:

> a marked increase in pathology, particularly in boys, as the children grew older. The rising level of disturbance was evident on all five criterion measures for boys and on Apathy-Withdrawal and Referral for girls (1977b, p. 240).

Stott's British research with the BSAG suggested that the interaction was even more selective. There were hardly any developmental trends in under-reactive behaviours for either sex, while the boys displayed a "distinct deterioration" in over-reactive behaviours after the age of 8 years (Stott et al., 1975, p. 83). Stott (1974) found some 72% more boys than girls were maladjusted. This was apparent in all syndromes except Unforthcomingness, and was most pronounced in Inconsequence, by a ratio of 3:1. But Achenbach & Edelbrock (1978, p. 1286) have continued to urge caution in too ready an association of syndromes with age and sex patterns. They point out that there are still unresolved contradictions in the data available. This might again reflect cultural variability, but one cannot yet be sure.

Another dimension pertinent to this question may be the finding that girls showed greater stability over a two year period than boys (Victor & Halverson, 1976). This finding might

well be cognate with the recent evidence that the stability over one year of specific scales on an adapted Conners' Teacher Rating Scale changed as a function of the age of the children. Syndromes like Conduct Problem, Socially Rejected and Anti-Social were least stable in the youngest age group of school beginners (Glow, Glow & Rump, in press). They further noted:

> It may also be the case that young children are more variable, and only later develop stable modes of reaction. (loc cit, p. 19).

The variability of young children must then be considered beside the more general finding that all test-retest reliabilities decline with time (Glow et al., in press, p. 5), most particularly for narrow band syndromes (loc cit, p. 6). Even the process of observing the child is involved in that the extent of maladjustment is consistently lowered in any subsequent assessment (Stott et al., 1975; Achenbach & Edelbrock, 1978; Glow et al., in press). In the most recent review, Glow et al. (in press, p. 8) concluded:

> in short, it appears that studies of the stability of ratings of children's behaviour disorders need to take special account not only of the reliability (relative position) of the subject's scores, but also their absolute position (changes in the mean), and need to try to assess whether rater practice or even exposure of the child to the assessment procedure itself influences the amount of disorder reported.

These kinds of processes certainly do not invalidate a well prepared rating system. But one cannot deny the socially reactive

character of such ratings (loc cit, p. 35), and must be alert to the wider interactional parameters of any given set of data.

4.2.3 The interaction of social competence and social maladjustment

By way of review it may be useful to clarify preceding points pertaining to the relationship between these major content areas. An insular dichotomy has generally prevailed between ethological or experimental studies of normal children and those concerned with defined clinical populations, although no one would suggest that these should really be separated. Yet it would not, perhaps, be reasonable to expect continuity insofar as one discriminates over a full range of behaviours, the other over a lesser range at either extreme of the behavioural spectrum (Kohn, 1977b, p. 2).

There have been few systematic attempts to link the two domains. Schaefer (1971) tried to measure competence and adjustment simultaneously and found three bipolar dimensions in teachers' ratings - Extraversion vs Introversion, Love vs Hostility, High vs Low task orientation. Each of these:

> not only represented a syndrome of emotional disturbance but also extended along a continuum to a polar opposite in the realm of healthy functioning (Kohn, 1978, p. 19).

Kohn (1977a, 1977b) studied children longitudinally from 4 to 9 years with both a Social Competence Scale and a Symptom Checklist, and showed that they did measure the same behaviour patterns within the constraints of their function (loc cit, 1977b, p. 2).

The relation was not a stable one however, for each behaviour appeared to have its own operating principles. Interest-Participation was "the most delicate of the syndromes", with the poorest level of stability and predictability. It thus:

> requires the most careful environmental nurturance if it is to be maintained and strengthened. (loc cit, p. 247).

It may be possible then for some kind of meshing to take place between measures of general social competence and specific social maladjustment indices. But the relationship cannot be expected to be a straightforward one; it will be a function of intrinsic differences in the metrics themselves, and will also refect the different social parameters involved in each.

4.2.4 Validity and reliability of ratings

Three different forms of validity will be considered separately in relation to ratings: concurrent, predictive and construct.

(a) Concurrent validity

The appraisal of rating methodology has undoubtedly become far more positive in both the clinical (Achenbach & Edelbrock, 1978) and the experimental domain (Cairns & Green, 1979), despite increased appreciation of their inherent limitations (Cairns, 1979) and their potentially socially reactive character (Glow et al., in press). Good concurrent validity has been achieved between qualitative ratings and quantitative observations (Roper & Hinde, 1979, p. 294) so it may be a question of knowing what

each can do best and utilizing them accordingly. It would now appear that ratings can tap certain aspects of complex functioning that are otherwise presently resistant to quantitative techniques, even those that are multi-dimensional in character (Cairns, 1979). This is particularly pertinent in a field setting such as classroom or home.

Specific evidence for the concurrent validity of ratings has typically been more readily available in the clinical area. Most of it however has had a "bootstrapping" character in that the criterion has been yet another source of subjective judgements, usually an independent psychological classification (Achenbach & Edelbrock, 1978, p. 1292). Teachers' ratings have been found to correlate significantly with children's self-reported personality (Harris, Drummond & Schultz, 1977), although one should perhaps not attach much credibility to this given the low reflective abilities of younger children (Flavell, 1977). Teachers' nominations of conduct and withdrawal problems have been corroborated by sociometric data, but independent behavioural analysis suggested that although teachers could identify problem children in general they could not accurately differentiate the two broad-band modes (Green, Beck, Forehand & Vosk, 1980). But that might well be an indication of the need for better structuring of teachers' observations rather than a criticism of their observations per se. Research on the BSAG in particular has been positive (Stott, 1974, p. 19), but has not involved sufficiently fine discrimination in its criterion behaviours.

In general then clinical research has never tackled the concurrent validity issue adequately. Recent work on specific problems like Hyperkinetic Impulse Disorder shows promise of examining the child in different settings and by different means (Glow & Glow, 1980), but much remains to be done.

(b) Predictive validity

This has been tackled fairly effectively in clinical research (Stott, 1974; Kohn, 1977b; Achenbach & Edelbrock, 1978); but hardly at all in the experimental domain. Generalization is certainly not warranted; it all depends on the particular items or syndromes and the skill of the raters. A certain consistency has been found in that over reactive broad-band behaviours seem to be more robust covariates of later behaviours than under reactive ones (Achenbach & Edelbrock, 1978); but even that distinction need not generalize to children starting school (Glow et al., in press).

(c) Construct validity

The problems associated with the socially reactive character of ratings in a natural setting such as a classroom have already been discussed (Glow et al., in press). In addition it is important to consider the cognitive processing of behavioural information by the teachers themselves; it may be simplistic to label this as merely subjective bias. It would seem that teachers are like most other people in their tendency to invoke global dimensions in order to organize their impressions, although the process has only been investigated in relation to ratings of

preschoolers' social participation (Hallworth, 1962; Roper & Hinde, 1978, 1979). It may be equally true however that teachers make the best of the conceptual framework provided by the rating scale itself.

Investigations pertaining to the effect of rating scale design on the validity of the ratings are scarce. Nonetheless

> it would appear that if rating scales were constructed of more specific and easily identifiable behaviours.... such a scale would be less susceptible to biasing effects than those thus far discussed in the literature. (Siegel, Dragovich & Marholin, 1976, p. 232).

But it remains an open question whether weaknesses in inter-rater or test-retest reliability are themselves attributable to the limitations of the rater, the suitability and precision of the scales used, or for that matter the variability of the behaviours being observed.

One facet of the validity of any rating will be the familiarity of the observer with the children to be rated. In a clinical setting it has been shown that consensus, in terms of inter-rater reliability, will increase as a function of period of acquaintance (Clough, 1978). The precision of teachers' ratings would be expected to increase even more markedly because of the intensive nature of the daily routine. This will obviously have limits in that a particular child's pattern of adjustment to school and his reciprocal relation with the teacher may also be changing. But a longer gestation period for the teacher's judgement should bring benefits in most instances.

Another facet of this process will be the teacher's own involvement and interest in making such observations. One might anticipate that the teacher who knew what to look for, and why, and was strongly motivated to make good ratings, would provide more meaningful and reliable data. Weinrott (1977, p. 195) demonstrated that the training of teachers in daily 'tracking' of the children led to earlier recognition of changes in behaviour and greater accuracy. Intuitively one would argue that clear guidelines, personal involvement by the teachers, and regular support by the experimenter would be the vital ingredients in any effective study, although it is difficult to confirm such matters empirically (Weinrott, 1977; Cairns, 1979).

Some researchers have remained pessimistic about the role of bias (Ingleby & Cooper, 1974; Ghodsian, 1977). But the prevailing emphasis is characterized by a view that teachers possess wide knowledge of their children's behaviour parameters, whether in the spectrum of competence or maladjustment. This enables them to filter various sources of information, in order to appraise the stable qualities of a child's particular contribution to a behavioural setting (Cairns, 1979, p. 202; Marcus et al., 1979, p. 347). Any bias that intervenes is understandable enough, but its seriousness depends on how it is defined and measured. Recent researchers employing the teacher as rater have apparently thought it feasible to control for such idiosyncrasies (Patterson & Reid, 1976; Siegel et al., 1976; Cairns, 1979; Yarrow & Waxler, 1979).

(d) Reliability

Systematic investigation of reliability has not been commonplace, although recent work by Roper and Hinde (1979) has proved encouraging. They found strong inter-rater reliability between teachers and independent raters over all items and across three different comparison situations. Factor loadings of repeated ratings over three school terms also suggested a high degree of stability on the teachers' part (loc cit, p. 294).

There have also been recent efforts to increase reliability by attempts to broaden the base of observation (Cohen, 1977, cited by Rosenthal, 1979; Yarrow & Waxler, 1979). However in many field-designs there can be but one informed source due to the unique role of 'local knowledge'. This will certainly be the case with teachers (Stott, 1978; Roper & Hinde, 1979) and also with parents (Manesovitz et al., 1973; Garside, Birch, Scott, Chambers, Kolvin, Tweddle & Barker, 1975; Quay, 1977; Achenbach & Edelbrock, 1978; McDevitt & Carey, 1978).

The coefficient of stability of clinically oriented ratings has fallen between .83 and .92 in short-term studies (Achenbach & Edelbrock, 1978, p. 1288), decreasing over six months to between .72 and .84. The stability of the BSAG in particular was somewhat below .80 over a twelve month period. Inconsequence was the most stable narrow band syndrome, with coefficients between .70 and .77 (Stott et al., 1975, p. 157). In general then reliability dropped as a function of the delay (Glow et al., in press), and was weaker for narrow band than broad band syndromes.

Inter-rate reliability coefficients for teachers tended to be comparable, with coefficients of about .80 (Kohn, 1977a, p. 252; Achenbach & Edelbrock, 1978, p. 1288). That serves as a guideline for what might be anticipated in the present research.

(e) Conclusions

The utility and relative strengths of ratings made by an informed observer have been documented as a source of unique, accessible, and psychologically meaningful information about the stable and cross-situational characteristics of children (Cairns, 1979, p. 202). They are not comparable with quantitative data in that they represent different kinds of information. They do not tap so readily:

> the powerful effects of setting, the influence of the ongoing acts of the other person, and variations in immediate bodily states, as well as the child's unique and enduring contributions to the relationship. (loc cit, p. 202).

Furthermore the effectiveness of rating methodology has been shown to depend in large part on the conceptual framework within which the observer is asked to operate. Weaknesses in design may well be more critical than those one might otherwise attribute to the idiosyncrasies of the skilled naturalistic observer. The latter knows the children, knows what to expect of them, and seeks to observe and record that information faithfully.

4.3 SOCIOMETRY

Sociometry has been popular for many years as an applied technique for characterising relationship patterns and preferences within defined groups (Lindzey & Byrne, 1968). The most common application has been with children in the classroom or kindergarten context, as a simple and direct source of information about group dynamics for the teacher. Research use has most commonly been as an independent index in multi-dimensional studies (Asher, Singleton, Tinsley & Hymel, 1979a; Asher & Hymel, in press). Two main empirical approaches to sociometry might be distinguished - 'nomination' and 'peer rating'. Each will be reviewed before considering general issues of validity and reliability.

4.3.1 Nomination techniques

This has been the most common and most widely recognized approach for research and for applied purposes (Asher *et al.*, 1979a, p. 443). In a classroom context each child is typically asked to name certain of his/her classmates in terms of one or more specified criteria pertaining to his/her own disposition towards them. The child's knowledge of those classmates has usually been assumed, although sometimes a set of names, or even of photographs, has been displayed as a reminder of the choice population (Asher *et al.*, 1979a; Peery, 1979). The criteria pertaining to the selection have been varied to suit the particular context. These have included general descriptors (who are your friends? who do you like most?), general aspirations (who do you wish were your friends?), context specific (who would

you like to sit next to you?) and so on. The number of choices required can be varied, although it is customarily less than five. This can also be left flexible. Any criterion will be a compromise between greater choice discriminability and the declining reliability of lower-order choices.

One other variant in technique has been the use of paired comparisons. Each child is asked to state his preference with respect to a specified criterion for successively presented pairs of children. This approach makes heavy administrative demands, but does yield increased reliability (Asher et al., 1979a, p. 4). Its potential for intensive study of group dynamics would appear to be considerable, although it would not be practicable for the cross-group indices required here.

General data analysis has similarly presented many possibilities. A number of attempts have been made to assign weightings to choices so as to reflect their expected social significance (Lindzey & Byrne, 1968). But the lack of clear criteria for such ratings may lead to confusion rather than clarification; raw choice status would seem to be both the simplest and most appropriate index. In any case the correlation between weighted and unweighted scores is high (Asher et al., 1979, p. 444). There is little to be gained by increasing the complexity of the indices on the basis of unproven assumptions about choice patterns, particularly with younger subjects.

A further question is the interpretation of choice status in relation to total group structure, and many alternative ways have been proposed (Gordon, 1966; Northway & Weld, 1967; Lindzey &

Byrne, 1968; Cartwright & Cartwright, 1974; Gronlund, 1976). The present study required the assignation of sociometric indices in an equitable fashion from a variety of class groups, and necessitated yet another approach. How such comparisons might be effectively made across groups is considered separately in Chapter eight. Other dimensions of analysis in terms of matrices, sociograms and so forth will not be elaborated.

In practice there has been little methodological innovation in either technique or data analysis since Lindzey and Byrne's (1968) review. In particular:

> the definition of sociometric isolation has never been clearly conceptualized. Today, classification of sociometric status remains where Dunnington (1957) and Moore (1967) stopped: Popular children are those who receive many positive and few negative sociometric choices; rejected children receive many negative and few positive votes; isolated children are "somewhere between the top and the bottom" of the popular-rejected continuum (Moore, 1967).
>
> (Peery, 1979, p. 1231).

Most recently Peery (1979, p. 1232) employed a combination of situation-specific positive and negative questions, and analysed the answers in terms of 'social impact' (absolute number of positive votes plus the absolute number of negative votes), and 'social preference' (number of positive votes minus the number of negative votes). This technique generated two orthogonal dimensions with four quadrant categories, thereby separating the

'amiable' from the 'popular' and the 'isolated' from the 'rejected'. The idea has some potential, although it involves a number of conceptual assumptions that still await empirical verification.

One obvious problem would seem to be that implied by the finding that positive and negative nominations were unrelated or only moderately correlated in a negative direction (Asher et al., 1979a, p. 2; Asher & Hymel, in press, p. 11). Asher did acknowledge the need for further differentiation, perhaps in a manner similar to that of Peery; but much more scrutiny of concurrent validity issues is clearly warranted.

Another uncertainty with negative nomination data in particular pertains to the ethical implications of the reactive effects of eliciting such information from children. This has long been recognized as a problem by researchers and practitioners alike. Most recently Asher and Hymel (in press, p. 12) pointed out the lack of empirical data, and emphasized the need for caution. Peery (1979, p. 1232) attempted to soften the issue by using situation-specific negative questions; but it may not be that simple. The striking concurrent and predictive validity of negative questions is indisputable, as will be demonstrated shortly, but one does need to be very wary about their adoption.

Finally, there is some uncertainty as to the age at which it is feasible to assume that a child really understands the classification processes implicit in such a task (Peery, 1979, p. 1233). Recognition of negative emotions lags behind that for positive emotions (Borke, 1971, 1972, 1973a). It would not be unreasonable then to question the validity of negative choices of children in

the pre-school and early school years. So far no work has been conducted in this area.

4.3.2 Peer rating techniques

These might be described as a recent methodological innovation, although the idea itself is not new. Each child in a group is typically asked to rate all of the other children in terms of one or more criteria. One variation so far has involved using a Likert scale in which children assign values of one to five to their peers on a specified dimension (Hymel & Asher, 1977; Oden & Asher, 1977; Singleton & Asher, 1977; Asher & Hymel, in press). The conceptual difficulty of such scaling was elsewhere made more concrete by the use of faces, with expressions ranging from a frown to a smile, or simplified for pre-schoolers by use of just three point discrimination (Asher et al., 1979b).

Yet another technique has been to ask the children to name all those in the group who variously fit a list of given descriptors (Pekarik, Prinz, Liebert, Weintraub & Neale, 1976). But this would seem to make a number of assumptions, in particular one about young children's capacity to discriminate.

These kinds of technique offer important possibilities for more reliable measurement inasmuch as they permit averaging of perceptions by numerous children with regard to a set of target children, or indeed every child in the group. But their suitability for younger children does appear to be limited because of cognitive demands of discrimination, classification or whatever. It remains to be seen whether some of the new techniques (Asher et al., 1979b) can successfully overcome these problems.

4.3.3 Validity

It could be argued that sociometric data does possess its own intrinsic and contemporaneous validity. But it also stands up well to scrutiny in terms of both concurrent and predictive validity. In particular negative sociometric indices have been found to be major predictors of later psychopathology, maladjustment and delinquency (Rutter, Tizzard & Whitemore, 1970; Roff, Sells & Golden, 1972; Cowen, Pederson, Babigion, Izzo & Trost, 1973). Such data might in fact be taken as the most effective predictor available, being better than conventional clinical appraisals or psychometric assessment.

The question of children's capacity to verbalize self-consciously about the aetiology of peer disturbance is another matter altogether. Children typically do not employ more than a a single-factor explanation in describing human behaviour; multi-factor explanations are largely an acquisition of early adolescence (Erwin & Kuhn, 1979, p. 353). Children also disagree on what other persons' motives are (Kalter & Marsden, 1977, p. 54), and their understanding of the development of psychopathology or maladjustment is highly personalized and subjective (loc cit, p. 54). But they can make meaningful psychological discriminations between their peers,and can verbalize these provided that information is elicited in an appropriate manner. This has been shown with respect to pro-social behaviour (Mussen & Eisenberg-berg, 1977, p. 17) and hyperactivity (Glow & Glow, 1980). The latter authors also anticipated increased reliance on peer ratings in future clinical screening and diagnosis (loc cit, p. 489).

Concurrent validity between sociometric status and teachers' observations has already been considered in relation to the validity of the teachers' observations. From the other side of the equation there is again a considerable literature confirming significant relationships between the two sources of data (Pekarik et al., 1976, p. 84; Asher & Hymel, in press, p. 15). But closer analysis suggests that such correlations are mainly achieved with preschoolers; the few studies with older children give far less compelling results (Asher & Hymel, in press, p. 16). It is increasingly evident that the school-age child will be seen in subtly different ways by peers, parents and teachers alike (Glow & Glow, 1980); far more depends on person/context interaction factors.

There are a number of possible reasons for this. Firstly the behavioural skills and personal qualities that matter increasingly to older children are less accessible to adults (Asher & Hymel, in press, p. 18). Secondly it is evident that school-age children are increasingly influenced implicitly by wider socialization values pertaining to the race, religion and ethnicity of other children (Penny, 1971; Asher & Hymel, in press, p. 18). Again these may not be salient or accessible to the adult observer. Thirdly, subtle aspects of physical appearance influence children's perception of and liking for their peers, and display an age-related relationship (Cavior & Lombardi, 1973; Kleck, Richardson & Ronald, 1974). These factors contribute to the decreasing accessibility of school-age children's patterns

of social adjustment, and help explain why naturalistic observations are poor correlates of sociometric status. They further accentuate the inappropriateness of attempting to relate simple quantitative indices of frequency of occurrence of certain behaviours to sociometric indices (Asher & Hymel, in press, p. 15). Children's adjustment and behaviour are not that simple.

In conclusion it is evident that the richness and contextual specificity of children's patterns of social relationships cannot meaningfully be evaluated in relation to observation of the children by adults. Neither quantitative nor qualitative modes of observation can hope to capture the implicit interpersonal subtleties or tap the guiding influence of the children's social representational thinking. Correlations between the two sources of data may certainly prove useful and important; but this needs to be done in a framework that accepts the contextual specificity of the ways in which children behave with peers as distinct from adults (Wright, 1980). It would be more fruitful to look for diversity in the way peer relations and perceptions are scaled, using techniques that keep as closely as possible to the children's own social reality (Glow & Glow, 1980).

4.3.4 Reliability

The stability of sociometric data has been consistently demonstrated (Asher & Hymel, in press; Asher & Renshaw, in press), and increases as a function of the age of the children. There has been inconsistency in findings pertaining to pre-schoolers (Northway & Weld, 1967; Asher et al., 1979a), although this would appear

primarily to reflect differences in sampling and techniques used. The specific literature about children in the first years of school provides little evidence on stability. One might well anticipate through extrapolation however that the short-term test-retest reliability coefficient would be between .3 and .7 (Asher & Hymel, in press). Such stability is clearly greater using a peer rating technique than a nomination technique because it may be based on an average over several children (Asher et al., 1979b; Asher & Hymel, in press).

The question of inter-rater reliability does not arise in relation to nomination data, although it would be possible to assess this facet in relation to peer rating data. So far this has not been investigated (Asher & Hymel, in press).

Generally then the anticipated reliability coefficients for the nomination technique used in this research are low to moderate as regards stability, and unknown as regards accuracy at the present time. However these issues were not considered critical in the context of studying a process expected to be intrinsically dynamic.

4.3.5 Conclusions

It would seem to follow that the peer rating technique would be preferable because of its apparent stability and breadth of cover (Pekarik et al., 1976; Oden & Asher, 1977; Asher et al., 1979b). In retrospect this recent literature suggests that the peer rating method would have been more appropriately employed in the present research, although its advantages were not appreciated

at the time. On the other hand it may not be such a simple matter of choice since the nomination technique emphasises qualitative aspects of personal relationships whilst the peer rating technique:

> may provide an index of a child's overall level of acceptability or likeability among peers. (Asher & Hymel, in press, p. 9).

This may well represent an important distinction. For example, the skills of 'likeability' appear to be trainable, whilst the skills entailed in achieving the intimacy of a specific friendship appear to go much deeper (Oden & Asher, 1977). These subtleties are still not fully understood (Asher & Hymel, in press, p. 10).

It is still not clear then whether a measure of general likeability or a capacity to form specific friendships would be more appropriate in the present research, or whether in fact both would be warranted. In any event the nomination technique has been used, with an added attempt being made to differentiate the children's preferences further in the longitudinal study of Experiment VIII.

Beyond this it is evident that there is still uncertainty as to the effect of variations in technique at all levels. The choice of question is obviously vital, as is the precise definition of the target group, particularly in relation to cross-sex perceptions (Asher & Hymel, in press, p. 7). The multi-dimensional character of low sociometric status also warrants concern, and several interdependent instruments may be needed in order to

establish its discriminant validity (Asher & Hymel, in press, p. 9; Asher & Renshaw, in press, p. 3).

Further methodologically oriented research is urgently needed now that the worth of sociometry has been 'rediscovered'. But there might be a strong case for continued use of a simple approach until the more complex subtleties can be untangled.

CHAPTER FIVE

SOCIAL COGNITION AND SOCIAL ADJUSTMENT

The imputed links between the child's possession of certain social cognition skills and aspects of manifest social behaviour have been introduced in Chapter two. Piaget in particular was shown there to have had a pervasive and continuing influence on the general assumption that there was in fact a reciprocal relationship operating (Flavell, 1963, p. 163; Looft, 1972, p. 75; Shantz, 1975, p. 304). Yet there has been no concerted effort until quite recently to explore this relation empirically, from either a cognitive-developmental (Shantz, 1975, p. 303) or social interactionist perspective (Hartup, 1976, p. 203).

Beginnings of systematic work may be traced to Feffer (Feffer & Suchotcliff, 1966), drawing on pioneering work by Dymond (1950). This influenced in turn a series of exploratory experiments by Flavell (Flavell et al., 1968), which acted as a catalyst to both the documenting of measurement possibilities and the re-emphasis of the importance of establishing the form of this relationship. More recently Shantz (1975, p. 303) reviewed and restated the issues, which encouraged further efforts to understand what was occurring.

Most of this research has been conducted within the last five years. One approach was to relate the effects of social interaction within task-oriented groups to the development of corresponding impersonal cognition, with a focus mainly upon

conservation responses (Murray, 1972; Silverman & Geiringer, 1973; Perret-Clermont, 1980). The major thrust, however, has been the development of measures of social cognition. The earlier research tended to focus upon the decline of egocentricity in the original Piagetian sense (Rothenberg, 1970; McGhee, 1971; Rubin, 1972; Weinheimer, 1972; Cavior & Lombardi, 1973); but the more recent research has become far more eclectic.

Shantz (1975) found it appropriate to distinguish the literature concerned with peer interactions from that concerned with family variables (loc cit, p. 303-311). The former might be termed 'contemporaneous' research, insofar as peer interactions were examined in terms of relatively direct relations with a variety of social cognition measures, usually classed as independent variables. Most of this work has been essentially correlational, although one distinct sub-group of studies looked at the effect on manifest adjustment of the training of role taking skills. Studies concerned with family variables might be termed 'antecedent' research in that they have typically regarded social cognition skills as dependent variables with respect to a wide range of personal, interactional and structural parameters usually associated with socialization processes. This antecedent research will be considered first, to give perspective, and then the contemporaneous research of particular interest here will be considered in greater detail.

5.1 ANTECEDENT FAMILY INTERACTIONS

Chapter one considered the theorizing by psychoanalytic writers and by Mead about the potential effect of socializing experience on the development of social cognition skills. The present section will focus on recent evidence about the way specified family interaction patterns influence the actual performance of certain role taking tasks. The data is again largely correlational, and usually tends to assume a unidirectional flow of influence from parents to children. That is not to deny the obvious role of the child as an active participant (Lytton, 1973, p. 2), but investigations have typically not yet been that subtle. At present one must look to complementary research on parent-child discourse to find such subtlety (Wells, 1979a, 1980b).

Direct empirical evidence is still limited in quantity and scope, although a kind of pattern has undoubtedly emerged. Its central theme might be identified as an elaboration upon the original psychodynamic emphasis on maternal warmth, or its cognitive equivalent in the notion of responsivity to the child. For example Dlugokinski and Firestone (1974) found that perceived inductive discipline techniques rather than power assertive ones were correlated with prosocial values and behaviour, while Bearison and Cassel (1975) found that person-oriented appeal strategies rather than position-oriented ones in Bernstein's (1971, 1973) sense were correlated with role taking skills.

More recently Jones, Rickel and Smith (1980) similarly demonstrated that a maternal restrictiveness factor was correlated with pre-schoolers' interpersonal strategies that stressed evasion, and was negatively correlated with strategies of personal appeal and negotiation (loc cit, p. 24). Conversely a maternal nurturance factor was negatively related to reliance on authority. This closely paralleled findings by Light (1979) that mothers who employed person-oriented methods of control (non interference, emotional support, concessions etc.) were far more likely to have children with high role taking abilities (loc cit, p. 21). These mothers were also able to offer more insightful explanations of their child's and their own behaviour (loc cit, p. 20).

Light also commented on the symmetry of the relationship between mother and child in these cases. Such mothers achieved a negotiated equality that went beyond the usual role limitations due to their ability "to consider the child as if he were an equal" (loc cit, p. 22). The symmetry:

> implied that he was treated as an autonomous individual, possessed of his own thoughts and feelings, his own likes and dislikes and so on. In this sense, of course, one may see such personal control as an indication of the role taking sensitivity of the mother. (loc cit, p. 26).

Keller (1976) similarly found that role taking skills in 11 to 15 year olds were significantly predicted by perceived parent behaviour patterns of high supportiveness and low severity (loc cit, p. 126). One interesting and novel aspect was her

analysis of the differential operation of role taking skills in family as compared with school settings (loc cit, p. 130), and the equally differentiating influence of fathers' versus mothers' supportiveness in the two contexts (loc cit, p. 125). This finding further accentuated the inadequacy of a unitary model (loc cit, p. 129), and emphasized the need for some kind of developmental hierarchy in the acquisition of role taking skills, as discussed in Chapter two. Keller has thus proffered tangible evidence that the differential impact of specific family variables might be measured with greater precision.

These kinds of findings have been paralleled to some extent by research concerned with the relationship between affective empathy-as-sharing and aggressiveness in children. The work is still exploratory, although Feshbach (1975, p. 27) has speculated that these two elements:

> may be behaviour traits that arise out of a common experiential background, and it may be this commonality, rather than any inhibitory effect which empathy exerts on aggression, that is responsible for the inverse correlation found between these two variables.

At present, then, there is no coherent pattern to explain how socializing processes shape empathy in its various affective and cognitive forms, nor how these capacities in turn mediate the full range of behaviours observed, from altruism to aggressiveness. The role of the child's own temperamental qualities has been acknowledged briefly (Light, 1979, p. 27), but no wider integration has yet been achieved.

In similar fashion there is piecemeal evidence that important differential patterns in role taking ability may be a function of sibling order and consequent socialization influences (Stotland, 1969; Sutton-Smith & Rosenberg, 1970; Shantz, 1975; Light, 1980). Such influences will presumably reflect in part the relativities of age, sex and temperament of the other siblings, in addition to the differentiating pattern of interaction with caretakers. For example, informal learning through mechanisms of role play and modelling might sometimes be achieved more effectively through a sibling than a parent. In view of the problems of untangling these interactive processes over time (Shantz, 1975, p. 310) it is not surprising that the literature is often contradictory.

The phenomenon of imaginary companions in young children might offer further insights into these processes. These have long been recognized as having considerable developmental significance (Mead, 1934, p. 140). Their known incidence in a normal population has been estimated as about 20% (Valentine, 1956; Stone & Church, 1973; Manesovitz et al., 1973), although in practice this might well be an underestimate. Such phenomena have clearly implicated the role of family structure, especially the relative age of other siblings (Manesovitz et al., 1973, p. 78).

One would suspect that such companions function partially to alleviate loneliness. Their creation appears to be the prerogative of more verbally oriented and creative children however (Manesovitz et al, 1973). Children who had reported an imaginary

companion were also found to display more varied and self-initiated play activities (loc cit, p. 78). This might lead one to speculate as to whether such phenomena constitute alternative mechanisms for the rehearsal of role taking skills, or are indicative of a more basic disposition towards role taking in a real and/or symbolic manner.

In perspective those questions of sibling interaction and imaginary companions remain hampered by the lack of an integrative model of peer interactional processes. It remains difficult to evaluate effectively the contribution of the component social elements and their complex interactions. So far no researcher has been able to conduct a sufficiently ambitious experiment to incorporate the diverse structural influences of parents, siblings and peers, whilst also taking account of the idiosyncrasies of the individual child in terms of temperament, sex-role and so forth. At present one can only examine their particular contribution as specific variables or clusters, and focus on the more obvious interactions.

It will be evident from these comments that global social class differences cannot be realistically identified in this context. They may well exist, although their nature and interpretation will need to be qualified within various cultural parameters. This point was made in Chapter four with respect to Anglo-American contrasts in teachers' observations. Canadian and Australian children are apparently somewhere in between. It will also prove difficult to separate social class factors from variations in family interaction patterns, such as person-oriented versus position

oriented parameters (Bearison & Cassel, 1975), and other maternal child rearing dimensions such as restrictiveness and nurturance (Jones et al., 1980).

In view of these diverse subtleties of interpersonal style within families it is not surprising that the literature tends to be somewhat contradictory and ambiguous (Hollos & Cowan, 1973; Gottman, Gonso & Rasmussen, 1975; Keller, 1976; Cooper & Tyson, 1977; Johnston & Singleton, 1977; Light, 1980). Obviously any finding of social class difference must be treated with great caution; for the researcher cannot be at all confident about what that difference really signifies.

A final point pertains to the generally fragmented character of research in this area, and the need to integrate parallel and complementary findings. The most obvious example of parallel work with potential links is that on parent-child, child-child and teacher-child discourse. The work by Wells (1979a, 1979b, 1980a, 1980b) using detailed analysis of natural language may well prove important, by providing the means to a better methodology and a conceptual framework for understanding antecedent socializing processes.

For example there would seem to be a link between Wells' concept of mutual relevance (Wells, 1979a, p. 85) and the emphasis on symmetry by Light (1979). This involves interaction between the mothers' communication and their children's present level of comprehension of social situations. More competent mothers appeared to match their own language more closely to their children's,

explaining more explicitly to the children why a certain communication failed. Investigation of links between these antecedent processes and children's contemporary referential skills is still proceeding (Robinson & Robinson, 1980).

Hopefully this kind of research will generalize beyond the referential task to children's comprehension and expression of language in any context (Wells, 1979a, p. 86). Wells' (1980b, p. 9) particular emphasis on children's developing facility for disembedded language in classroom talk and testing situations, in the sense used by Donaldson (1978, p. 93), might prove especially pertinent to a better definition of many social cognition tasks as presently constituted.

5.2 CONTEMPORANEOUS PEER INTERACTION AND SOCIAL COGNITION

Empirical efforts since Shantz's review have given an even broader horizon, although they must still be considered only the first exploratory steps (Kurdek, 1978b, p. 3; Light, 1979, p. 12). Many of the problems are attributable to conceptual and methodological looseness within the cognitive and behavioural domains themselves, as already considered in Chapters three and four respectively. The first task here will be to establish what these interacting skills and behaviours might be and how different children employ them in specific contexts. The literature can again be divided into normal and clinical domains. The former has tended to focus on cross-sectional measures within more heterogeneous samples, while the latter has focussed on deficits in social cognition within clinically identified groups.

5.2.1 Research on normal children

Within samples of normal children social cognition tasks have been found to correlate positively with a wide range of social behaviours. The list includes a variety of prosocial behaviours (Johnson, 1975; Barrett & Yarrow, 1977; Waxler, Yarrow & Smith, 1977; Buckley, Siegel & Ness, 1979; Eisenberg-berg & Hand, 1979; Eisenberg-berg & Lennon, 1980), numerous parameters of spontaneous social interaction (Gottman et al., 1975; Rubin & Maioni, 1975; Rubin, 1976; Burka & Glenwick, 1978; Kurdek, 1978a; Emmerich, Cocking & Siegel, 1979; Enright & Sutterfield, 1980), people versus object orientation (Jennings, 1975), and assertiveness (Barret & Yarrow, 1977). The simplicity of such correlations is of course no guide to the complexities of the systems producing them.

Paralleling this work has been a growing literature showing relationships between social cognition tasks and measures of peer popularity (Deutsch, 1974; Gottman et al., 1975; Rubin & Maioni, 1975; Burka & Glenwick, 1978; Ladd & Oden, 1979). These relationships have been more demonstrably complex in character, and need to be examined at least in terms of the interactive role of sex differences (Ladd & Oden, 1979), age patterns (Rubin, 1972; Gottman et al., 1975; Ladd & Oden, 1979), and various structural aspects of the particular group in terms of social class, ethnicity and so forth (Penny, 1971; Gottman et al., 1975).

The relative significance of observational measures and peer sociometric measures has been considered separately in Chapter four. But the specific way in which each of these kinds of social measure relates interactively to social cognition skills

remains vague. For example it is clear that any relationship between social cognition skills and levels of corresponding social behaviours will not be monotonic.

Recent work has suggested that good role takers do not necessarily utilize their cognitive skills in order to achieve better relationships with others, nor are they necessarily more prosocial in their orientation (Kurdek, 1978a, p. 26; Light, 1980, p. 18). The available evidence suggests that 'good' role taking skills do not guarantee that 'good' social adjustment will be achieved. The cognitive skills can only be facilitators of children's basic emotional disposition in a given context. They may need to be conceptualized as intervening rather than as direct independent variables.

This means that role taking skills enable the child to be more socially successful in some contexts. and equally to be more socially obnoxious. Light (1980, p. 18) noted that:

> Adept role-takers were significantly more frequently classified at three as being friendly to strangers, willing to be left in the care of others and eager to explore novel surroundings. They tend at three to be able to amuse themselves and to be rarely bored, and not to depend heavily upon their mother's presence and her activities to support their play. Other relationships which emerged were less predictable: the adept role takers were described as significantly more prone to whining, fussing and shouting to get their own way, and more prone to temper tantrums and bouts of bad behaviour.

A similar pattern emerged for children of school age. Both Kurdek (1978a) and Light (1980) reported that children scoring high on role taking tasks could sometimes be potential discipline problems in terms of fighting with peers, not conforming to school rules, being disruptive in class, and so on. Such children could equally show a tendency to be shy and depressed (Kurdek, 1978a, p. 26) or adjust readily to new situations and faces (Light, 1980, p. 25).

It would appear then that the relationship between role taking skills and the range of normal social adjustment processes will prove to be complex in ways that have so far only been vaguely foreshadowed in research on normal school age children.

5.2.2 Research on clinically defined groups

Earlier work within a Piagetian tradition indicated that groups of disturbed or anti-social children were generally poorer in role taking skills than matched groups of normal children (Chandler, 1971, 1972, 1973b, 1973c). This was accepted as a generalization for a time, and only recently has there been a concerted effort to differentiate the issue further (Burka & Glenwick, 1978; Ianotti, 1978; Barnett et al., 1979; Paulauskas & Campbell, 1979; Waterman, Sobesky, Silvern, Aoki & McCauley, 1981). Such research explored the links between various forms of social maladjustment and the children's presumed role taking skill deficiencies.

The outcome has been a gradual realization that significant relationships, and the causal links which they presumably imply,

can be found only in more extreme instances of emotional disturbance. At any lesser level of disturbance such links are far more complex and multi-faceted, and the role of other social parameters remains uncertain (Waterman et al., 1981). The link between social cognition skills and manifest adjustment is in no sense a direct one. More severe maladjustment is not accompanied as might simplistically be expected by greater deficiencies in social cognition skills, nor are poor role takers necessarily maladjusted.

5.3.3 Intellectual factors

Several studies have demonstrated that correlations between role taking performance and behavioural measures can be reduced appreciably by partialling out IQ variability (Enright & Sutterfield, 1980, p. 159). The effect has also been found to be more pronounced for boys than girls (Burka & Glenwick, 1978, p. 65). Kurdek (1978b, p. 23) went so far as to recommend the routine partialling out of verbal ability in such studies. But other researchers have found that this had no substantial impact on the data (Waterman et al., 1981, p. 146), and independently questioned the validity of doing so anyway.

The apparent contribution of intellectual abilities to this covariance derives from their relation to social cognition rather than any defined link with general social behaviour (Hartup, 1976). The evidence that brighter children tend to be more popular (loc cit, p. 212) does not contradict this. Certainly IQ cannot be used as a systematic predictor of social competence (loc cit, p. 212), of social maladjustment (Freeman, 1979, p. 202), or of

specific indices of pro-social behaviour (Mussen & Eisenberg-berg, 1977, p. 111).

The link between intellectual abilities and role taking performance has generally been placed in the low to moderate range (Shantz, 1975, p. 302), with coefficients rarely exceeding .40. Chandler (1974, p. 345) reported that:

> considerable variability in perspective taking skills exists within groups relatively homogeneous in terms of intellectual functioning,

and more recent work has generally served to corroborate this view (Turnure, 1975; Burka & Glenwick, 1978; Light, 1980). The strongest relationship so far has been reported by Keller (1976) amongst 11 to 15 year olds ($r = .49$, $p < .001$). Much of the inconsistency among the findings is apparently a function of the different tasks employed and the continuing uncertainty about age trends, as originally identified by Cooper and Flavell (1974).

Further interesting issues arise when academic attainment is added into the picture. Keller (1976, p. 128) reported for her 11 to 15 year olds that:

> After statistical control of intelligence, the correlation between role-taking and school attainment thus is as high as the well-documented relation between psychometric intelligence and school attainment.

This confirms the apparent ecological validity of role taking processes in explaining aspects of behaviour in a particular social context. In another sense however it opens up even further

the question of what the social component of social cognition really is. Research so far has obviously only scratched the surface.

The work of Keller (1976) further illustrates the elusiveness of the links between cognitive functioning and manifest behaviour. Partialling out IQ indices has typically been found to reduce the predictive power of role taking skills with respect to contemporaneous social behaviour, as mentioned earlier. Yet Keller showed that partialling out the IQ index increased the predictive power of perceived parent behaviour upon role taking performance in both family and school situations (loc cit, p.125). It would be premature to speculate on the implications of this, but it does accentuate the subtlety of the role of intellectual factors.

The role of intellectual factors has also been related to age and sex differences. Chaplin and Keller (1974) suggested that social cognition was inversely related to manifest social interaction as a function of age because of the increasing impact of generalized abstract thought. One might suspect that this is an over-simplification however, if not a misrepresentation. The next section will explore the differential role of intellectual abilities for boys and girls (Turnure, 1975; Burka & Glenwick, 1978), which again appears to be linked closely to age. Both social cognition skills and manifest behaviours must themselves be considered in turn in relation to issues such as activity level and the interaction between cognitive and affective aspects of empathy (Feshbach, 1975).

In view of these questions one is led to re-examine the recent theme that the common variance of IQ and role taking measures might simply be a matter of shared expressive language skills (Burka & Glenwick, 1978, p. 67). If this were so improved precision in the measurement of role taking skills might be achieved by an initial partialling out of linguistic fluency, using an instrument such as the PPVT (Kurdek, 1978a). Yet there may also be a danger of confounding rather than clarifying the wider structural issues by adopting such a strategy on the basis of available evidence. Clearly there must be an important shared component of vocabulary, verbal fluency, confidence of articulation and related factors in the role taking measures. These will in turn correlate highly with other conventional IQ indices. However one senses that certain contemporary researchers may be at risk of making premature judgements about processes not yet understood.

5.2.4 Sex differences

It has been apparent in preceding sections that the examination of developmental sex differences may be crucial to an understanding both of antecedent socialization processes and to the immediacies of the way children respond in particular task situations. Only the latter is reviewed here.

First of all negligible sex differences have been consistently reported for both preschoolers (Rubin & Maioni, 1975; Urberg & Docherty, 1976) and primary age children (Rothenberg, 1970; Fishbein et al., 1972; Rubin et al., 1973; Chandler, Greenspan & Barenboim, 1974; Flavell, 1974; Ambron & Irwin, 1975; Burka &

Glenwick, 1978; Wood, 1978) in nearly all the cognitive role taking tasks. Projective role taking (Bowers & London, 1965; Turnure, 1975), moral reasoning (Ambron & Irwin, 1975; McGeorge, 1975), and discrimination of kindness tasks (Baldwin & Baldwin, 1970) have shown a similar pattern. A few studies have found sex differences, but these have tended to be highly task-specific (Kurdek & Rogdon, 1975).

This lack of difference in the cognitive area contrasts with the fairly consistent finding that girls perform better than boys in tasks focussing on the affective or sharing aspect of empathy, as mentioned in Chapter one. This contrast in the pattern of sex differences has been strongly emphasized by Hoffman (Hoffman & Levine, 1976; Hoffman, 1977a, p. 204). One might note in particular that females may be more responsive to situational than to facial clues (Hoffman, 1977a, p. 206) and that males may have a greater set towards instrumental action (loc cit, p. 207). Both warrant closer empirical attention.

At the same time there has been sporadic findings that intellectual parameters mediate role taking performance in boys but not in girls, again as a function of age. Positive findings from Burka and Glenwick (1978), Coie and Dorval (1973), and Turnure (1975) contrasted with studies that did not find such an effect (Rothernberg, 1970; Kuchenbecker et al., cited in Feshbach, 1975; Jennings, 1975). This suggests that any such effect is both age- and task-dependent in character, in ways not yet specifiable. Clearly any differences are subtle in nature, involving social reactance parameters rather than simple variations in role taking skill per se.

Other recent literature that appears relevant concerns sex differences in cognitive style (Kogan, 1976). The only dimension to emerge with any generality is that of field dependence versus field independence (Witkin & Goodenough, 1977; Burstein et al., 1980). Boys have tended to be much more field independent. More recently however greater field dependence has been shown to be correlated with personal adjustment and a greater interpersonal orientation among girls (Burstein et al., 1980, p. 295), so de-emphasizing earlier links with passivity and conformity. These tentative findings corroborate the idea of a sex difference in the way children utilize their intellectual abilities in the service of their social cognition.

One cannot help feeling that these findings are relevant to the evidence that boys may be less comfortable in a situation where they are asked to consider material of an affective nature. Hoffman and Levine (1976, p. 558) have argued that boys display a:

> tendency to consider action alternatives rather than to empathize - to act rather than to feel - in interpersonal situations.

This may in turn be related to their defensive reaction to instructions to verbalize feelings. Certainly it is a far more subtle matter than object- versus person-oriented modes of responding (Jennings, 1975).

The techniques employed by children to transform experimenters' questions or their disposition to talk or not to talk about something have already been considered in Chapter three. It is not, however, clear how these specific discourse processes are related to the

content of that discourse or the media of presentation used in the relevant experiments (Fesbach, 1975; Myatt & Carter, 1979).

Comparable sex differences have been found within the social domain and parallels might well be drawn. The earlier conclusion of Maccoby and Jacklin (1974) that sex differences amongst younger children were negligible, or at best unclear, has been strongly challenged (Block, 1976). The most general and consistent difference has been in girls' greater disposition to help others and be more caring (Mussen & Eisenberg-berg, 1977). More recent evidence has suggested also that there may be an inverse relationship between competitiveness and affective aspects of empathy in boys but not in girls (Barnett et al., 1979). This would seem to fit with an earlier finding of an inverse relationship between affective aspects of empathy and aggressiveness in boys aged 6 and 7 (Feshbach & Feshbach, 1969). Again no such relation was found for girls. This study also had developmental implications, in that social activity level seemed to be the major determinant of aggression amongst preschoolers, while empathy began to assume a mediating function for boys at around 6 years. At present it is not possible to establish a perspective since different techniques have been applied to diverse behaviours. Clearly there is some consistency emerging however, although it pertains to subtleties of style or social orientation rather than to quantifiable differences in role taking competencies as such.

5.2.5 Motivational factors

The way boys and girls differentially employ role taking skills to guide their behaviour is obviously far more complex than indicated by the preceding section. Keller (1976, p. 131) suggested that:

> Further analysis should try to link the construct of role-taking to social interaction competence of the child as evaluated by the teacher. It is a very interesting question whether role-taking relates to conformity with teachers' expectations or to autonomy and role distance, which could be evaluated positively by teachers though the child is not 'obedient' in the conventional sense.

Elsewhere Meyer and Dusek (1979, p. 468) argued that:

> The situational context children find themselves in, for example, danger, with someone in pain, or in a situation indicating equity, strongly influences whether children will behave prosocially. In addition, the child's expectations for approval, knowledge of norms of behaviour, and competence all determine whether the child will act prosocially. This suggests that we may not be able to speak of a global personality trait that disposes children to behave prosocially.

They further proposed that these situational influences would be more significant determinants of behaviour than cognitive ones (loc cit, p. 469).

There may be a particular clue as to what is involved here in the finding that popular children and children high in role taking skills are each found to be more independent of group norms, to engage in more casual fighting and quarrelling, and/or to be more assertive (Hartup, 1976; Barrett & Yarrow, 1977; Kurdek, 1978a; Dodge, 1980). These sorts of findings could only be partially explained in terms of the greater quantity of actual social contact of the highly skilled children. What also appear to be implicated are more fundamental differences in the social criteria by which these children are judged by their peers, and in the association of different behaviours and abilities needed in order to characterize their adjustment styles.

Investigations attempting to define these mechanisms more precisely are still rare. Burka and Glenwick (1978) studied normal 8 to 10 year olds using teachers' ratings of classroom adjustment, sociometry, and a cartoon test of cognitive role taking. They found that cognitive role taking skills were correlated significantly with an 'acting out' syndrome and 'learning difficulties' for boys, but correlated significantly with shy, anxious behaviour and overall adjustment for the girls (loc cit, p. 65). They then argued that:

> classroom behaviour might well be seen as a mediating factor in the association between peer relations and development of perspective taking skills, with both the acting-out behaviour of egocentric boys and the shy, anxious behaviour of egocentric girls serving

> to impede the formation of close, reciprocal relationships with peers. (loc cit, p. 69).

Burka and Glenwick (1978, p. 69) further speculated:

> Perhaps for girls other socialization agents such as parents or teachers may be more important for the development of role taking skills at this age.

A more telling insight has come from an investigation of disturbed children by Waterman et al. (1981). They made no prior predictions about the direction of relationships between social cognitive deficits and manifest behaviour, although they did note the finding of Silvern (1976);

> that among fourth-grade boys, perspective taking superiority was associated with relatively more severe anti-social behaviour. (Waterman et al., 1981, p. 135).

This suggested in turn that:

> masculine norms provided an effectively antisocial goal in the service of which social cognitive competency was employed. (loc cit, p. 135).

In their own work with 10 and 11 year old boys:

> Correlations computed with mental age partialled out indicated that relatively high withdrawal was associated with relatively inferior cognitive and affective perspective-taking across the entire sample. However it was only within the emotionally disturbed group that the relations reached or approached

> significance. In contrast to withdrawal, high levels of antisocial behaviour were not associated with perspective-taking deficits. In fact, within the emotionally disturbed group alone, relatively superior affective perspective-taking was significantly correlated with relatively higher levels of antisocial behaviour. (loc cit, p. 145).

They acknowledged that this was possibly a function of the social cognition tasks used, but argued further that:

> It may prove necessary to move to a second sphere of explanation, to consider motivational factors and thus acknowledge the potential limitations of a social cognitive explanation for antisocial behaviour. The antisocial emotionally disturbed boys may have possessed motives to engage in antisocial behaviour more frequently than boys in normal classrooms, and therefore more consistently employed their perspective-taking skills to that end. (loc cit, p. 145).

5.2.6 Causality

Research so far thus leaves great uncertainty about how social cognition relates differentially to manifest behaviour; much depends on the kinds of children studied and the instrumentation employed. Yet one further perspective needs be added to represent the nature of the empirical challenge of integrating this diverse correlational data into a wider causal model. The traditional model has of course been a general reciprocal influence process (Piaget, 1959, 1962a), as already discussed in Chapter two. But effectively investigating these kinds of mechanisms demands

complex longitudinal designs, which have typically been beyond the scope of most investigators.

One of the few attempts has been by Emmerich et al. (1979), who studied the longitudinal interactions between verbal/nonverbal functioning and rated social behaviour in free play. This examination was not specifically concerned with role taking skills as such, but looked at processes which could be considered analogous. They failed to find evidence for any magnified co-variance over time, thus illustrating clearly the problem of examining cognitive factors as dependent variables in addition to their customary independent variable status.

One might well argue that little substantial progress can be made until these issues can be confronted in more sophisticated designs. But so far there has been no indication that a break-through is imminent (Hartup, 1976, p. 213).

5.2.7 Conclusions

Research so far has hinted at the importance of individual variability in the way social cognition skills might be differentially related to manifest social adjustment. But the findings are limited and often contradictory, so generalization is difficult. There are fairly consistent indications of important sex differences; but these are subtle in operation, and their dynamics are not yet understood. One might also intuitively sense that the rules that apply to interpersonal processes with peers will differ in important ways from those that apply to behaviour in an adult-oriented context; but it

is not possible to specify the mechanisms. The roles of intellectual and linguistic factors will also be important, and worthy of careful monitoring, but precise relationships cannot currently be identified clearly. Analysis of these and any other variables must be open-ended, for it would be premature to make assumptions about causality. Tentative experimental formulations might be feasible, but the field is still so open that an entirely exploratory strategy is warranted. Perhaps one of the most important empirical criteria at present would seem to be the selection of a diversity of instruments that are suited to the age and interests of the children themselves.

CHAPTER SIX

EXPERIMENTS ON SOCIAL COGNITION

6.1 PREAMBLE

The first empirical task was the selection and evaluation of a set of instruments that would tap specific social cognition skills with differing kinds of cognitive demands for younger children. An equally important criterion was that they be suitable to the information processing capacities and interest of children aged 5 to 7 years. This reflected the concern expressed in Chapter three about the need to consider instrumentation in its wider context of varied information processing demands in presentation, The empirical examination of the four techniques reported in this chapter might thus be viewed as a necessary preliminary, matching the instruments and their scoring procedures as closely as possible to the interests, informational needs, and response strategies of the children themselves.

A facet of this matching inevitably involved a cross-cultural adaptation, since the original data in each case was based on middle-class American children. In consequence there was an element of doubt about the generality of findings for children suspected of being relatively less verbally fluent. With this in mind the content and differential validities of the tasks were re-examined, along with issues of scoring reliability, in order to approach the major cross-sectional study with greater confidence.

The experiments were devised and conducted in 1974-1976, prior to the major cross-sectional study (Experiment VII) which was conducted in September 1976. Many changes have since occurred in both the wider and project-specific interpretation that would be given the findings. But certain data reported here are still of considerable contemporary interest, and all data were seminal to planning for the later large-scale studies.

Three of the chosen instruments might be classified as 'predictive' in their demands according to the classification of Chapter three. These were Borke's Empathy test (Borke, 1971, 1972, 1973a, 1973b), Flavell's cartoon test of conceptual role taking (Flavell et al., 1968) and Selman's commercially produced kit for measuring social reasoning (Selman, 1974). The fourth was a measure of referential communication loosely adapted from the available techniques, and classified separately in Chapter three. These were considered appropriate in terms of their suitability for the children, and their adaptability to the constraints of field-based administration and scoring. To that extent they were also representative of the prevailing classification of role taking skills (Shantz, 1975).

The latter issue of classification is itself still an open one. Role taking tasks have also been classified, for example, in terms of successive versus simultaneous decentring (e.g. Kurdek, 1978b, p. 4). But there is still no generally recognized framework that has achieved recognition on either conceptual or empirical grounds. Each study using a range of such measures has

so far needed to provide its own internal rationale, and can only be judged on its own merits.

6.2 DEMOGRAPHY OF THE SAMPLES

The one common denominator of the following experiments has been the kinds of children who actually served as subjects. A general review of their demographic characteristics will be made at this point to avoid unnecessary repetition in this and subsequent chapters.

From the outset there was no determined effort to take into account particular socioeconomic or related parameters. The children were drawn directly as a cross-section from the class lists of existing Junior Primary (Infant) school class groups within a prescribed geographic area.

The schools were in relatively new housing areas in the northern suburbs of Adelaide. The most recent survey of the city classified these suburbs within the highest quintile group in terms of household facilities (Stimson & Cleland, 1975, p. 196), rapidity of urban growth (loc cit, p. 204), and density of British migrants (loc cit, p. 208). They were further characterized by high levels of familism and low levels of urbanization (loc cit, p. 228). Housing was predominantly separate dwellings on separate land titles. The overall socioeconomic status of the areas fell within the middle quintile group (loc cit, p. 194), as based upon the 1971 Census. Since then there has been an apparent trend towards greater social and socioeconomic diversity

on the one hand and greater stability of occupany on the other, although more recent census data was unavailable at the time of publication.

Schools involved were elements in a State public school system. Their intake policy varied from continuous (upon reaching CA of 5 years) to half-yearly. Subsequent progression through the grade levels was thereafter based on an annual promotion system activated each February.

One other source of general background information was provided by a tabulation in Experiment VII of the socioeconomic status of the father/breadwinner of a sample of some eighty children. These were rated using the only available Australian system for the classification of SES (Congalton, 1969). This corroborated the suspected trend towards greater social diversity. But it should be noted that the reliability of the available information was uncertain and the classification system was of unknown validity, and possibly out of date. Further reference to SES thus needs to bear these factors in mind.

6.3 EXPERIMENT I : BORKE'S EMPATHY TEST OF AFFECTIVE ROLE TAKING

6.3.1 Introduction

The work of Borke (1971, 1972, 1973a, 1973b, 1975) represented one of the first attempts to demonstrate the strengths of young children's role taking skills rather than to document their deficiencies. Her instrumentation focussed on children's

ability to match four so-called basic emotions, represented as line drawings of facial expressionss, to inferred feelings within a series of simple social episodes. The drawings enabled the children to respond by pointing, so avoiding the need for expressive language.

The ability tapped by this task was considered by earlier critics to be no more than the operation of rudimentary projection, based on knowledge of common social stereotypes of human emotions and their facial manifestation (Chandler & Greenspan, 1972). However another influential approach within the psychometric tradition has long considered the knowledge of social stereotypes to be itself an important component of any wider model of empathy (Cronbach, 1955, p. 191). The latter distinguished the ability to discriminate generalized feelings that were shared by all from the more complex empathic skill of discriminating particular internal states within particular people. Cronbach and later Taft (1966, p. 601) emphasized the necessity for some form of stereotyping process, if only to help classify the mass of incoming information.

Cook (1971, p. 89) subsequently argued, against this view, that components like stereotype accuracy and assumed similarity were best treated merely as sources of error variance, as artifacts that interfered in a sense with the purer spirit of empathy. But there is still no explicit empirical justification for such a stance. In any event,

> the distinction between stereotype and differential accuracy is somewhat arbitrary depending on the experimenter's frame of reference. Both terms can be given precise meanings only if the experimenter defines a specific group of individuals to be judged. (Johnston, 1978, p. 23).

Certainly research has not so far been able to separate these elements with any confidence. There is also little to be gained by speculation at this point on the developmental function and significance of stereotyping itself. Larger uncertainties remain, for example, about the role of innate processes in the genesis and recognition of facial expressions relative to learnt mechanisms that are obviously culture-specific (Izard, 1971; Ekman, 1975; Ekman & Friesen, 1978). Even so there has been some recognition of the role of social stereotyping in the development of more sophisticated role taking skills (Urberg & Docherty, 1976), despite uncertainty about its deeper meaning.

It is necessary also to acknowledge the arbitrariness of the focus on so-called basic emotions of happiness, sadness, anger and fear. These are considered basic by virtue of their customary association with facial expression and overt action patterns (Smither, 1977, p. 253). Beyond this there is no empirical justification for singling them out and treating them as a special homogeneous set. Even within the group there are important shades of meaning which have been overlooked by the developmental researcher; an obvious example is the distinction between anger expressed outwards towards others and that turned inward in a self-recriminative manner.

It has been shown, for example, that facial expression has a strong situational aspect that may be recognized and emphasized by quite young children (Abramovitch, 1977). Smither (1977, p.261) similarly argued that:

> Meanings in human action are not inferred from perceptual cues per se, behavioural or situational. The cues are only clues which must be interpreted within a framework of shared experience and, conceptual distinctions. Hence we cannot determine a priori which cues to trust or even their psychological import.

This kind of emphasis obviously casts doubt on the adequacy of Borke's technique and its reliance on discrimination of visual representations.

More recently however Harris and Olthof (1979) asked children about the way they conceptualized emotion, and reported that 6 year olds "view it as a visible behavioural reaction to a stimulus situation" (loc cit, p. 5). In particular they found that the younger age group tended to make little or no distinction between inner feelings and overt expression. Of course children's explanations of such processes may not do justice to their understanding; but certainly Borke's approach may be more defensible empirically than would first appear. In any event one cannot be certain whether the present graphics are discriminated in visual terms as such, or whether they are but triggers for a set of more complex mental representations. Certainly even 5 year olds tended to respond verbally rather than to point. Intuitively one would

suspect however that the mechanisms involved are more subtle than has so far been identified.

These continuing empirical issues need not undermine the appropriateness of the present approach however. The main thing is to acknowledge that one is presuming to tap only a rudimentary kind of understanding rather than more complex forms of interpersonal processing. Certainly the ability to match the emotions to situations in this way does appear to develop early, probably even earlier than the empirical techniques would allow.

The present focus was on the establishment of a general index that would encompass the summation of scores from a number of different items. This approach had much in common with other studies featuring a battery of role taking tests (Van Lieshout et al., 1973; Kurdek & Rogdon, 1975; Urberg & Docherty, 1976). Urberg & Docherty (1976) in particular found Borke's technique to be a lower-order task requiring sequential rather than simultaneous decentring skills amongst 3 to 5 year olds. Kurdek and Rogdon (1975), however, found a significant linear trend in their data from 5 through 11 year olds, although increments from year to year after age 6 were not significant. A general index would seem then to be a useful way to differentiate developmentally among 5 to 7 year olds, mainly reflecting the continuing sub-categorization of the negative emotions (Borke, 1973a).

The present design was consistent with these latter approaches, but it was considered necessary to go back and re-establish how each item was interpreted by Australian children. In this way it was planned to produce a set of modified items

based upon a local sample. Furthermore the aforementioned emphasis on social stereotypes suggested that the criterion for right/wrong answers should be guided by the normative responses of older persons from a similar social background, rather than the arbitrary judgements of an adult experimenter. A revised set of items was accordingly administered not only to samples of 5 and 7 year olds but to young adolescents, in order to provide a reference point in this regard.

6.3.2 Method

Borke (1973b) devised four stories for each of the four emotions that a majority of children responded to consistently. However a number of these appeared ambiguous or otherwise inappropriate for Australian children. Only six of the original 16 items seemed potentially appropriate (Appendix 6.A). A new set of 16 items was prepared based on informal pilot studies with 7 year olds and consultation with their class teachers. Ten new items were prepared so that there were again four judged as appropriate for each of the four emotions. The items and reasons for their selection are shown in Appendix 6.B. Borke's original line drawings of the facial expressions were reproduced without modification as shown in Appendix 6.C. The test was thus basically a new one, retaining only the structure of the original.

The sixteen items were arranged in an irregular order while still maintaining an intuitive gradation of difficulty. These were reproduced on single sheets in lower case large print with space for answers. Alternative forms for boys and girls were prepared

for both graphics and response sheets, in a manner consistent with Borke. The administration to the adolescent sample employed conventional print, to lessen the possibility that the subjects would feel that they were being patronised.

The materials were administered to three samples of school children within the demographic area already referred to. Explanation and presentation were necessarily adapted to suit each age level:

A. 5 year olds : The scale was administered individually to 60 randomly selected 5 year olds ($\bar{X}$ = 5 years 4 months, SD = 2 months), with equal numbers of boys and girls. The situation descriptions were read aloud whilst the facial expressions were displayed. The children were directed to point to the right answer but most preferred to respond orally. A few children were informally asked to explain their answers; these explanations were transcribed if adjudged informative.

B. 7 year olds : The scale was administered to 12 classes of Grade Two level, totalling 336 children ($\bar{X}$ = 7 years 2 months, SD = 4 months), and approximately equally divided by sex (159 girls, 177 boys). Materials were presented by their regular teachers in the context of normal classroom activity.

The large sample enabled examination of primacy or other ordering effects in the graphic layout of the four facial expressions. A sex x layout design focussed on two contrasting configurations from the 24 possible arrangements. The drawings were set out in the following arrays:

the 'Happy' set:	HAPPY	SAD
	AFRAID	ANGRY
the 'Angry' set:	ANGRY	AFRAID
	SAD	HAPPY

C. Adolescents : The scale was administered to three class groups of ninth graders, totalling 54 adolescents and evenly divided by sex ($\bar{X}$ = 14 years 7 months, SD = 5 months). The materials were introduced in class by the experimenter, who explained to the students their role as a kind of reference group. All participated enthusiastically. A few were again asked informally to explain their answers, particularly those that appeared to contradict normal adult expectation. Again the explanations were transcribed only if they seemed informative.

6.3.3 Results

Sex differences in responses were negligible in all three samples, which was consistent with other findings (Borke, 1971, 1973a; Kurdek & Rogdon, 1975; Urberg & Docherty, 1976). This permitted the data to be treated homogeneously in that respect.

A wide variety of interpretations were found across the three age samples and within each age level, as shown in Table 6.1. The differences appeared to accentuate the manner in which each age level construed the items in terms of their own developmental mode of cognitive understanding, social maturity and experiential background. For example the prospect of the other person going on holiday in item 2 showed a predicted increase in agreement with age that he/she would feel happy (66%, 87% and 93% respectively).

TABLE 6.1. Distribution of responses to each item for the samples of 5 year olds (N=60), 7 year olds (N=336) and 14 year olds (N=54), expressed as whole number percentages of respondents. The table should be read across the row for each separate item. Percentages totalling 100 across the four possible categories are based on results for each of the independent age samples.

EXPECTED RESPONSE	ITEM NO.	ACTUAL RESPONSES											
		HAPPY			SAD			AFRAID			ANGRY		
		AGE SAMPLES											
		5	7	14	5	7	14	5	7	14	5	7	14
HAPPY	1	93	97	100	2	3					5		
	2	66	87	93	24	12	6	5	2	2	5		
	9	70	68	78	19	19	12	3	2	2	9	12	8
	13	97	98	100	2	1			2		2		
SAD	4	3	1	2	68	94	98	7	2		22	4	
	8	5	3	2	68	81	63	5			19	16	31
	10	3	2		73	74	87				23	24	14
	16		1	2	87	97	96	5	1		8	1	2
AFRAID	3			2	30	4	2	62	95	96	8	1	
	5		1	10	73	52	27	10	15	41	17	32	22
	12	8	2		45	14	8	35	80	91	12	5	2
	14	3	5		42	11	2	48	82	98	7	2	
ANGRY	6		1	2	53	29	15	3	2	4	44	69	80
	7	15	6		56	59	24	2			27	35	76
	11		3		57	20	6		1		43	76	94
	15	5	3	2	53	26	2	2	1		42	70	96

Yet 24% of the 5 year olds also responded that the person would feel sad. Follow-up questioning revealed that this was usually quite aptly based on a sense of missing one's pets, friends, home etc. The data thus reflected the projection of dependence and personal attachments rather than role taking as such. The prospect of mother not coming home on time (item 5) similarly evoked a pattern reflecting emotional maturity and independence, whilst the prospect of having one's picture taken (item 9) depended on whether the child thought that he/she was personally going to be 'in the

picture'. Yet again the prospect of having to stay in bed through illness evoked an 'angry' response from 31% of 14 year olds because of the perceived restriction of personal freedom. This resulted in the pattern of predicted 'sad' responses over the three age levels resembling an inverted U shape.

These patterns suggested that it would not be defensible to use the data from the adolescent sample as a criterion for what the correct response should be in each case. Each item had its own idiosyncratic character. Certainly it was not possible to generalize about items supposedly eliciting the same response. This in turn implied that Borke's original criterion of maximum consensus across samples when determining correct answers was quite inappropriate. The task was simple in technique but obviously complex in what it was tapping. This point appears to have been overlooked by investigators who continue to employ the technique or its derivatives.

For present purposes the objective was the selection of a sub-set of the items that did show a reasonable developmental progression in consensus about the appropriate emotional stereotype. There seemed little point in trying to get a balance between types of items eliciting different emotional responses, for each item needed to be examined on its own terms. The form of the data suggested that it was not meaningful to emply a statistical technique in order to discriminate significant developmental differences. But inspection of the data indicated that 6 items (3, 4, 6, 11, 12 and 14) displayed a marked increase between the ages of 5 and 7 in the proportion of respondents giving the

'expected' response. Furthermore in each instance the response rate of the 7 year olds was then corroborated among the 14 year olds. The wording of these items together with percentages of respondents giving the expected responses in shown in Table 6.2.

TABLE 6.2. Items displaying a developmental increment in terms of percentage giving the expected response (from Table 6.1).

ITEM NO.	ITEM	EXPECTED RESPONSE	5 YR OLDS	7 YR OLDS	14 YR OLDS
(4)	How would he feel if he was missing a friend who had gone away.	SAD	68	94	98
(3)	How would he feel if he saw a snake.	AFRAID	62	95	96
(12)	How would he feel if he was asleep and had a bad dream.	AFRAID	35	80	91
(14)	How would he feel if he were alone in the dark?	AFRAID	48	82	98
(6)	How would he feel if somebody had just stolen his bike?	ANGRY	44	69	80
(11)	How would he feel if his brother or sister wouldn't give back his toys?	ANGRY	43	76	94

Specific analysis of the effects of layout of the graphics amongst the 7 year old sample revealed a significant order effect for items 5, 7 and 10 according to Chi-square ($p < .05$). There was no sign of any order effect amongst the other items, including the six chosen above. Clearly the order of presentation might make a difference, but was not implicated in the present selection of items.

6.3.4. Discussion

The present analysis accentuated the conceptual looseness inherent in adopting arbitrary response criteria and in arbitrary grouping of superficially similar items. The findings did confirm, however, that a summation of scores for the six items might well be still the most appropriate index in this area. This perhaps struck the best balance between the uncertain idiosyncracies of interpretation of specific items. The content validity and test-retest reliability of this index was to be further evaluated in Experiment VII.

The present findings did however raise a number of methodological questions about the relevance of this approach for further research. There is still inadequate information pertaining to construct and content validity which is in no way compensated for by merely clumping it with a number of other techniques. In retrospect that criticism might be levelled at the present experiment no less than other recent studies.

It is readily apparent then that facial expression as a form of social cue will continue to be difficult to encode and interpret. Beyond that other kinds of social cues must be considered such as movement patterns and vocal intonations (Girgus & Wolf, 1975). At present one of the most hopeful directions for future research would appear to be an examination of the child's understanding and usage of the facial display rules (Ekman & Friesen, 1978; Ekman, 1979; Saarni, 1979). But one can have no illusions about the complexity of processes yet to be understood.

6.4 EXPERIMENT II : FLAVELL'S CARTOON TEST OF CONCEPTUAL ROLE TAKING

6.4.1 Introduction

This task was employed for its capacity to tap children's ability successively to consider two different perspectives about a social stimulus. In relation to the classification system of Chapter three it was concerned specifically with putative content in role taking. The original task (Flavell et al, 1968), or derivatives, has been used widely in diverse research work and continue to be cited frequently. A key objective was to tackle the "information engineering" problem: the difficulty of distinguishing between real role taking skills and the child's projection of personal knowledge.

The experimenter typically displayed a sequence of seven separate drawings which conveyed a simple plot about a boy walking along, being chased by a dog, escaping into an apple tree, and waiting there till the dog went away. The child was asked to verbalize the sequence, after which three of the drawings featuring the snarling dog were removed. The meaning of the remaining four was then transformed so that the boy's behaviour was no longer to be accounted for by the dog. The child was then asked to retell this sub-sequence plot as it would be understood by another person ignorant of the original. Further questioning was then needed to establish whether the child could distinguish the two perspectives on content, for it was found that younger children still tended to retain their sense of the salience of the dog in the second version.

The pictorial format of the task was subsequently adapted by Chandler, using items from the Picture Arrangement subtest of the WAIS as a potential clinical instrument for assessing role taking in older children (Chandler, 1973b). He subsequently used simple cartoon 'doodles' with the same kind of private/public perspectives (Chandler & Helm, 1974). Other simple variations of the same approach can be seen in the play equipment used by Selman (1971) and the guessing game of Devries (1970). Interest in the technique has more recently focussed on its developmental-descriptive application.

The ability to make this self-other distinction has been found to develop quite late. Flavell (loc cit, p.75) found a clear majority of his children did not master the task till 9 or 10 years of age, while the responses of 60% of 7 year olds were still egocentric. Chandler's adaptations indicated an even slower rate of acquisition (Chandler, 1973b; Chandler & Helm, 1974). Other adaptations have given ambiguous findings about normative-developmental parameters of the skill (Rubin, 1973; Chandler, Greenspan & Barenboim, 1974; Hollos & Cowan, 1974; Kurdek & Rogdon, 1975; Kurdek, 1977b; Brandt, 1978; Hudson, 1978; Leichtman, 1980). The ability to make the self-other distinction has been estimated to appear as early as 3 years of age and as late as 7 (Brandt, 1978). Clearly the child's skill is heavily dependent on the information processing demands of the particular task employed, as discussed in Chapter three.

Brandt's own work with doodles and story tasks showed that a major transition seemed to occur between 4 and 6 years of age

(loc cit, p. 211). Performance was variously determined by mode of responding, task complexity, salience, and the wording of the questions. All of these parameters are thus implicated in evaluating the child's performance.

The present study started with Flavell's original cartoon sequence, although there was some concern about the appropriateness of the original graphic material (Appendix 6.D) and the way it mediated performance among 5 to 7 year olds in particular. A new set of graphics was prepared with a view to conveying the same meaning in a clearer, simpler manner. As a result of field trials a series of modifications was found necessary in order more adequately to represent movement and facial expression in the boy and the dog. This was found necessary if the materials were to evoke sufficiently consistent responses of recognition and identification from the 5 year olds in particular. The final set of drawings are shown in Appendix 6.E. These were evaluated using directions consistent with those of Flavell's original study.

The available literature suggested that this kind of data could be scored with a high degree of inter-rater reliability. Kurdek (1977b) found 92% agreement, Brandt (1978) found about 98% for her four comparable stories, whilst Burka and Glenwick (1978) recorded a coefficient of .95 (approximately 90% agreement). Flavell's original administration cited an 85% agreement.

6.4.2 Method

The modified cartoon sequence was administered to ten children at each of three junior primary grade levels. The

average ages were 5 years 7 months (SD = 2 months), 6 years 5 months (SD = 3 months) and 7 years 4 months (SD = 3 months) respectively. Equal numbers of boys and girls were chosen randomly from class lists. Social characteristics of the demographic area have already been given in section 6.2.

The children were asked to imagine how the second sequence would be described by their teacher if she was present. This differed from Flavell's technique of actually having a second experimenter present. It was acknowledged that children might respond better given the realism of an actual alter, but it was also thought that this could be perceived by the children as more threatening.

Each session was tape-recorded and transcribed for scoring using Flavell's original four category system. Flavell's technique of taking a word count for connectives was also applied. This covered total connectives, all utterances linking two words together (loc cit, p. 74), and causal connectives:

> those which appear to relate two assertions in some sort of cause and effect rather than merely juxtapositive or serial fashion (loc cit, p. 74).

In the original study the ratio of these two kinds of connectives increased significantly with age (loc cit, p. 74).

6.4.3 Results

The distribution of data using the original scoring system is shown in Table 6.3, together with Flavell's original findings. It appeared that the modified presentation yielded a more optimistic

TABLE 6.3 Frequencies of children scored within each of Flavell's original categories, together with a duplication of Flavell's original data (expressed as percentages).

Scoring Categories	Age Levels			Flavell's 7 year old sample
	5	6	7	
1. "Correct" presentation - full role-taking shown.		2	3	40
2. Responses not scorable in the other categories; some sensitivity to role-taking aspects.	1	5	4	
3. Follow-up questioning reveals lack of role-taking skill.	9	3	3	40
4. Straightforward presentation of the first story; no role-taking apparent at all.				20

profile of 7 year olds' competence in this respect. This might be attributed in part to sampling variability, but more particularly it implied that Flavell's scoring tended to dichotomize the children. The present approach emphasized rather the role of subjectivity in categorizing responses; many children were classed as being in transition. The results also implied that Flavell's fourth category was redundant for the present sample inasmuch as no child simply repeated the seven picture sequence.

The finding of a significant developmental transition from age 5 to 6 ($U = 81$, Z transformation = 2.69, 1 tailed $p = .003$) was in keeping with the work of Brandt (1978), as was the finding of little further transition for this kind of task from age 6 to 7 years. The inter-rater reliability for scoring of these

transcripts was found to be .96 (approximately 92% agreement), which was comparable with previous studies already cited.

The secondary analysis of the transcripts in terms of the ratio of causal/total connectives gave mean ratios of .13, .13 and .15 respectively for the three age groupings. Clearly the ratio was of little value in tapping developmental trends in the present population.

6.4.4. Discussion

The results suggested first of all that the modified task presentation discriminated a developmental transition that generally occurred between 5 and 6 years of age. It thus supported the use of the present materials with an Australian sample and corroborated another recent investigation (Brandt, 1978). Flavell's original finding that the transition occurred much later would appear then to reflect unidentified artifacts in his procedures, or differences between the populations sampled. Direct age by age comparison with the American data was, unfortunately, not possible however.

Of more particular interest was the doubt cast upon the reliability of scoring in Flavell's original administration, a point not apparently considered in its subsequent application by other researchers. Closer examination of the criteria used to judge children in this important transition phase would seem to be warranted.

The adoption of the modified presentation and scoring procedures seemed warranted for further research, most particularly for younger children. However the issue of construct validity in

terms of the adequacy of questioning techniques, the interpretation of monosyllabic answers, and the effect of changing the complexity of the task, still remains unresolved. The present research objectives did not permit these matters to be addressed at this stage.

6.5 EXPERIMENT III : SELMAN'S TEST OF SOCIAL REASONING

6.5.1 Introduction

The structural model of role taking development was reviewed in Chapter two. Selman's approach was emphasized as the one most comprehensive and most commonly referred to. It was equally apparent however that there were many conceptual problems with this approach not yet addressed. These had not reduced the interest of developmental researchers however, for there continues to be widespread acceptance of Piaget's logico-mathematical model and its derivations.

Corresponding empirical scrutiny of Selman's work remains limited. It has been most recently reviewed by Kurdek (1978b), particularly with regard to the links between social and moral reasoning. He pointed out the frequency of nonsignificant correlations, which seem to undermine the imputed links between Selman's deep structural levels of social reasoning and their manifestation in more immediate context-specific behaviours. The issue has remained clouded by the poor psychometric characteristics of the instruments and the restricted nature of extant research designs. This has made it difficult to specify comparability of task

performances or prediction of one from another (Chandler, 1977, p. 115). The present study needs to be seen against this backdrop of divided opinion about the adequacy of the structural model and the instrumentation on which it is based.

The present experiment had two independent yet closely related objectives. Its immediate methodological aim was to use Selman's instrumentation and scoring procedures with a local sample of younger children, and to determine what adaptations were required to suit their needs and competencies. Its larger aim was to take a broader perspective on the validity of the structural model itself, and examine whether Australian children displayed the kind of sequence found so strikingly by Selman (Selman & Byrne, 1974; Selman & Jaquette, 1977). Out of this, it was hoped would come instrumentation adapted more closely to the target population That in turn might be used to assess more meaningfully the construct validity of Selman's developmental theory in terms of its relationship with other measures of role taking and manifest social behaviour.

The design consisted of two preliminary pilot studies and one main experiment. Pilot Study I involved the administration of Selman's original materials without modification to a small sample. Pilot Study II involved a large-scale examination of the structural levels, which necessitated the use of a modified version of the original instrument. The main experiment then involved the evaluation of a new set of stimulus materials with another small sample, followed by an analysis of the data employing modified scoring procedures. Each of these has been reported separately, followed by a general discussion of their implications.

6.5.2 Pilot Study I

Selman's material was available only in the form of a commercially produced kit consisting of several discrete simulated social episodes. Each was presented via the media of 35 mm colour strip films of enacted behaviour with coordinated audio tapes of simulated dialogue (Selman, 1974). Each episode portrayed an everyday social situation with an unresolved ending. The children's task was to consider this dilemma and explain verbally what the key character in the episode should do to resolve the situation. The focus of measurement was on the quality of their reasoning rather than the appropriateness of the answers themselves. This necessitated follow-up interviewing by the experimenter to elicit more elaboration or explanation by the children as required, which was taped and transcribed for subsequent scoring and categorizing. The schema of social reasoning has already been delineated in Chapter two.

The original set of episodes prepared by Selman formed an hypothesized sequence of difficulty that permitted examination of social reasoning levels from pre-schooler to adult. Only the first episode of the series was considered appropriate in order to tap the social reasoning of 5 to 7 year olds. This was the puppy story from the kit How would you feel?

Comparable materials in Selman's original study (Selman & Byrne, 1974) indicated that 80% of 4 year olds could be classed as Egocentric role takers, whilst by age 6 90% of the children were at the next level of Subjective role taking. By 8 years of age 40% were still so classified, whilst the remainder were found

to be at the next level of Self Reflective role taking or better. This represented a major and clear-cut developmental transition (loc cit, p. 806). Further work was broadly corroborative, although it tended to indicate an even sharper trend in acquisition from 6 to 8 years (Selman & Jacquette, 1977, p. 283).

Pilot Study I - Method : The puppy story in its original commercial form was administered individually to ten 5 year olds ($\bar{X}$ = 5 years 3 months, SD = 3 months) and ten 7 year olds ($\bar{X}$ = 7 years 6 months, SD = 4 months), with equal numbers of boys and girls selected randomly from the class rolls. Social characteristics of the demographic area have already been given in section 6.2. Questioning techniques followed the guidelines of Selman's standard probes (Selman, 1974, p. 23), but in practice it was found necessary to employ much less sophisticated language. The interviews were taped and transcribed.

Pilot Study I - Results and Discussion : Preliminary analysis suggested that it was appropriate to restrict attention to scoring of Conceptions of Subjectivity within the Persons category, since issues of Self Awareness or Personality were not elicited at all (Selman, 1974, part II). The pattern of responses similarly made Selman's differentiation into interpersonal and personal categories unnecessary, and only a single overall rating of social reasoning level could be assigned. His original guidelines for scoring are reproduced in Appendix 6.F.

A developmental pattern for these levels of social reasoning could be discerned, as shown in Table 6.4, although replication on a larger scale would be needed to assess if this was significant.

TABLE 6.4. Frequencies of 5 and 7 year olds' responses assigned to Selman's original social reasoning levels.

Social reasoning levels	Age Group 5 years	7 years
Egocentric	9	7
Subjective	1	2
Self-reflective		1

Very tentatively this might be taken to imply a more gradual rate of developmental progression compared with Selman's subjects. The children did not display the fluency and confidence evident in Selman's quoted transcripts, and responses were predominantly monosyllabic. This contrast did not appear to be attributable to variation in administration procedures; it really did appear to reflect cultural differences. It appeared, then, that Selman's instrumentation and scoring were not suited to the differentiation of social reasoning in the local context. A reappraisal would be necessary if valid data were to be collected.

6.5.3. Pilot Study II

A second question pertained to the wider construct validity of Selman's model itself, as manifested in the capacity of his instrumentation to characterise children's responses in the manner suggested. This warranted closer scrutiny with an

Australian sample, particularly in view of the findings of Pilot Study I. It was obviously desirable to test a much larger sample of children, and also to cover a wider age range, in order to examine the larger developmental pattern of structural levels of role taking. These joint objectives were achieved by training a group of undergraduate students to administer the task to a cross-sectional sample of school-age children. The context was a practical exercise conducted by first year students in a Developmental Psychology course coordinated by the author at Salisbury College of Advanced Education.

Such an exercise necessarily involved empirical compromise. Some modification of materials was necessary to permit them to be reproduced and used by relatively unskilled examiners. Within the administrative framework there was also little scope for the monitoring of inter-rater reliability. But it is hoped that sufficient empirical control was exerted to ensure that the data was valid in the present context.

Pilot Study I accentuated the need for a less complex task presentation for younger children, while the constraints of testing 5 to 12 year olds required a stimulus that would be both expedient and appropriate for a developmental range of some 8 years. A story telling approach was devised which eliminated the need for a three-way dialogue, and permitted a less complex presentation of the key information about the interaction of the two central characters. The omission of pictorial content possibly represented a reduction in meaning and interest, especially for younger children. However it also reduced the probable variability of

interpretation by different age levels, and this seemed more salient in the developmental-normative design.

Pilot Study II - Method : The students read aloud the following story to each child, after explaining that they were interested in what he/she thought the story was about, and would be asking questions about it subsequently:

> Tom has saved up some money to buy a birthday present for his friend Mike. Tom starts looking around the shops to try to work out what to buy Mike as a present. Then he sees Mike and finds that he's really sad because his dog has been run over by a car. Tom suggests to Mike that he ought to get a new dog. But Mike says -
>
> > I can't just get a new dog and have things the same again. I never want to see another dog.
>
> Then Mike goes home because he's got some jobs he has to do. Tom looks around the shops again, and finds that the pet shop has a puppy for sale. It's the last one, and the owner says it will probably get sold the same day. Tom wonders whether he ought to buy this puppy for Mike, and reckons he will have to decide straight away.

They then asked "What do you think Tom will do?", followed by open-ended questions dictated in part by the children's own responses. Questioning techniques were rehearsed and role-played in a prior training session.

The students worked in pairs, one reading the story and asking the questions, the other recording verbatim the child's responses. These written records were examined and scored in tutorials under supervision, using the same guidelines as before (Appendix 6.F). The 55 student teams each tested two boys and two girls from the same grade level, selected randomly from class rolls. Social characteristics of the demographic area have already been given in section 6.2. Precise control over selection of children of various age/grade levels was not possible due to administrative constraints within schools, and it was necessary to combine data into two-year groupings. Data was consequently available for 47 5 and 6 year olds (21.7%), 58 7 and 8 year olds (26.8%), 42 9 and 10 year olds (19.4%), and 69 11 and 12 year olds (31.9%), a total of 216 children.

Pilot Study II - Results and Discussion : The frequency distribution of children assigned to the various role taking levels formed a clear developmental pattern, as shown in Table 6.5. Non-parametric trend analysis (Jonckheere, 1954) revealed that this was a highly significant progression ($z = 2.72$, one-tailed $p = .003$). Such findings were of interest from two points of view.

Firstly they supported the sequentiality of Selman's model, and secondly they did correspond to some extent with Selman's normative findings as to the age range within which each mode of reasoning was most prevalent (Selman, 1974). More importantly however they indicated the extent of individual variability in

TABLE 6.5. Distribution of role taking levels within the age groupings, expressed as percentages for each grouping.

Role taking level	Age Intervals (years) 5-6	7-8	9-10	11-12
Egocentric	48.9	27.6	14.3	5.8
Subjective	29.9	32.8	21.4	18.8
Self Reflective	14.9	25.9	45.2	36.2
Mutual	6.4	13.8	19.0	29.1

social reasoning within each of the age samples. This, predictably, was not obvious in small-scale research.

The present findings implied not only that social reasoning skills were slower in developing among Australian children but that there was considerable diversity in competence at every age level sampled. These results need to be treated very cautiously in view of the uncertainties of inter-rater reliability and the validity of the oral presentation in particular. One obvious danger was that some kind of expectancy set was operating in the students' administration and scoring, although the very diversity of the results seemed to argue against this interpretation. Further analysis seemed inappropriate, but the findings did confirm the need to examine the methodology more carefully. Further contrasts with Selman's large-scale study (Selman & Jacquette, 1977, p. 281) must remain equivocal however because of variations in the techniques employed.

6.5.4. The major study : Experiment III

The final experiment in this series was a more tightly controlled examination of Selman's model with younger children, this time adapting the nature of the stimulus presentation to their interests and competencies. The content of the simplified story-telling approach of Pilot study II was taken as a starting point for the preparation of a new set of visual materials that would convey the appropriate meaning to children aged 5 to 7 in an uncomplicated yet interesting manner.

The objectives of the experiment were to evaluate firstly whether the task, presented in this way, discriminated betweem reasoning levels, and secondly to assess the utility of a slightly extended scoring system, which was adopted to see if greater subtlety of scoring could be achieved. The latter seemed warranted from the pilot studies because of the apparent importance of responses that seemed to be in transition within the first of the levels.

6.5.5 Method

Eight coloured line-drawings were prepared in a new sequence, departing substantially from the original in their simplified cartoon format and their reduced content complexity. After preliminary trials a slightly modified set of materials were then reproduced as 35 mm slide transparencies. In order to reduce the effect of sex-based assumed similarity these depicted an interaction between a boy and a girl. The final presentation of coordination graphics and story captions is shown in

Appendix 6.G. Enlarged wall projection of the pictures together with direct reading aloud of the story by the experimenter were employed as these were found to have the greatest positive impact in the preliminary trials. After this presentation each child was questioned informally by the experimenter in a manner consistent with Selman's original guidelines, and the conversation was taped and transcribed for subsequent analysis. This new instrumentation was then administered to ten 5 year olds ($\bar{X}$ = 5 years 2 months, SD = 2 months) and ten 7 year olds ($\bar{X}$ = 7 years 1 month, SD = 3 months), with equal numbers of boys and girls drawn randomly from class lists. Social characteristics of the demographic area have already been given in section 6.2.

The data were analysed firstly using Selman's original guidelines and secondly by means of a revised scoring system based on preceding experience that Egocentric role taking in particular tended to clump together a diverse range of inferred social reasoning skills. The new categories were not based on any prior conceptual framework but simply seemed to be the most economic and apt way of characterizing the children's answers more precisely. It was hoped that subsequent analysis would confirm this intuitive procedure.

Sub-categories so employed were:

Egocentric role taking. This classified the children who were unable to grasp the meaning of the task and either gave a minimal monosyllabic response, tried to change the conversation to something else, or repeated what the experimenter said. Secondly it covered the children who answered in terms of their

own personal experience. The latter in fact fitted Selman's original definition of this level, at which:

> the beginning conception of subjectivity which emerges is contaminated by a confusion of the self's subjectivity with the subjectivity of other (loc cit, 1974, p. 11).

Literal-behavioural role taking. This classified children who were able to converse about the story material, but revealed only a very concrete grasp of its content. This description gave no sign of self-other perspectives.

Improved behavioural role taking. This classified children who were able to go beyond a literal commentary on what happened to brief reference to the basic emotional state of the participant(s). These children showed distinctly greater insight than those in the prior category, while still not showing any indication of a sense of the subjectivity of the behaviour of others.

These three sub-categories appeared to form a logical elaboration of the original, and retained a sequentiality that had some face validity. This downward extension of Selman's model also appeared to be consistent with the broader logic of that model. In any event Selman's own work was oriented rather towards middle childhood and adolescence (Selman, 1974, 1975, 1976a, 1976b; Selman & Jaquette, 1976, 1977; Selman & Selman, 1979).

6.5.6 Results

Analysis of the data using Selman's original categories suggested firstly that the new instrumentation yielded a distribution substantially the same as before, as shown in Table 6.6. This indicated more particularly the added differentiation of the extended classification system in accentuating a developmental pattern from 5 to 7 years. The size of the age samples precluded testing for significance between groups, but certainly the pattern was encouraging.

The transcripts were also inspected and rated independently by two other qualified persons familiar with Selman's model and scoring guidelines. Substantial agreement about assigned levels was possible in 85% of cases, with divergence appearing only in relation to the additional sub-categories of Egocentric role taking. The scoring for this small sample thus seemed comparable with Selman's inter-rater reliability of 88%.

TABLE 6.6. Distribution of the age samples within the extended scoring system.

Levels	Age levels 5 years		7 years	
Egocentric	2	8*	-	6*
Literal-behavioural	4		3	
Improved-behavioural	2		3	
Subjective	2		4	
Self-reflective	-		-	

*Selman's original Egocentric role taking category

6.5.7 Discussion

The pattern of results was generally consistent with those of Selman. However within the limits of the design it appeared that the emergence of Subjective role taking and levels beyond was slower than suggested by Selman. This seemed to reflect a lower communicative fluency on the part of the Australian children; yet the contrast seemed too great to be simply attributed to cross-cultural differences of this kind. The discrepancy was communicated to Selman, who responded:

> Many of the children we interviewed at age 4 were children who were well acquainted with us. Our interviewing tended to be very clinical and did not always require the film-strips. We also have found the filmstrips too complex for most pre-school and kinder-garten children, and even some first graders. (Selman, 1976c).

It would appear then that Selman's data may actually have been more consistent with the present results. It is unfortunate that his work has been oriented primarily to development in middle childhood and beyond, and that his initial explorations with younger children have not been pursued further with the precision that is evidently needed.

The diversity of role taking skills at each age level clearly did not mesh readily with a normal structuralist frame-work, stretching it beyond its explanatory limits. This key issue of how the developmental sequence model might be integrated

meaningfully with the evidence on individual variability has been deferred until the major experiments.

It was further apparent that the modified stimulus presentation yielded a differentiation of children that was at least comparable with that obtained using the original format. Additionally it was more convenient to administer and was evidently better suited to 5 to 7 year olds.

At the same time the more global kind of assessment of role taking would seem to be the only one practicable when using this kind of instrumentation with younger children. Selman's ambitious system of analysis of various realms of interpersonal conception would certainly necessitate a number of presentations and a series of interviews for each child.

These comments about presentation and scoring procedure must be placed in the context of the implicit difficulties of asking questions and eliciting quantifiable responses from young children. One was continually aware that the interview required more art than science. There was difficulty in choosing the words for a suitably direct question, and eliciting more than a mono-syllabic answer from many children. Selman (1974, p. 3) similarly noted that:

> Probe questions are not as effective as open-ended interviewing because they tend to be leading. Questioning which is too direct and too leading leaves us unsure as to whether we have been putting words into the subjects' mouth rather than looking at ideas from his mind.... The interviewer's capability to lead

> but not to pull is a developed skill which comes in part with time and experience, and in part with theoretical familiarity with the perspective-taking levels and their application in the interpersonal domain.

It is hardly necessary to add that these skills are even more critical when working with younger children. Many of the difficulties lie with the particular conversational skills and normative expectations of the younger child, and the kinds of implicit strategies he chooses to employ in a particular discourse. The present methodology thus remains fraught with danger. The implications of this will be explored in the major experiments.

6.6. EXPERIMENT IV : AN INTERACTIVE MEASURE OF REFERENTIAL COMMUNICATION

6.6.1 Introduction

The objectives in this final preliminary experiment were to devise and evaluate a referential communication task with certain characteristics. The first was that it could be administered to children in field conditions of school corridors or spare rooms, with the data being recorded via direct observation and/or audio recording techniques. Secondly it needed to interest and maintain the spontaneous involvement of 5 to 7 year olds. Thirdly it had to tap communicative behaviour with the kind of ecological and construct validity needed for Experiment VII. The latter pertained to the inferred social role taking aspect of the interaction rather than to concern with particular message production or receipt.

Available methodological approaches in this area were reviewed in Chapter three, when two alternative techniques were delineated. The first involved the child distinguishing a target referent from other potential referents for the benefit of his partner, who was typically separated by a screen (Glucksberg, Krauss & Higgins, 1975). The second involved getting a child to teach a game or activity to a second child (Cooper & Flavell, 1974; Novik & Waters, 1977; Pratt, Scribner & Cole, 1977). A further alternative was to observe spontaneously occurring dyadic interaction; but that necessitated a laboratory-based approach.

Adaptations of the two techniques were explored in separate pilot studies in search of an approach that met the above criteria. They explored ways of measuring referential communication that would be experimentally rigorous yet still permit the children to behave in a more natural manner.

Some kind of compromise between these conflicting aims was needed. In particular the use of an open dyadic encounter would obviously require the ability to separate the performance of one child from that of the larger social unit. The approach selected was the involvement of dyads in a game-like task in which the rules were first defined and then the children were observed, unhampered by further direction.

In each instance participants were of the same sex and drawn from the same classroom. This followed in part from an earlier finding that sex of partner had a substantial effect on the level of social participation of both sexes in open interaction (Langlois, Gottfried & Seay, 1973).

These two pilot studies will be seen to give direction for two further experiments, IVA and IVB, which have employed the method of presentation of the second of the pilot studies.

6.6.2 Pilot Study I

The conventional referential communication task typically controlled the interaction of the participants in some way by means of visual screens or restricted communication channels. One variation on this involved the use of two felt boards and duplicate sets of felt shapes, which helped make it somewhat more informal (Chandler, Greenspan & Barenboim, 1974; Novik & Waters, 1977). This idea was first evaluated with certain modifications intended to facilitate dyadic interaction and to simplify its cognitive demands on the children.

A major difficulty with the original task was the spatial reorientation required between partners in terms of the transposition of left and right when facing each other over the respective felt boards. The present study attempted to position the children adjacent to one another, with the speaker slightly behind the listener and able to see both boards. In this way commonality of orientation relative to the other child was achieved. Information access remained as tightly controlled as in other related techniques, although the listener was allowed to participate fully by asking questions. The major disadvantage was the lack of eye contact, which was possible only if the listener chose to turn around.

The green felt was mounted on thin board (600 mm x 400 mm) and each speaker played two games, one using six farm animals and the other using six forms of transportation, all variously coloured. A further variation was the division of the felt boards into 3 x 3 regions using white chalk lines. This was found necessary to assist the speaker to give spatial directions.

The technique was evaluated with eight same-sex dyads aged 5 and 7 years ($\bar{X}$ = 5.3 years and 7.2 years respectively), with equal numbers of each sex. The children were randomly drawn from schools in the demographic area already delineated in section 6.2. Their interactions only served to confirm recent findings as to the unwillingness or inability of young children to ask questions as listeners, as discussed in Chapter three. The verbal interaction remained mechanical and largely uni-lateral, as in the one other Australian study (Novik & Waters, 1977, p. 181). It certainly differentiated the children's linguistic competence, but served no further purpose in tapping role taking skills.

6.6.3 Pilot Study II

The second and lesser known technique required each child to teach a game or some activity to another peer. This involved a more socially meaningful context than the previous approach, but at the expense of much experimental control. It was explored here using a new kind of game situation based on an idea of Novik and Waters (1976).

Each child was taught by the experimenter to blow a bottle-top along a polished board using a straw, and then in turn attempted to teach the game to a peer. The two children then held races in getting their bottletops to the end of the board. The original procedure of Novik and Waters relied solely on nonverbal modelling by the experimenter; their intention being to avoid contamination with the child's own verbalizing due to imitation effects. A precursor for this approach was a teaching game for moving objects over a patterned board (Flavell et al., 1968, Task 1A; Cooper & Flavell, 1974). The latter had worked successfully with 8 to 12 year olds, whilst Novik and Waters (1976) found their task far too difficult for 5 to 7 year olds.

In the present version the game was explained verbally as well as demonstrated by the experimenter. This involved the mechanics of effective blowing, the rules of the game such as turn taking, and getting to the end of the board first. The demonstration was then reinforced by the playing of two or three games involving simulated competition between the experimenter and child before the child was asked to teach another.

The child's imitation of the experimenter was not considered a process of training in the use of role taking skills. The child still needed to recognize the nature of the task and express this recognition through his own teaching behaviour. Children of this age are certainly influenced by symbolic modelling (Laubengayer, 1965; O'Connor, 1969, 1972; Keller & Carlson, 1974); but that did not appear to be the pertinent process here.

The game was played on a white board (600 mm x 600 mm), with beading down the centre to define two courses. Crown seals and plastic drinking straws were provided. The game was found to be best played on the floor. The teaching behaviour of the first child with respect to the second was tape-recorded and scored in terms of frequency of discernible verbalization over five minutes (Garvey & Ben Debba, 1974).

Secondly the gaze behaviour of the first child was measured, in recognition of evidence that there was an increase in eye contact from 5 to 7 years (Ashear & Snortum, 1971; Levine & Sutton-Smith, 1973; Novik & Waters, 1977). The significance of this increase, incidentally, remained uncertain. Only direct observational procedures were considered, and a three point ordinal scale of gaze was employed.

The task was administered to 10 same sex dyads at age levels 5, 6 and 7 years, with equal numbers of boys and girls in each ($\overline{X}$ = 5 years 7 months, SD = 6 months, $\overline{X}$ = 6 years 7 months, SD = 6 months, and $\overline{X}$ = 7 years 6 months, SD = 8 months respectively). The age of the listener in each case was within six months of that of the speaker, and each dyad was drawn from a single class group. The children were again drawn from the area described in section 6.2.

Approximately half of the children showed some eye-contact and/or spoke to their partner. Another third of the children did not look at their partner at all and about 20% did not talk at all. Neither index discriminated age differences, although the two correlated significantly (r_s = .57, p = .001). There were no sex differences.

These findings reflected predominantly the crudity of the measures employed and their questionable validity in capturing the meaning of what was occurring in the interaction. The choice in methodology appeared to lie between greater sophistication in technical recording techniques, albeit without a corresponding increase in construct validity, or a different approach to measurement altogether, as previously discussed in Chapter five.

At the same time the actual task seemed to be appropriate in terms of its capacity to involve and motivate the children. Their teaching behaviour certainly appeared to be enthusiastic. Yet their particular enthusiasm for beating their partner was itself a potential contaminant of the task's construct validity, insofar as this competitiveness sometimes led them to abuse their privileged information status. The task of reliably measuring the teaching aspect of the game within this field-based setting was examined in Experiment IVA.

6.6.4 Experiment IVA

In this experiment it was decided to employ direct ratings in an attempt to capture more of the character of the behaviour displayed in the straw and bottletop game. The first empirical issue was one of inter-rater reliability; could an observer recognize and rate contemporaneously the dynamics of the situation in a subtle enough manner? Previous studies indicated that the communication would still be predominantly one way at this age, with limited listener feedback (Robinson & Robinson, 1980). There would certainly be variability in children's general

initiative and involvement in their role as listeners, but it was expected to be manifest mainly in task-related actions rather than social interaction per se. This implied that the dyadic aspect might be manageably observed, whereupon acceptable reliability might well be achieved.

A second issue was that of validity; which behaviours might best be observed? As a first step only direct teaching behaviour was considered, and it was examined within the context of a parallel study of social competence ratings employed by the children's teachers. This design anticipated and explored the larger theme dealt with in Experiment VII. That is, a group of children were independently observed and rated by their teachers and concurrently assessed by the experimenter in the referential communication task. The full study is reported separately as Experiment V. The current discussion only related to those aspects of the study which were relevant to the referential communication task itself.

Experiment IVA : Method

The straw and bottletop game from Pilot Study II was administered to 37 same sex dyads of 5 year olds, 20 female and 17 male ($\bar{X}$ = 5 years 6 months, SD = 2 months). The children were selected randomly from classes within the demographic area already described in section 6.2. The children in each dyad were familiar to one another.

The procedure for each pair was that the experimenter taught the game to one child using verbal explanation and

modelling, and played three practice games. This child was then asked to teach the game to a second child who was introduced to the situation, and encouraged to initiate further games.

The teaching performance was rated independently by the experimenter and by a trained associate, who remained as unobtrusive as possible during the ensuing interaction. A four point rating scale was utilized:

1. Cannot teach at all
2. Gives incomplete explanation
3. Gives complete but general explanation
4. Gives complete explanation with specific detail.

The children selected as teachers were also rated by their class teachers using 20 items drawn from the California Pre-School Social Competency Scale (Levine, Elzey & Lewis, 1969).

Experiment IVA : Results and Discussion

Only aspects pertinent to the referential task have been reported here; the balance is reported in Experiment V.

The distribution of ratings of teaching behaviour was spread fairly evenly over the four categories (19%, 27%, 24% and 30% respectively), with an inter-rater reliability of 95%. The ratings were inter-correlated with certain of the teachers' ratings of social competence; the significant coefficients are shown in Table 6.7. These suggested that the referential task ratings had a reasonable level of concurrent validity with respect to the children's routine social interactions at school. But covariance was not as high as

TABLE 6.7. Correlation between task ratings of teaching behaviour and independent ratings of social behaviour by teachers.

Social Behaviour Items	r_s	p
Helping others	.63	.001
Playing with others	.35	.017
Initiating involvement	.36	.014
Initiating group activity	.39	.009
Giving direction to play	.54	.001

might have been desired, even given the recognised limitations of rating methodology.

The observations also served to confirm previous findings to the effect that the listener typically provides minimal feedback to the speaker at this age level. There were, for example, negligibly few requests for clarification of directions. One might well expect the older children to give more feedback, although Australian researchers have found this not to be so (Novik & Waters, 1977, p. 17); the age difference in performance was not appreciable. Differences in the performance of listeners tended rather to reflect dominance or competitiveness. The major problem was thus establishing the construct validity of the child's actual teaching skills relative to other social parameters. One possibility was to redefine the task demands for the children themselves, the other was to broaden the behavioural parameters that were observed. This was the focus of Experiment IVB.

6.6.5 Experiment IVB

The kinds of behavioural indicators typically used to assess referential communication skills have been relatively objective indices of specific behaviours. Apart from the aforementioned work on gaze most of these indices were derived from linguistic analyses of transcripts. They variously included length and frequency of utterance (Garvey & Ben Debba, 1974), grammatical complexity (Silverman, 1972), completeness of directions (Hoy, 1975), coding style (Johnston & Singleton, 1977), and other specific characteristics of the message. A recent development has been an interest in asking the child directly about what he thinks is occurring in his interaction with the partner. This study of meta-cognition has so far been limited to the original restricted information tasks (Robinson & Robinson, 1980).

Attempts have been made to measure the more social aspects of a dyadic encounter in terms of the sequencing of verbal exchanges (Mueller, 1972; Garvey, 1974) and congruence in the duration of speech pauses (Welkowitz, Cariffe & Feldstein, 1976). None of these was suited to the kind of teaching behaviour presently being examined.

The most appropriate way to describe the behaviours in question seemed to be an elaboration of the ratings. Apart from the basic dimension of teaching there seemed to be a need to tap the children's specific verbal skills. The parallel issue of non-verbal skills seemed just as pertinent, especially since many younger children were action-oriented rather than verbally-

oriented in their expression. But preliminary work indicated that the subtleties of this would necessitate detailed video analysis in order to get a meaningful index of individual variability.

A third dimension worthy of consideration was the children's adherence to the rules of turn-taking, as this appeared to be a basic part of the game in which 5 year olds at least displayed considerable variability. Certainly this had face validity with respect to broader notions of social role taking skill.

A fourth dimension deemed appropriate for consideration was an appraisal of the children's general social orientation in the task. The relevant measure would tap the speaker's recognition of the difficulties of the task for the listener. This would be expected to contain important elements of social role taking skills.

Both turn-taking and social orientation dimensions seemed pertinent in view of the concern about the way the children were interpreting the demands of the task itself. Hopefully they would quantify the extent to which children really did seek to teach and assist their partner in spite of their contrasting desire to compete and gain an advantage over him.

Preliminary trials led to the development of four-point rating scales for each of these dimensions. These have been described in Appendix 6.H.

Experiment IVB : Method

The straw and bottletop game was used as in Experiment IVA, although minor alterations were made to the materials and to the experimenter's teaching performance. The game board was made longer and the runs narrower (100 mm x 25 mm), with 10 mm square beading down the centre, at the sides and at one end to define the runs. This increased the duration of each game, the likelihood of something going amiss, and the consequent need for further teaching and interaction that could be observed. The beading avoided the unnecessary disruption of bottletops falling off the edge. The teaching model provided by the experimenter was maintained, with elaboration of the rules of turn-taking and emphasis on the goal of teaching one's partner effectively rather than on gaining a competitive advantage.

The amended task was administered to two samples of same-sex dyads aged 5 and 7 years respectively ($\bar{X}$ = 5 years 7 months, SD = 4 months; $\bar{X}$ = 7 years 2 months, SD = 3 months). There were 5 male and 5 female dyads in each sample, drawn from the same demographic area as described in section 6.2. Members of each dyad were familiar to each other and were selected so as to have an age difference of no more than 6 months.

The complete interaction of each dyad was rated. This normally ended spontaneously within 10 minutes, although on occasion it was necessary to terminate a particularly enthusiastic interaction. A trained confederate also rated independently a cross-section of ten dyads to determine inter-rater reliability.

Experiment IVB : Results and Discussion

Distributions of ratings for the four scales indicated that the categories were fully utilized for both age levels. The four scales were highly correlated for the 7 year olds and to a lesser extent for the 5 year olds, as shown in Table 6.8. The 7 year olds performed better than the 5 year olds in each case, as shown in Table 6.9, although the age difference was significant only in the case of Referential verbal behaviour, and then only among the boys ($U = 4$, $z = -2.01$, one tailed $p = .022$). Inter-rater reliability for the sample of ten children was 100%, 90%, 100% and 100% respectively for the four items.

TABLE 6.8. Correlation matrix for the four rating scales of Referential behaviour. Significant probability values are given beneath.

5 year olds (N = 10)

	Teaching behaviour	Verbal behaviour	Social orientation
Turn taking	.41	.48	.62 .029
Teaching behaviour		.75 .007	.53
Verbal behaviour			.76 .006

7 year olds (N = 10)

	Teaching behaviour	Verbal behaviour	Social orientation
Turn taking	.87 .001	.67 .017	.63 .027
Teaching behaviour		.83 .002	.65 .021
Verbal behaviour			.90 .001

TABLE 6.9. Rated performanced of the two age groups on each of the four rating scales of Referential behaviour.

Item	5 year olds $\bar{X}$	SD	7 year olds $\bar{X}$	SD
Turn taking	2.4	1.4	3.0	1.3
Teaching behaviour	2.4	.7	2.9	.9
Verbal behaviour	2.2	.8	2.9	.9
Social orientation	2.3	1.0	3.0	1.2

The four scales thus appeared to possess sound inter-rater reliability and to be tapping the children's performance in a meaningful way. The issue of excess competitiveness relative to the teaching function appeared not to be pertinent in determining the construct validity of the activity itself. At the same time it was evident that the four scales were tapping discriminably different aspects of the children's performance, although the significance of these could not be ascertained from the present design.

The developmental trend was not as clear as might have been predicted, although all differences were in the predicted direction. However this lack of clarity may have reflected in part the lack of clear differentiation in sampling (40% of 5 year olds were aged 5 years 11 months). Nevertheless the results were interpreted as suggesting that a more substantial developmental trend would be obtained with larger and non-overlapping samples covering the same age range.

6.7 CONCLUSION

The results indicated that the four techniques for measuring different aspects of role taking and referential communication were potentially suitable for inclusion in a major cross-sectional examination of social cognition skills and their relation to manifest social behaviour. Their inter-rater reliability and measurable aspects of concurrent validity had been demonstrated to be reasonably high within the constraints of field conditions. The modifications appeared well suited to the abilities and interests of the local children. On this basis it seemed reasonable to proceed with the larger cross-sectional study.

CHAPTER SEVEN

EXPERIMENTS ON SOCIAL COMPETENCE

7.1 PREAMBLE

The problems associated with the definition of social competence have already been considered in Chapter four. The present chapter reports efforts to prepare a suitable rating scale, for use by teachers, that would tap a meaningful array of specific social behaviours which might be considered pertinent to such a definition.

The difficulty of defining what the appropriate components of a social competency scale for school age children should be suggested that an exploratory data-based approach needed to be employed. A published set of items from the California Preschool Social Competency Scale (Levine et al., 1969) was taken as a starting point due to the apparent face validity of certain items and the diversity of behaviours that they tapped. Its initial application to a sample of local 5 year olds is reported as Experiment V.

Analysis of the teachers' ratings from this study suggested a tentative selection of items that might be appropriate in the present context. These items were themselves modified and then reapplied in a much larger normative study involving some 324 children. This is reported as Experiment VI. The subsequent discussion relates the findings to the literature on social competence and related phenomena in order to determine the appropriateness of the resultant scale for present research purposes.

7.2 EXPERIMENT V : EVALUATION OF CALIFORNIA PRE-SCHOOL SOCIAL COMPETENCY SCALE ITEMS

7.2.1 Introduction

Exploration of the practicality and content/construct validity of items from the CPSCS was combined with evaluation of a rating scale approach to the straw and bottletop game of referential communication. The use of the present teachers' ratings as an indicator of concurrent validity of the latter task has already been reported (Experiment IV). The present experiment in turn has employed the referential communication task as a means of evaluating the construct validity of the CPSCS items.

The CPSCS was designed originally for 2½ to 5½ year olds in a pre-school setting, and provided norms based upon 800 children representing all geographic areas and socioeconomic levels in the U.S. (Levine et al., 1969, p.9). Its initial advantages were seen to be its claim to find observable and uni-dimensional parameters with a high level of inter-rater reliability (loc cit, p. 7). It was also claimed that the total raw score for the 30 items correlated significantly with age and with SES.

But the original scale had serious shortcomings in content validity since its norms were based on a global score. It thus confounded content concerned with different kinds of relationships (peers versus teachers), personal independence, situational adjustment and academic readiness. The present focus was rather on the selection of certain of the items that appeared to be applicable to school-age children. Twenty of the original 30 items were chosen,

covering the most obvious aspects of peer relationships and a range of broader academic and personal adjustment behaviours. The latter were included to permit a statistical definition by factor analysis of the differential, content and concurrent validity of items that might finally be used to define social competence with peers.

7.2.2 Method

The 20 selected items from the CPSCS were employed by four experienced junior primary teachers who agreed to observe selected children from their single level 'Preparatory' classes. All classes were from one school, which was again located in the demographic area already described in Chapter six, section 6.2. The items used are provided in Appendix 7.A.

Each teacher observed five boys and five girls drawn randomly from class lists ($\overline{X}$ = 5 years 6 months, SD = 2 months); illness of three boys reduced the final sample to 37 children. The children were observed over ten days at the end of first term (Summer, 1975), utilizing available impressions in both classroom and playground. In this period each child was also independently assessed using the referential communication task, as already described (Experiment IVA).

7.2.3 Results

The 20 ratings for the 37 children were factor analysed by the Principle Components method (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975), which revealed six factors with an eigenvalue greater than one (Kaiser, 1960). Factor loadings are shown in Table 7.1. A general rationale for the use of these and other statistical procedures is provided in Appendix 7.B.

TABLE 7.1. Principle Components Factor Analysis of the 20 CPSCS items as rated for the total sample (N = 37)

ITEM	FACTOR LOADINGS I	II	III	IV	V	VI	COMMU-NALITY
Identification of self	.17	.00	.59	.13	.10	.53	.69
Using names of others	.05	-.10	.10	.86	-.06	.06	.78
Continuing in activities	.46	-.01	.69	.14	.12	-.07	.74
Performing tasks	.79	-.01	.32	.20	.05	.04	.79
Following verbal instructions	.66	.04	.12	-.45	.36	.03	.80
Following new instructions	.82	-.01	.10	-.18	.17	.15	.78
Remembering instructions	.71	.17	.09	-.09	.26	.35	.75
Communicating wants	.35	.09	.16	.12	.14	.79	.82
Sharing	-.00	.22	.62	.16	.18	.28	.58
Helping others	.17	.64	.58	-.19	.09	.06	.83
Playing with others	-.03	.75	-.09	.33	.21	.20	.77
Initiating involvement	-.11	.90	.05	-.09	.03	-.04	.84
Initiating group activity	.39	.73	.01	-.23	.09	.20	.80
Giving direction to play	.12	.65	.43	-.13	-.07	-.12	.67
Taking turns	.60	-.11	-.04	.59	.00	-.05	.73
Dependence on adults	.34	-.08	.24	-.21	.75	.16	.82
Accepting limits	.64	-.10	.18	.10	.48	-.28	.78
Effecting transitions	.69	.10	.04	.08	.04	.19	.54
Changes in routine	.11	.41	-.04	.03	.76	.03	.78
Seeking help	.67	.31	.09	.29	-.04	.15	.67
EIGENVALUE	6.56	3.06	1.89	1.45	1.05	1.03	
PERCENT OF VARIANCE	32.8	15.3	9.5	7.3	5.3	5.2	

The first factor was apparently one of task orientation within the classroom, whilst the second identified five items concerned with interpersonal peer relations (Helping others, Playing with others, Initiating involvement, Initiating group activity and Giving direction to play). The third factor appeared to reflect a cluster that might be termed personal and social maturity (Identification of self, Continuing in activities, Sharing, Helping others), whilst the fourth brought together two further social items (Using names of others, Taking turns). The remaining two minor factors tapped personal independence (Dependence on adults, Changes in routine) and something like assertiveness (Communicating wants) respectively.

These findings suggested that the structure of the 20 items could be examined meaningfully inasmuch as the factors were surprisingly coherent given the small sample. Factor I items were omitted as being task-oriented, while eight interpersonally-oriented items from factors II, III and IV were selected on the basis of their evident concurrent validity. All of the eight items so chosen had an effective discriminatory range with the 5 year olds, as shown in Table 7.2.

The structure of these eight items was then examined in greater detail. The correlation matrix based on Spearman rank order correlation is shown in Table 7.3, whilst a parametric classical factor analysis is shown in Table 7.4. Both approaches implied that the eight items formed two fairly distinct clusters. The first, with six of the items, accounted for 74% of total

variance. The second cluster of two items appeared rather enigmatic. There were evident subtleties at work, but interpretation remained highly speculative with so small a sample.

TABLE 7.2. Distribution of ratings of the interpersonally oriented items.

Item	Ratings (percentages are shown in brackets)			
	1	2	3	4
Using names of others	7 (19)	12 (32)	2 (5)	16 (43)
Sharing	2 (5)	6 (16)	11 (30)	18 (49)
Helping others	4 (11)	18 (49)	14 (38)	1 (3)
Playing with others	2 (5)	21 (57)	9 (24)	5 (14)
Initiating involvement	16 (43)	9 (24)	11 (30)	1 (3)
Initiating group activities	10 (27)	11 (30)	16 (43)	
Giving direction to play	13 (35)	14 (38)	7 (19)	3 (8)
Taking turns	6 (16)	7 (19)	4 (11)	20 (54)

TABLE 7.3. Correlation matrix (r_s) of the set of eight interpersonally oriented items drawn from the CPSCS. Significant probability values are shown beneath.

	Sharing	Helping others	Playing with others	Initiating involvement	Initiating group activity	Giving direction to play	Taking turns
Using names of others	-.01	-.11	.13	-.17	-.20	-.09	-.43 .004
Sharing		.55 .001	.31 .033	.20	.24	.28 .049	.09
Helping others			.40 .007	.64 .001	.55 .001	.65 .001	-.09
Playing with others				.60 .001	.58 .001	.44 .003	.08
Initiating involvement					.60 .001	.67 .001	-.18
Initiating group activity						.51 .001	-.02
Giving direction to play							-.01

TABLE 7.4. Classical factor analysis with varimax rotation of the eight interpersonally oriented items from the CPSCS (N = 37).

Item	Factor loadings I	Factor loadings II	Communality
Using names of others	-.06	.80	.64
Sharing	.42	.12	.19
Helping others	.80	-.14	.63
Playing with others	.63	.17	.43
Initiating involvement	.79	-.20	.66
Initiating group activity	.71	-.16	.53
Giving direction to play	.69	-.09	.48
Taking turns	-.01	.56	.31
Eigenvalue	2.85	1.02	
Percent of variance	73.7	26.3	

The pattern of intercorrelation of these eight items with the independent rating of referential communication is shown in Table 7.5. This also accentuated the individuality of three items that had loaded weakly on the major factor. Apparently they were tapping something relatively independent of the teachers' other ratings and the experimenter's rating of teaching behaviour. It was premature however to speculate on what the two factors signified.

TABLE 7.5. Correlations between teachers' ratings of eight interpersonally oriented items and the independent rating of referential communication.

Item	r_s	P
Using names of others	.20	NS
Sharing	.22	NS
Helping others	.63	.001
Playing with others	.35	.017
Initiating involvement	.36	.014
Initiating group activity	.39	.009
Giving direction to play	.54	.001
Taking turns	.14	NS

7.2.4 Discussion

The findings served to offer relatively unambiguous guidelines for an initial selection of items. These had evident concurrent validity in identifying behaviours that might be termed contributory to a definition of social competence. Loadings of five items on a major factor implied that this might almost represent a unitary dimension; but the distinctiveness of the other three accentuated that the issue would prove far more subtle. These speculations will be seen to achieve a more meaningful perspective in Experiment VI.

It was also apparent from Table 7.2 that the eight items had an effective discriminatory capacity for 5 year olds. Beyond that their median scores gave some indication of their capacity to be extended to the study of older children. This has been pursued in Experiment VI.

The apparent concurrent validity between the major factor and the independent ratings of referential communication also confirmed that these links were quite substantial in nature. To that extent the data corroborated the intended direction of the major cross-sectional design in Experiment VII.

Finally one might note that the data reinforced the impression, discussed above, that the original scale was simplistic in its reliance on a normative total score. This kind of gross mixing of diverse behavioural and relational elements had been given no rationale by the test constructors, and ran counter to the literature reviewed in Chapter four on efforts to define social competence. The present analysis clearly demonstrated the poor construct

validity of such an instrument, and questioned its utility, in its present format, for further research on individual differences. But the adequacy of the CPSCS was a separate issue from the derivative adoption of certain of its constituent items.

7.3. EXPERIMENT VI : RATINGS OF SOCIAL COMPETENCE

7.3.1 Introduction

The eight items extracted in Experiment V were assembled as a new scale for further appraisal. A larger group of participating teachers was enlisted to observe a much larger sample of children that ranged in age from 5 to 7 years. The main objectives were firstly to clarify the concurrent and construct validity of the items themselves. Chapter four has already highlighted the ambiguity and uncertainty that prevailed with respect to the developmental parameters and interrelationships of many of these behaviours. Experiment V suggested one major factor and one or possibly more minor factors within the eight items. This needed to be evaluated in a larger-scale study.

A second objective was to establish how the items discriminated children over the age range of 5 to 7 years. Part of this involved the need to improve the wording and potential discriminability of the items as they applied to Australian children. It was desirable that each item tap an identifiable and relatively coherent dimension, one that was meaningful to the classroom teacher. Teachers had already pointed out certain problems in the precise assignment of children to categories. One modification following from this was

an increase in item discriminability by extending the scales from four to five categories.

A third and minor objective was to discover if there were any differences between children located in conventional classrooms versus those in more informal 'open' classrooms. At the time (October, 1975) this represented quite a sharp dichotomy in teaching philosophy and practice. There was an implicit expectation that the open classrooms facilitated peer interaction far more than conventional classrooms, although there was, at the time, no empirical evidence to support such a stance. In any event this issue seemed to warrant consideration in the present design, as a guide for further work.

As in Experiment V it was not feasible to assess the inter-rater reliability of the teachers' ratings. The unique role and contextual knowledge of the regular teacher made it very difficult to match their observations with independent observations in or out of the classroom. One could only take encouragement from the evidence on the concurrent validity of teachers' ratings and independent observers' quantitative measures (Roper & Hinde, 1978, 1979), as discussed in Chapter four. But the latter studies were based on pre-schoolers; nothing comparable existed for school-age children.

7.3.2 Method

The eight items were all extended to five categories at the outset by changes at the lower end of the scale of behavioural competency. The new set was then printed on a single sheet, with provision for scoring by the teachers. These items and their original CPSCS counterparts are shown in Appendix 7.C.

The scale was administered by 66 experienced junior primary school teachers drawn from 11 schools within the demographic area already described in Chapter 6, section 6.2. Each was first approached individually, and agreed to participate on a voluntary basis. They completed the observational task without any serious problems. A further four teachers started the observations but were forced to withdraw due to workload; their incomplete ratings were discarded.

Each teacher observed four children from a single grade level (Preparatory, Grade I or Grade II). A number of the classes were vertically grouped; however concentration on a single level was preferred to minimize any developmental interaction effects in teachers' implicit normative criteria. A sample of children was obtained by selecting the third and fifth boy and girl from alphabetic class lists. This was not truly random, but represented a compromise with the desirability of providing teachers with a convenient and practical rule of thumb.

The observations were further classified in terms of whether they were made in a conventional or more informal 'open' classroom. Availability dictated that this division was somewhat uneven. The resultant breakdown of the sample in shown in Table 7.6. It should be noted that grade-level groupings did not correspond precisely with chronological age-levels; in particular 13 Grade II children had not yet turned 7. The distribution of the sample by chronological age level is shown in Table 7.7.

TABLE 7.6. Characteristics of the sample: frequencies according to grade level and classroom organization, with equal numbers of boys and girls in each cell.

Grade	N	CLASSROOM ORGANIZATION Conventional	Informal/Open
Preparatory	80	52	28
Grade I	104	52	52
Grade II	80	44	36
TOTALS	264	148	116

TABLE 7.7. Distribution of the sample by chronological age.

Age Level	N	$\bar{X}$	SD	%
5	82	5 years 6 months	3 months	31
6	114	6 years 6 months	3 months	43
7	68	7 years 3 months	3 months	26

The teachers initially observed their four children for two school weeks in the middle of the Spring term, 1975. The observation was conducted non-obtrusively within the context of the normal school programme, and was based on all manifest behaviour in classroom and playground which was accessible to each teacher during that period. In practice most teachers found they needed a third week to complete the ratings to their own satisfaction, and a few even carried their observations over into a fourth. This was not considered detrimental to the inter-rater reliability or construct validity of the ratings themselves. Each teacher was contacted at least weekly during this period to discuss and resolve any ongoing problems in the interpretation and application of

particular ratings. All such problems turned out to be idiosyncratic and minor in nature.

7.3.3 Results

(i) Classroom organization effects

The dichotomy between 'conventional' and 'open space' classroom arrangements was found to be irrelevant. There were no significant mean differences in ratings at all within the two arrangements, which confirmed the role of the individual teachers' style as the more pertinent factor. The distinction was thus ignored in further analysis.

(ii) Structural properties of the scale

Correlation between items confirmed the findings of Experiment V inasmuch as they revealed a distinct cluster of items 1-3 and 6-8, as can be seen in Table 7.8. The ratings of Turn taking and Sharing also appeared to form an independent cluster. This interpretation was then confirmed by loadings on two main factors in a classical factor analysis, as shown in Table 7.9 (Nie et al., 1975). The rationale for this approach to analysis has been given in Appendix 7.B. The structure was further found to be consistent over the three age levels, as shown in a separate factor analysis for each in Table 7.10.

TABLE 7.8. Correlation matrix (r_s) of the full scale for the total sample (N = 264), with significant probability values given beneath.

	2 Range of acquaint-ances	3 Helping	4 Turn taking	5 Sharing	6 Giving direction	7 Initiating involvement	8 Interacting with others
1.Using other children's names	.38 .001	.44 .001	.04 -	.28 .001	.52 .001	.41 .001	.48 .001
2.Range of acquaintances		.48 .001	-.08 -	.16 .006	.48 .001	.56 .001	.58 .001
3.Helping another child			.03 -	.29 .001	.56 .001	.48 .001	.47 .001
4.Turn taking				.54 .001	-.26 .001	-.27 .001	-.20 .001
5.Sharing					.05 -	.03 -	.08 -
6.Giving direction to activity						.58 .001	.65 .001
7.Initiating involvement							.64 .001

TABLE 7.9. Classical factor analysis with varimax rotation on the full scale for the total sample (N = 264).

	Factor Loadings I	II	Communality
1. Using other children's names	.61	.20	.41
2. Range of acquaintances	.68	.04	.47
3. Helping another child	.67	.20	.49
4. Turn taking	-.19	.77	.62
5. Sharing	.19	.76	.62
6. Giving direction to activity	.80	-.12	.65
7. Initiating involvement	.76	-.16	.60
8. Interacting with others	.80	-.09	.65
Eigenvalue	3.21	1.30	
Percent of variance	71.2	28.8	

TABLE 7.10. Classical factor analysis with varimax rotation on the full scale for each of the age level samples.
(i) 5 year olds (N = 82)

	Factor Loadings I	Factor Loadings II	Communality
1. Using other children's names	.68	.29	.60
2. Range of acquaintances	.72	-.03	.54
3. Helping another child	.62	.19	.50
4. Turn taking	-.11	.68	.43
5. Sharing	.25	.89	.53
6. Giving direction to activity	.84	-.04	.67
7. Initiating involvement	.76	-.07	.54
8. Interacting with others	.81	.05	.65
Eigenvalue	3.45	1.31	
Percent of Variance	72.5	27.5	

(ii) 6 year olds (N =114)

	Factor Loadings I	Factor Loadings II	Communality
1. Using other children's names	.52	.10	.28
2. Range of acquaintances	.67	.03	.45
3. Helping another child	.72	.15	.56
4. Turn taking	-.22	.83	.75
5. Sharing	.12	.68	.48
6. Giving direction to activity	.78	-.21	.65
7. Initiating involvement	.76	-.23	.64
8. Interacting with others	.84	-.17	.73
Eigenvalue	3.28	1.24	
Percent of Variance	72.6	27.4	

(iii) 7 year olds (N = 68)

	Factor Loadings I	Factor Loadings II	Communality
1. Using other children's names	.59	.23	.39
2. Range of acquaintances	.62	.13	.40
3. Helping another child	.67	.31	.55
4. Turn taking	-.22	.86	.79
5. Sharing	.15	.67	.47
6. Giving direction to activity	.70	-.16	.49
7. Initiating involvement	.67	-.16	.49
8. Interacting with others	.61	-.22	.42
Eigenvalue	2.51	1.46	
Percent of Variance	63.3	36.7	

(iii) Age and sex effects

A developmental trend was variously apparent for the six items in the major cluster, as can be seen in Table 7.11. This was found to be significant in terms of a one-way analysis of variance, as shown in Table 7.12. Differences between the 5 and 6 year olds in particular were all non-significant, while significant differences were marked between the 6 and 7 year olds in Using others' names (U = 3084.5, one tailed p = .004), Range of acquaintances (U = 3100.5, one tailed p= .009), Giving direction to activity (U = 3233, p = .026), Initiating involvement (U = 3224.5, p = .022) and Interacting with others (U = 3116, p = .009). Turn taking and Sharing maintained their independent stance by indicating no developmental trends whatsoever.

TABLE 7.11. Pattern of means and standard deviations for each of the ratings over the three age level groupings.

Item		AGE GROUPINGS 5 year olds (N=82)	6 year olds (N=114)	7 year olds (N=68)
Using others' names	$\bar{X}$	4.06	4.21	4.57
	SD	1.12	1.02	.80
Range of acquaintances	$\bar{X}$	3.60	3.67	4.07
	SD	1.26	1.16	1.01
Helping	$\bar{X}$	2.90	3.13	3.41
	SD	1.12	1.25	1.16
Turn taking	$\bar{X}$	3.89	3.79	3.91
	SD	1.19	1.19	1.03
Sharing	$\bar{X}$	3.67	3.85	3.97
	SD	.88	.83	.81
Giving direction to activity	$\bar{X}$	2.95	3.22	3.59
	SD	1.26	1.23	1.07
Initiating involvement	$\bar{X}$	3.31	3.67	3.68
	SD	.98	.98	.80
Interacting with others	$\bar{X}$	3.37	3.42	3.81
	SD	1.15	1.06	.82

TABLE 7.12. One-way analysis of variance (Kruskal-Wallis) of age effects over the samples of 5, 6 and 7 year olds.

Item	X^2	p
Using others' names	10.65	.005
Range of acquaintances	6.67	.036
Helping	6.51	.039
Turn taking	.43	NS
Sharing	4.44	NS
Giving direction to activity	9.71	.008
Initiating involvement	6.33	.042
Interacting with others	6.92	.031

Yet while the 7 year olds were rated significantly higher than 6 year olds on these items it was apparent that a different kind of developmental parameter was also operating. Correlations between Chronological Age (CA) and the ratings within specific age level and sex sub-groupings indicated that the predicted positive covariance gradually changed to a negative covariance for both boys and girls as a function of age, as can be seen in Table 7.13. Few of these coefficients were significant, but the general pattern for several of the items seemed sufficiently consistent to warrant further consideration. This slight apparent progression towards an inverse relationship with age suggested that there might be some kind of developmental regression in the operation of certain aspects of social competence. This theme will be further considered in Chapter eight.

TABLE 7.13. Correlations (r_S) between ratings and CA within age and sex subgroupings which have been adjusted to provide more homogeneous groupings. Significant probability values are given beneath.

	5.0 - 5.11 years		6.0 - 6.4 years		6.8 - 6.11 years		7.1 - 7.6 years	
	N=38 Girls	N=34 Boys	N=19 Girls	N=19 Boys	N=19 Girls	N=22 Boys	N=22 Girls	N=28 Boys
Using others' names	.13 -	-.07 -	.05 -	.22	-.09 -	-.07	-.24 -	-.27
Range of acquaintances	.00 -	.18	.12 -	.33	-.33 -	.33	-.22 -	-.23
Helping	.11 -	-.04 -	.23 -	.22 -	-.06 -	.36 .050	-.35 -	-.29 -
Turn taking	.37 .011	-.25 -	-.12 -	-.24 -	-.08 -	.17	-.24 -	-.14 -
Sharing	.12 -	-.04	-.17 -	.20	.08 -	.02	-.11 -	-.11
Giving direction to activity	.09 -	.18	.30 -	.11	-.10 -	-.06	-.32 -	-.09
Initiating involvement	-.04 -	.17	-.09 -	.38 -	-.16 -	.36 .051	.13 -	-.10 -
Interacting with others	.16 -	.27	.18 -	.41 .040	-.12 -	.42 .027	-.09 -	.07 -

A further pattern of sex differences over the three age groups, which appeared to interact with the aforementioned trend, was apparent. As shown in Table 7.14 girls were rated significantly higher than boys at age 5 and 6 in all of the major cluster items except Using others' names. At age 7 this effect disappeared; in fact boys were rated significantly higher in Initiating involvement. Conversely at age 7 girls emerged as significantly higher at Turn taking where no difference existed earlier.

TABLE 7.14 Sex differences within each of the main age sub-groupings.
(Significant one tailed p values for the Mann-Whitney U test are provided for Girls > Boys unless otherwise indicated)

	5 year olds (N=82)		6 year olds (N=114)		7 year olds (N=88)	
	z transformation	p	z transformation	p	z transformation	p
Using others' names	-.71	-	-.79	-	.22	-
Range of acquaintances	-2.52	.005	-1.84	.033	.24	-
Helping	-2.66	.004	-4.11	.000	-1.32	-
Turn taking	.24	-	1.37	-	-2.16	.015
Sharing	.03	-	- .48	-	- .54	-
Giving direction to activity	-2.59	.004	-1.61	-	.33	-
Initiating Involvement	-2.57	.005	-2.65	.004	2.45	.007*
Interacting with others	-2.48	.006	-2.64	.004	.14	-

* Boys > Girls

(iv) Scale characteristics

The differential distribution of ratings within each age level confirmed that all items were operating effectively in their extended developmental application (Appendix 7.D). The only item to reach its developmental plateau was Using others' names, in relation to which 74% of 7 year olds were rated at the highest level. The other items still appeared to retain some potential discriminatory scope, and might even be used with older children.

A certain redundancy was found within the major item cluster in terms of the close relation between Giving direction to activity Initiating involvement, and Interacting with others. These appeared to be tapping a single dimension, and pruning seemed warranted. Giving direction to activity was selected as a single representative item for further work because of its clearer developmental pattern. It also revealed greater internal validity with respect to intercorrelations amongst the three items themselves, and correlated highly with the cumulative score of the three items (r_s = .89, p = .001).

Further pruning was also warranted in terms of the extension of two of the items to five categories. The extra category of the Sharing scale was irrelevant, whilst teachers reported difficulty in distinguishing the two lowest categories of Turn taking. The bottom category thus seemed inappropriate in each instance and the scales were amended accordingly.

Informal feedback was also received from teachers pertaining to the precise wording of other categories within the scale. This variously involved simplification of sentence construction, more precise definition of certain behaviours, and clearer characterisation of the overall dimension. It was considered appropriate to make these various alterations to the scale without further empirical analysis, although a positive informal appraisal was forthcoming from several teachers who were consulted in this regard. The revised scale of six items is shown in Appendix 7.E.

7.3.4 Discussion

The data confirmed the existence of two relatively independent clusters of social competence items which appeared to represent two distinct modes of functioning. The first appeared to involve a broad repertoire of skills concerned with children's general tendency to participate confidently, to interact readily and to display pro-social tendencies in the normal classroom setting. These all seemed to be fairly closely related within the context of a rating-based methodology. The cluster seemed to correspond fairly closely to the participation/withdrawal dimension that has long been recognized in the observational literature (Halverson & Waldrop, 1976; Kohn, 1977b), as discussed in Chapter four.

The second cluster of Turn taking and Sharing was not so easy to relate to the literature. It did correspond in one sense with a factor of cooperation - anger/defiance that has similarly been identified (Kohn, 1977b). Yet it did not seem to follow that lower levels of Sharing or Turn taking would correspond as readily with the more clinically oriented indicators of maladjusted hostility. For example it seemed equally appropriate to associate them with solely developmental aspects of social maturity. Something further appeared to be implicated in producing such a distinct cluster with such low loadings on the aforementioned participation factor.

One insight came from the fact that Experiment IV showed that the two ratings were quite unrelated to the independent rating of referential teaching behaviour, while significant correlations

were apparent for the items from the major cluster. One speculative interpretation of this would be to draw a contrast between teacher-oriented and child-oriented behaviours. The former would involve participation in adult-initiated activities, including the referential task. The latter would be seen in Turn taking and Sharing, representing normatively defined skills that were vital to peer interaction (Garvey & Hogan, 1973).

The observed developmental trends also served to corroborate such an interpretation in the sense that items in the major cluster showed a clear developmental trend from age 6 to 7, corresponding with normative expectations of increased general competence, while Turn taking and Sharing operated in a relatively static way as pre-requisite interpersonal skills for children of all ages sampled.

This interpretation might also be integrated with the above-mentioned speculative finding of an increasingly inverse relation between ratings and CA in successive age level groupings. This change occurred at the end of the school-calendar year and appeared to correspond to certain informal observations made by junior primary teachers and principals alike. They commented that the Grade II children, most particularly the boys, tended to become difficult to manage during this period. The most common and plausible explanation was that the children were anticipating their transfer to the primary school, and were beginning to adhere to a new set of normative rules about peer conduct. Such rules were independent of the adult-oriented notions of 'good' behaviour

that had been prevalent till that time. In the words of their teachers they were becoming "too big for their boots". This was indirectly corroborated insofar as the inverse relationship just noted was not apparent for Using others' names, presumably because its linguistic skill element made it resistant to these more subtle social influences.

The interactive pattern of age and sex differences also seemed to be corroborative of this theme. The initial superiority of the younger girls in most dimensions was certainly consistent with the current literature on the difficulties faced by children starting school (Hughes, Pinkerton & Plewis, 1979). This general female superiority was superseded by the emergence of sex role stereotypes, with girls higher in Turn taking and boys higher in Initiating involvement. Thus boys in particular tended to become more assertive, in a sense, as perceived by their teachers. One might well be accused of extrapolating beyond the data; but certainly a broad kind of pattern did seem to be emerging which was consistent with the above general interpretation. The validity of this will be further examined in Experiment VII.

7.4. CONCLUSION

The present approach to the definition of a scale of social competence does appear to have generated a set of items that encompasses most of the potential components reviewed in Chapter four, while the cluster of items which might be termed a 'participation' factor appears consistent with what has been found

in comparable studies. Moreover it has been demonstrated that the ratings can be used to measure meaningful developmental trends and sex differences within the age range under investigation. To that extent the present scale appears well suited to the further needs of the present research.

The significance of the operation of Turn taking and Sharing might reasonably give rise to speculation about other important dimensions of inter-personal behaviour, most particularly those pertaining to the special character of the way young children interact with each other. This implied differentiation of social competence will be seen to have important implications within Experiments VII and VIII.

CHAPTER EIGHT

EXPERIMENT VII . A CROSS-SECTIONAL APPROACH

8.1 PREAMBLE

The next step was to apply concurrently the four measures of social cognition evaluated in Experiments I-IV and the rating scale of social competence developed in Experiments V-VI. The basic question, as discussed in Chapter five, was how the social cognition indices covaried with the behavioural ratings. This relationship was expected to be a complex one, requiring some kind of interactive model which ideally would need to be investigated using a multi-faceted longitudinal design. Such an approach would permit the influence of social experience to be evaluated, as well as the structural influence of latent trait cognitive skills. But studies of this kind have been rare and restricted in scope. Certainly it was beyond the resources of the present project.

The present design examined this covariance within the intrinsic limitations of a one-way model concerned with how social cognition skills, as presently defined, helped explain the contemporaneous covariance of the various indices of manifest social competence. It was not possible to tackle the more complex issues of how children's social cognition skills were themselves a reflection of their interactive social experience and learning, particularly within the context of peers.

Another focus of attention was the nature of the social cognition skills and what they really represented in broader social as distinct from cognitive maturational terms. In this

context the focus was upon the behavioural data and its role as a kind of ecological reference point in the examination of the concurrent, discriminant and construct validity of the social cognition tasks. It will be recalled from Chapter three that the construct and discriminant validity of many of the recognized empirical techniques in this area had never been closely scrutinized because of the descriptive emphasis of normative-developmental research. The other important aspect of this experiment then was its cross-validation approach to the present social cognition instruments.

The concern with validity was itself a necessary preliminary stage for further work in this area. In particular it seemed desirable to clarify the operating characteristics of such instruments and not just accept them on their face validity. One knew intuitively that the phenomena at issue were far more complex than implied in the design of earlier developmental studies.

A major element in this validation was of course the individual variability of the children themselves, both in terms of their normal social adjustment patterns and more particularly in the ways in which they responded to experimental efforts to elicit certain behaviours under partially controlled field conditions. A first step towards coming to terms with this variability in the present design was a simple classification of the children as well or poorly adjusted. This was based on the nominations of the children's regular teachers. Initial attempts had been made to ask teachers to differentiate their children still further. However preliminary interviews with the teachers about their descriptions of the children had revealed that their

judgements in this area were so idiosyncratic and personalized that a more detailed classification would have lacked reliability.

Some corroboration of this point has come from Green et al. (1980). They asked teachers of third graders to nominate children who they considered to have conduct problems, withdrawal problems or to be normal. Their analysis indicated that the teachers could not make a valid differentiation of this kind. One would intuitively expect even less effective differentiation of younger children, particularly those in their first year at school. It would appear that a meaningful fine differentiation would at least require structured observation or its equivalent. For present purposes the general dichotomy of well versus poorly adjusted was accepted as a suitable starting point.

Attention was focussed on two non-overlapping age groups between 5 and 7 years, within the context of the Junior Primary School. The children were selected within a 2 x 2 x 2 design of age level x sex x adjustment. They were observed and rated by their class teachers and also assessed independently by the experimenter on the set of social cognition tasks.

8.2 METHOD

8.2.1 The sample

A group of 24 experienced junior primary teachers volunteered to participate in the study. These were evenly divided between teaching single-grades of Preparatory or Grade II classes. Each teacher prepared lists of children she considered to be well or poorly adjusted with respect to peers in her present class setting.

These lists were discussed with the experimenter, who independently nominated the four children for each teacher to observe. Selection was based on the following criteria:

a) Age. The Preparatory level children were all aged 5 years, whilst the Grade II children were selected to be within the range of 6½ to 7½ years.

b) Sex. Two boys and two girls were selected within one of these age ranges.

c) Adjustment. The children were selected so that there was a "well" and a "poorly" adjusted child of each gender represented within each class.

In practice it was necessary to reduce numbers or otherwise modify this pattern, as some teachers did not have children representing all subcategories of the above schema. Minor readjustments were thus necessary in six classes out of the 24. Furthermore two teachers withdrew for personal reasons while data collection was in progress, and data remained incomplete for a further six children due to absenteeism or transfer. Fortuitiously the net effect had minimal impact on the overall balance of the design.

The available sample consisted of 44 5-year olds ($\bar{X}$ = 5 years 7 months, SD = 3 months), ranging from 5 years 2 months to 6 years 0 months. They were evenly distributed by sex and adjustment classification. There were correspondingly 38 7-year olds ($\bar{X}$ = 7 years 1 month, SD = 3 months), ranging from 6 years 7 months to 7 years 7 months. These were divided evenly by

sex and adjustment except for the loss of two poorly adjusted boys.

The general socio-economic demography of the suburbs in which the four schools were located has already been described in Chapter 6, section 6.2. Available school records on the 82 children further suggested that 19 (23%) of the mothers worked full-time, although this could reasonably be considered an underestimate of the total employment situation. About 60 (73%) of the children were reported to have attended kindergarten at some stage. Half of the children came from two sibling families, 15 (18%) from families with four or more children, while only five (6%) were only children.

Available records on paternal occupation were categorized using the Status Ranking List of Occupations in Australia (Congalton, 1969). The validity of this as an index of contemporary social and economic realities has often been challenged, but no other comparable framework was available. Its effectiveness with the present sample was further reduced by the high proportion of parents employed in a major car assembly plant (GMH, Elizabeth) or in defense establishments (Defence Research Centre and Edinburgh RAAF base, Salisbury). This meant that many of the given descriptors of work and status relativity were vague and not reliably classified.

The resultant distribution indicated minimal usage of the highest and lowest categories of SES on the 7 point scale, so these were combined with adjacent categories. The relatively

lower-middle class homogeneity of the sample can be seen in Table 8.1.

TABLE 8.1: Distribution of the sample by SES using a compressed version of Congalton's Australian norms (1969).

SES ranks		5 Year olds N	5 Year olds %	7 Year olds N	7 Year olds %	TOTAL N	TOTAL %
Low	1	8	18	14	37	22	27
	2	15	34	7	18	22	27
	3	12	27	14	37	26	32
	4	7	16	2	5	9	11
High	5	2	5	1	3	3	4

8.2.2 The social cognition variables

The social cognition tasks were administered to each child during two to three separate visits. The testing was variously done by the experimenter and two final-year undergraduate students. The latter were thoroughly versed in the procedures, and skilled in working with young children. The four tasks corresponded to the instruments as evaluated and modified in Experiments I-IV. In practice the administration of the interview for Selman's task was shared between the experimenter and one student-associate, whilst administration of Flavell's task, Borke's task and the referential task was shared between the experimenter and the other student-associate.

No systematic attempt was made to assess inter-rater reliability other than by informal spot-comparisons. These suggested that reliability levels were consistent with those already obtained in Experiments I-IV.

Within these testing sessions a verbal intelligence test was also administered to each child. The Peabody Picture Vocabulary Test (Dunn, 1965) was employed to give an independent index of receptive language comprehension (semantics). Children responded by pointing to the appropriate pictorial alternative, so avoiding reliance on expressive language skills. The instrument continues to be widely used in classroom assessment, educational guidance and research in the USA (Buros, 1972). The same holds true for its English derivative (Brimer & Dunn, 1962).

The basic design of the Peabody Picture Vocabulary Test (PPVT) has been criticized (Mackler & Holman, 1976, p. 359), while its cultural bias has long been acknowledged (Lyman, in Buros, 1965). Most recently Molloy (1981, p. 108) showed that it "is not unbiased with respect to SES sub-groups", with the effect stronger in Grade I than in Grade IV children. This only corroborates what teachers and clinicians have long noted for themselves. However the absence of a more suitable substitute test for a school-age population, more particularly an Australian one, left little alternative to the use of the PPVT.

One response to the situation was to modify several items that could be readily identified as culturally biased, and alterations to stimulus words or correct visual alternatives were made in seven items (see Appendix 8.A). The raw score was then employed as a direct index of receptive language skill, which also avoided some of the uncertainties of the original American norms. The PPVT has consequently been referred to as

an experimental index rather than as a standardized IQ score.

The PPVT has fared well in concurrent validity studies with other IQ tests. However it should still be noted that there are typically only weak relationships between controlled performance and spontaneous measures of language anyway (Wells, 1980a). The PPVT index thus needed to be treated with a sense of its inherent limitations.

8.2.3 Teachers' ratings

The participating teachers rated their four children on the scale of social competence as evaluated in Experiment VI and modified to its present six item format (Appendix 8.B). Observations were made over the last four weeks of the second (Winter) term, 1976. This seemed optimal in terms of the stability of class membership, the teachers' familiarity with their children, and the relative absence of extraneous events impinging on the school calendar. Participating teachers were briefed initially on the observational task and item design, and were then contacted weekly to discuss problems that might have arisen.

The teachers also conducted a sociometric survey on their total class groups towards the end of the observation period. All children in each class were asked to nominate their single best friend. These nominations were typically written on paper by the 7 year olds, whilst direct oral questioning was often required with the 5 year olds. The single-preference approach was used because it offered directness and simplicity for the 5

year olds in particular, although subsequent analysis suggested that greater subtlety of measurement would in fact have been both desirable and feasible.

General issues relating to the selection of sociometric techniques and their validity have already been considered in Chapter four. The present approach yielded a fairly simple index of sociometric popularity which then needed to be generalized across diverse groups varying in size, composition and other social dynamics. A rationale for generalising across groups in this way was provided by Lindzey and Byrne (1968, p.467), but no other guidelines were found pertinent.

For present purposes only one-way choices were analysed, so omitting the distinction between mutual and non-mutual choices. This seemed more pertinent to the concept of peer popularity insofar as mutuality involved assumptions about shared friendship and reciprocal expectations that did not seem warranted with the younger children. A consideration of mutuality was in fact subsequently incorporated in the longitudinal approach of Experiment VIII.

In the present experiment raw-choice status scores across class groups were transformed into a three category ordinal scale: 1 - No preferences received; 2 - One preference received; 3 - More than one preference received. Instances where children were in receipt of multiple preferences were not further differentiated because of uncertainty of interpretation across age groups and the uncertain reliability of children's low-order preferences, particularly among the 5 year olds.

The teachers were also interviewed and asked to rate their four children subjectively on two further dimensions. Academic achievement first of all was assessed on a five point ordinal scale (well above to well below average). The capacity of the teacher to make such a global rating has already been considered in Chapter four.

The teachers' Personal perception was also explored by asking them to rate their own subjective reaction to each child, from very positive to very negative. A four point scale with no neutral category was used, so forcing a judgement. In one sense it was beyond the scope of this research to analyse the complex interactive processes intrinsic in the teachers' perceptions (Brophy & Good, 1974; Delamont, 1976). In another sense, however, it was desirable at least to be informed as to their potential role. The inadequacy of this simple self-rating for measuring such dimensions was recognized; but it was considered parsimonious in the circumstances. It was hoped that it would inform on the scope of the issues involved, albeit not their subtleties.

8.3 RESULTS

The data has been considered under three major headings: an analysis of the social cognition tasks, an analysis of the observational and sociometric data, and then the interactions between them. This profile has unfortunately, but necessarily, proved to be quite extensive. For this reason a summary of the major findings has then been added; to remind the reader, where

necessary, of the total pattern of findings. Certain of these findings have then of course been discussed at greater length in the Discussion. This has brought a risk of undue repetition on occasion; but it was regarded as the most appropriate mode of presentation under the circumstances.

8.3.1 Characteristics of the social cognition measures

The four tasks are first described in terms of their operating characteristics, particularly their discrimination of age, sex and adjustment differences. Next their interactions are considered, leading to particular themes concerning the imputed status of Selman's model and the mediating role of verbal ability. The findings are then summarized.

(a) Age, sex and adjustment differences

The total score from the modified Borke materials increased slightly with age ($\bar{X}$ = 3.6 and 4.1 respectively), a difference verging on significance (U = 665, Z = -1.63, one tailed p = .052). Individual items however gave no sign of any developmental patterns pertaining to particular emotional stereotypes.

Flavell's task gave no indication of any developmental trend, as shown in Table 8.2. This contrasted with the findings

TABLE 8.2. Distribution of children as classified within Flavell's conceptual role taking task categories.

	5 year olds		7 year olds	
	N	%	N	%
No role taking apparent	21	48	17	45
Transitional	6	14	8	21
Role taking evident	17	39	13	34

of Experiment II, presumably as a reflection of sampling error in the earlier study. The main difficulty thus raised was the high proportion of children in the present study showing no conceptual role taking skill at all. This meant that the task possessed little discriminant validity with the present age range; any developmental discrimination obviously took place later in middle childhood. The consequences of this will be considered subsequently.

Selman's task, on the other hand, showed a highly significant age difference in the distribution of perspective taking levels, as shown in Table 8.3 ($U = 412.5$, $Z = -4.19$, one tailed $p < .001$). Again there were minor differences in

TABLE 8.3. Distribution of children as classified within Selman's perspective taking levels.

	5 year olds		7 year olds	
	N	%	N	%
Egocentric	11	25	2	5
Literal-behavioural	17	39	5	13
Improved-behavioural	14	32	23	61
Subjective	2	5	6	16
Self-reflective			2	5

the distribution compared with Experiment III. However, broad outcomes in terms of the variability of the perspective taking levels and the slower rate of acquisition by the Adelaide children were still similar.

Further quantitative analyses of the transcripts from Selman's task were also explored as a check on the internal

validity of the structural levels. Children's responses to Why? questions were found to be readily classified into the following types:

Interpretive - those trying to offer an underlying insight.

Literal - those persisting at a concrete or descriptive level of analysis.

Inventive - those attempting to add or change elements of meaning.

Dont't know - those unwilling or unable to tackle the cognitive demands of the task.

The frequencies of these were intercorrelated with Selman's scoring levels. Interpretive answers correlated significantly at age 5 (r_s = .41, p = .003) and even more so at age 7 (r_s = .49, p = .001), which appeared to be corroborative at the internal validity of Selman's levels. Inventive answers correlated inversely at age 5 (r_s = -.51, p = .001) but less so at age 7 (r_s = -.35, p = .013), which again might be regarded as consistent with Selman's expectations. The other indices were found to be irrelevant. Analysis in this way did not meaningfully extend what was already being measured in Selman's levels, so there was no point in pursuing the approach further.

The Referential communication task gave strong indications of differences between 5 and 7 year olds in all four ratings, as shown in Table 8.4. This apparently reflected the effects of the larger sample compared with the weaker developmental differences reported earlier in Experiment IVB (Chapter six).

TABLE 8.4. Characteristics of the Referential communication task ratings and differences between ranks for the two age groupings (Mann Whitney U test).

	5 year olds $\bar{X}$	7 year olds $\bar{X}$	Difference U	Z	two tailed p
Turn taking	2.64	3.21	609	-2.26	.023
Teaching behaviour	2.59	3.13	555	-2.75	.006
Verbal behaviour	2.36	2.95	540	-2.91	.003
Social behaviour	2.30	3.11	456	-3.71	.000

The raw scores of the PPVT confirmed a distinct developmental pattern (U = 274.5, Z = -5.23, two tailed p = .000), although the distribution of scores for each group was similar ($\bar{X}$ = 55, SD = 7 for 5 year olds; $\bar{X}$ = 65, SD = 7 for 7 year olds). There was additionally a sex difference in that the 5 year old boys scored significantly higher than the girls (U = 134.5, Z = -2.52, two tailed p = .011). A similar but non-significant difference was found for 7 year olds (U = 132.5, Z = -1.39, two tailed p = .16). It was evident then that the boys in the present sample were more verbally skilled, despite the more common experience of a contrary finding in this regard. To that extent the sample might be regarded as biased.

Sex differences within the social cognition tasks were found in two specific instances. Among 5 year olds girls displayed more Referential turn-taking (U = 162, Z = 1.96, two tailed p = .050), while among the 7 year olds girls performed much better in Selman's task (U = 109, Z = 2.36, two tailed p = .018).

Within the sex groupings further differences were apparent as a function of the general adjustment classification; whenever there were differences the well adjusted children performed better. At the level of 5 year olds such differences were specific to the boys, with well adjusted boys scoring marginally higher on Selman's task ($U = 33$, $Z = 1.89$, two tailed $p = .057$) and Referential social orientation ($U = 29$, $Z = 2.15$, two tailed $p = .031$). Among 7 year olds, well adjusted girls performed better at Referential turn taking ($U = 27$, $Z = 2.04$, two tailed $p = .040$) and in the PPVT ($U = 10.5$, $Z = 2.99$, two tailed $p = .002$). For the well adjusted boys the only corresponding difference was in Borke's test ($U = 17$, $Z = 2.12$, two tailed $p = .033$). Such effects were specific and without overall consistency; no general conclusions of any consequence seemed warranted.

(b) Interaction of the social cognition measures

There was predictably strong covariance between ratings in the Referential task, which increased as a function of age, as shown in Table 8.5. For correlation with other tasks it then appeared appropriate to use a combined additive index of these four scores in order to simplify the initial comparison.

Correlations between such an index and the other cognitive task measures then proved to be an interactive function of the age level, sex and adjustment of the children. First of all Selman's task had a receptive language component as tapped by the PPVT that was consistently significant for the poorly adjusted in the case of younger boys and girls and older girls, but not the

older boys, as shown in Table 8.6. Corresponding correlations for well adjusted children were all weak and nonsignificant. The relation of the PPVT to the other social cognition tasks was less consistent, but served to indicate the probable role of other intervening factors in determining a child's response. Subsequent analysis suggested that these were primarily social reactance phenomena (Brenner, 1981).

TABLE 8.5. Correlation matrix (r_s) for the ratings of Referential communication. Significant probability values are given beneath.

	Teaching behaviour	Verbal behaviour	Social orientation
for 5 year olds			
Turn taking	.49 .001	.52 .001	.60 .001
Teaching behaviour		.80 .001	.61 .001
Verbal behaviour			.70 .001
for 7 year olds			
Turn taking	.74 .001	.61 .001	.55 .001
Teaching behaviour		.84 .001	.77 .001
Verbal behaviour			.82 .001

TABLE 8.6. Correlations (r_s) between PPVT and the social cognition measures shown within age, sex and adjustment groupings. Significant probability values are shown beneath.

PPVT with		Borke well adj.	Borke poorly adj.	Selman well adj.	Selman poorly adj.	Ref. commun. well adj.	Ref. commun. poorly adj.	Flavell well adj.	Flavell poorly adj.
5 year olds	girls	.43	.23	.33	.86	-.58	.30	.63	-.33
		-	-	-	.001	.025	-	.015	-
	boys	.74	-.02	-.04	.65	.10	.08	-.25	.13
		.007	-	-	.011	-	-	-	-
7 year olds	girls	-.04	.08	-.03	.64	.27	.71	.21	-.01
		-	-	-	.024	-	.011	-	-
	boys	.25	.52	.06	.12	.26	-.26	.57	.14
		-	-	-	-	-	-	.044	-

It was also apparent that the Referential task index was related to Selman's task in an irregular manner, the correlations being positive for poorly adjusted girls in general, and particularly significant at the level of the 7 year olds (r_s = .92, p = .001), while being negligible or negative in the case of the well adjusted girls and the boys in general. Again there was a suggestion of diverse social reactance effects operating differentially in the way various kinds of children responded to the tasks.

Limited sub-sample size and the irregularity of these findings meant that it was pointless to speculate at length on what may have been involved. Receptive language as tapped by the PPVT was apparently implicated, but its contribution seemed to go beyond the overt linguistic demands of the tasks. This is discussed further below. The results did serve to illustrate the

inadequacy of partialling out the effects of verbal ability in order to get a tighter indication of role taking ability (Kurdek, 1977b, 1978a, 1978b). Much more was evidently involved, and this would be a simplistic and gross way of tackling residual error. Such an approach might even mask more crucial factors.

(c) The validity of Selman's structural levels

One other specific issue in the interaction of the role taking tasks pertained to the inadequacy of Selman's structural model. It will be recalled that Selman argued that his sequential levels of social reasoning should be centrally involved in explaining the variability of other lower-order task skills. His model was examined by categorizing the children post hoc according to their assigned perspective taking levels, and then checking whether other social cognition task performances showed the operation of corresponding degrees of sophistication or competence.

Analysis suggested that they did not. Negligible or contradictory differences were indicated for the 5 year olds, while among the 7 year olds there were negligible differences for those classed as well adjusted. Significant differences were only found among poorly adjusted children, and pertained only to the particular adjacent role taking levels shown in Table 8.7. This implied that Selman's levels were only pertinent, in a structural sense, to a very limited combination of tasks, children and social reasoning levels. Clearly these findings gave no confirmation of the structural generality elsewhere attributed to Selman's sequential model.

TABLE 8.7. Significant differences in role taking performance of children categorized post hoc in adjacent social reasoning levels of Selman's model. (Mann Whitney U test). Reportable results are indicated only for poorly adjusted 7 year olds.

Adjacent levels	U	*Z	two tailed p
Improved behavioural/Subjective**			
Referential teaching behaviour	2	-2.89	.004
Referential verbal behaviour	7.5	-2.17	.030

* negative Z values indicate the predicted trend
** The small number of children classed as Self-Reflective role takers have been included here

(d) The role of SES in social cognition

The distribution of SES descriptors was analysed dichotomously and suggested significant discrimination of high > low SES groups in only two instances. These occurred for 5 year olds on Selman's task (U = 120, Z = -3.02, two tailed p = .002) and for 7 year olds on Borke's task (U = 117, Z = -1.85, two tailed p = .002). But elsewhere there were inconsistencies of direction regarding the operation of SES, so no clear conclusions were warranted.

Similarly no differences in receptive language (PPVT) were found as a function of SES. This paralleled other local work reporting negligible SES factors in children's spontaneous oral language (Novik & Waters, 1977). These authors also reported that there were no differences attributable to SES in the way children

responded to adult interviews (loc cit, p. 192). Recent larger-scale work in the U.K. (Wells, 1979b, 1980a) has also corroborated this finding. The role of SES in determining children's cognitive functioning thus remained ambiguous.

8.3.2 Characteristics of the Teachers' ratings

(a) Age, sex and adjustment differences

Ratings for the six items revealed no significant age level differences. The differences for Using others' names approached significance however, which perhaps served to confirm the items's developmental language component as indicated in Experiment VI. The absence of age differences in this sample contrasted with the significant differences previously encountered in Experiment VI. This contradiction was somewhat puzzling, especially given the reasonable sample size in each instance. However the close supervision of data collection in the present experiment led one to have much greater confidence in its reliability. Furthermore the latter findings were consistent with the wider empirical experience that ratings of this kind are not typically sensitive to age differences because of the observers' implicit normative rescaling processes (Cairns, 1979).

Sex differences were found only among the 7 year olds in that girls displayed significantly more Helping ($U = 101$, $Z = -2.38$, two tailed $p = .016$) and Turn taking ($U = 115.5$, $Z = -2.01$, two tailed $p = .044$). This appeared consistent with the general literature reviewed in Chapter four, although it was again discrepant with the findings of Experiment VI. It is of some

interest that the sex role stereotypes were not evident until age 7; this point is discussed further below.

The experimental dichotomy of adjustment based on teachers' initial nomination was also found to be important in discriminating the children's social competence ratings. As shown in Table 8.8, the ratings were consistent in their highly significant discrimination of the well/poorly adjusted dichotomy. This was further distinguished by an absence of significant sex differences.

TABLE 8.8. Differences between adjustment groups (well > poorly) in teachers' social competence ratings within the age groupings of 5 and 7 year olds.

	AGE	5 YEAR OLDS			7 YEAR OLDS	
	U	Z trans-formation	significant one-tailed p	U	Z trans-formation	significant one-tailed P
Using others' names	63	-4.36	.000	64	-3.74	.000
Range of acquaintances	98	-3.43	.000	55	-3.83	.000
Helping	39	-4.90	.000	76.5	-3.11	.001
Contributing to activities	33.5	-5.05	.000	38	-4.32	.000
Turn taking	84	-4.08	.000	119.5	-1.89	.029
Sharing	52	-4.68	.000	77	-3.23	.000

(b) Item covariance

Correlations among the six social competence items are shown in Table 8.9. It was evident that there was again some indication of the two factor model suggested in Experiment VI. However Turn taking and Sharing displayed a varying degree of separation from the other four items as a function of age. Turn taking was particularly independent amongst the 7 year olds.

TABLE 8.9. Correlation matrix (r_s) for the six ratings of social behaviour. Significant probability values are shown beneath.

(a) for 5 year olds

	Range of acquaintances	Helping	Contributing to activities	Turn taking	Sharing
Using others' names	.66 .001	.82 .001	.78 .001	.53 .001	.55 .001
Range of acquaintances		.74 .001	.57 .001	.29 .029	.43 .002
Helping			.83 .001	.54 .001	.63 .001
Contributing to activities				.54 .001	.63 .001
Turn taking					.75 .001

(b) for 7 year olds

Using others' names	.49 .001	.67 .001	.72 .001	.13 -	.40 .007
Range of acquaintances		.44 .003	.69 .001	.21 -	.35 .016
Helping			.70 .001	.23 -	.55 .001
Contributing to activities				.18 -	.43 .004
Turn taking					.65 .001

The structure of these intercorrelations can be more readily appreciated in the factor loadings of the items, as shown in Table 8.10. In this table item loadings have been compared within each of the age by sex sub-groupings. Further-sub-divisions into adjustment sub-groupings was not possible because of reduced sample size. A rationale for the use of factor analysis has already been provided in Appendix 7.B. An inspection of these loadings and communality values (h^2) indicated important variations as a function of both age level and sex. In general the loadings suggested greater homogeneity among the 5 year olds than the 7 year olds.

TABLE 8.10. Factor analysis with varimax rotation of the ratings of social competence, considered within age and sex sub-groupings.

	5 year old girls		5 year old boys		7 year old girls			7 year old boys		
	I*	h^2	I*	h^2	I	II	h^2	I	II**	h^2
Using other's names	.95	.91	.83	.69	.69	.02	.48	.77	.16	.62
Ranges of acquaintances	.68	.46	.77	.59	.80	-.02	.65	.42	.54	.47
Helping	.86	.75	.94	.69	.52	.27	.34	.88	.21	.81
Contributing to activities	.75	.56	.96	.93	1.00	.05	1.00	.84	.38	.85
Turn taking	.68	.46	.72	.52	.07	.57	.34	.05	.69	.49
Sharing	.74	.55	.72	.52	.00	.95	.90	.52	.85	.98
Eigenvalue	3.69		4.14		2.45	1.26		3.49	.72	
% variance	100		100		66.1	33.9		82.9	17.1	

* Rotation not appropriate.

** Factor loadings included because of their special interest, even though the eigenvalue was less than unity.

The independence of Turn taking was particularly evident among the 7 year olds, while Sharing appeared to retain considerable association with the major factor among the 7 year old boys. In fact the shared variance of Sharing, as indicated by the communality values, tended to increase with age, and only part of this could be attributed to Turn taking.

It was of interest to note that Helping was a less central variate for the older girls relative to the boys; the reverse might have been expected. However, that did not necessarily imply that a pro-social tendency was less important for the older girls, only that the present scale seemed to accentuate its relative significance among the older boys.

Contributing to activities was clearly shown to be an increasingly dominant part of the present scale of social competence. Its function for the boys was steady throughout, while it displayed an appreciable increase in relative significance among the girls from age 5 to 7. This corroborated other evidence herein as to its central role.

(c) Ratings and sociometry

The index of Sociometric popularity was evidently measuring something quite distinct from what was tapped by the teachers' ratings. The specific pattern of correlations shown in Table 8.11 confirmed the irregular and largely uninterpretable covariance. Sociometric popularity was similarly independent of teachers' original nominations of well versus poorly adjusted.

TABLE 8.11. Pattern of correlations (r_s) between Sociometric Popularity and the ratings of social competence, shown within age, sex and adjustment sub-groups.

	5 YEAR OLDS				7 YEAR OLDS			
	GIRLS		BOYS		GIRLS		BOYS	
	well adj.	poorly adj.	well adj.	poorly adj.	well adj.	poorly adj.	well adj.	poorly adj.
Using others' names	-.13	.26	.82	-.05	-.37	.18	.00	-.13
	-	-	.002	-	-	-	-	-
Range of acquaintances	-.33	.22	.22	-.11	.28	.20	.15	-.20
	-	-	-	-	-	-	-	-
Helping	-.25	.13	.65	-.14	-.09	-.69	-.21	.28
	-	-	.022	-	-	.014	-	-
Contributing to activities	.00	-.10	.26	.09	.23	-.14	-.34	.45
	-	-	-	-	-	-	-	-
Turn taking	.24	.00	.00	.15	.24	-.06	.15	-.58
	-	-	-	-	-	-	-	-
Sharing	.08	.10	-.26	.34	.13	.04	.39	.15
	-	-	-	-	-	-	-	-

(d) Covariance with Academic achievement ratings

The pattern of relationships between Academic achievement and each of the social competence dimensions is shown in Table 8.12.

TABLE 8.12. Pattern of correlations (r_s) between Academic achievement ratings and the ratings of social competence, shown with age, sex and adjustment subgroups. Significant probability values are given beneath.

	5 YEAR OLDS				7 YEAR OLDS			
	GIRLS		BOYS		GIRLS		BOYS	
	well adj.	poorly adj.	well adj.	poorly adj.	well adj.	poorly adj.	well adj.	poorly adj.
Using others' names	.64	-.04	.43	.67	-.33	.54	.13	-.28
	.013	-		.009		-		-
Range of acquaintances	.59	.26	.04	.55	.62	.44	-.32	.54
	.021	-		.033	.030			-
Helping	.78	.26	.14	.43	.28	-.11	.30	-.39
	.002	-		-				
Contributing to activities	.58	.20	.59	.55	.82	.58	-.07	-.06
	.025		.037	.032	.002	.041		
Turn taking	-.07	.17	.14	.06	-.22	-.04	-.16	.31
Sharing	.08	.04	.46	.31	-.23	-.08	.09	.71
			-	-				

There were certain sex related patterns evident in that the relationships tended to be generally stronger among the well adjusted 5 year old girls than among the poorly adjusted, while the pattern was partially reversed for three items among the 5 year old boys. This did not seem to be evident among the 7 year olds. One might infer from this greater continuity of all facets of adjustment on the part of girls starting school, which was possibly a precursor of later gender adjustment patterns. The application of this interpretation for the 7 year olds might be seen to weaken it; or perhaps the processes had become more complex. Certainly the correlations for the 7 year old boys were generally weaker than for the girls.

These correlations might be given further perspective by the finding that well adjusted children were usually rated higher in Academic achievement than the poorly adjusted ones, as shown in Table 8.13. This was of course consonant with the generally held view that adjustment and school achievement are interdependent (Hartup, 1976; Kohn, 1977b; Green et al., 1980). Again it would seem that the interaction was more evident among the 5 year olds.

TABLE 8.13. Differences in Academic achievement between well and poor adjusted children within each of the age x sex subgroupings (well > poorly).

age x sex subgroupings	Well adj. $\bar{X}$	Poorly adj. $\bar{X}$	U	Z	significant two tailed p
5 year old girls	3.92	2.70	23	2.57	.010
5 year old boys	3.70	2.75	28.5	2.16	.031
7 year old girls	4.50	3.70	30	1.61	-
7 year old boys	3.80	2.63	16.5	2.23	.026

Yet Contributing to activities, a key dimension, appeared to show a negligible correlation with Academic achievement among the 7 year old boys, in contrast with the other age and sex sub-groupings. This contrast was marked enough to imply a divergence between the ability of the older boys to cope with school, as seen by their teachers, and their teachers' perception of their actual participation in school activities. Perhaps the older boys were adopting a different kind of orientation to school, and thus producing a pattern of results which was, in practice, internally consistent over the two year period.

A synthesis of interpretations of this kind is inevitably highly conjectural in character; yet its validity was enhanced by the corresponding correlations between Academic achievement and Sociometric popularity, as shown in Table 8.14. While not significant, the contrast between the boys and the girls was obviously supportive of the interpretation that the boys' peer group appeared to devalue Academic achievement. This theme will be discussed further below.

TABLE 8.14. Correlations (r_s) between Academic Achievement and Sociometric popularity among the 7 year olds. Significant probability values are shown beneath.

	GIRLS	BOYS
Well adjusted	.45	-.39
	-	-
Poorly adjusted	.34	-.33
	-	-

(e) Covariance with teachers' Personal perception

Interpretation of this variable and its covariance should be made cautiously. As noted earlier one was dealing with a complex range of the teachers' interpersonal attitudes towards children, teaching styles and personal associations.

First of all it would seem that the teachers' initial nomination of the children as well or poorly adjusted was echoed in the way the teachers reacted personally to those children when asked subsequently. This was particularly evident for 5 year olds, as shown in Table 8.15. Among 7 year olds such an effect was apparent only for the boys, and then at a somewhat reduced level of significance.

TABLE 8.15. Differences in teachers' Personal perception between well and poorly adjusted children within each of the age x sex subgroupings.

age x sex subgroupings	Well adj. $\bar{X}$	Poorly adj. $\bar{X}$	U	Z	significant two tailed p
5 year old girls	3.75	3.0	24	2.64	.008
5 year old boys	3.9	2.5	13.5	3.32	.001
7 year old girls	3.6	3.1	33.5	1.38	-
7 year old boys	3.4	2.5	17	2.21	.027

The pattern of correlation between Personal perception and the other behavioural indices was most appropriately examined within age, sex and adjustment subgroupings, as shown in Table 8.16. It may be noted among the 5 year olds that the coefficients for the social competence items comprising the major factor and Academic achievement correlated quite strongly among the poorly adjusted

TABLE 8.16. Pattern of correlations (r_S) between teachers' Personal perception and the ratings of social competence, Sociometric popularity, and Academic achievement, shown within age, sex and adjustment subgroups. Significant probability values are given beneath.

	5 YEAR OLDS				7 YEAR OLDS			
	GIRLS		BOYS		GIRLS		BOYS	
	well adj.	poorly adj.	well adj.	poorly adj.	well adj.	poorly adj.	well adj.	poorly adj.
N	12	10	10	12	10	10	10	8
Using others' names	.45 -	.61 .032	-.38 -	.83 .001	.43 -	.24 -	.09 -	.30 -
Range of acquaintances	.37 -	.59 .038	-.32 -	.87 .001	-.29 -	.86 .001	-.24 -	-.17 -
Helping	.36 -	.74 .008	-.17 -	.57 .028	.45 -	.10 -	.29 -	.38 -
Contributing to activities	.31 -	.61 .031	-.27 -	.67 .009	.53 -	.67 .018	.24 -	-.06 -
Turn taking	-.26 -	.29 -	.67 .018	-.06 -	.14 -	.29 -	.04 -	-.13 -
Sharing	.49	.34	.33	0	.34	.02	.04	-.07
Sociometric popularity	-.06 -	0 -	-.43 -	0 -	.07 -	.31 -	-.71 .021	-.26 -
Academic achievement	.21 -	-.03 -	-.19 -	.69 .007	.26 -	.47 -	.61 .031	.27 -

children, but relatively weakly among the well adjusted. In fact the coefficients were negative in the case of the boys. No such pattern was evident among the 7 year olds.

One might infer from this that the teachers' personal reactions were not at all consistent with the way they actually rated the well-adjusted 5 year old boys. The pattern of negative coefficients did not attain significance, but the contrast did seem striking and worthy of comment. It might well imply that some interaction effect, not able to be identified from this data, enabled

the teachers to nominate well adjusted boys and accordingly rate them as higher in social competence, yet also find them personally unappealing, difficult to manage, or whatever. This would appear to reflect on the teachers' orientation to boys in their first year of school but not in Grade II, which suggests some fairly specific mechanism at work. It would also appear to be consistent with the interpretation regarding Academic achievement noted earlier.

A possible clue was the pattern of correlation recorded for Sociometric popularity. In general it can be seen that Sociometric popularity and Personal perception were negatively or negligibly correlated, which implied that teachers and boys held different expectations regarding appropriate or desirable behaviour patterns. In particular it can be seen that the contrast between well and poorly adjusted groups was in the same direction as that noted above. That is, teachers appeared to react against the more popular boys, the effect being most pronounced at age 7. One interpretation of this effect was that it further signified the beginning of the independent operation of the boys' peer group. That is, the boys may have been starting to attach value and status to behaviours among their peers in a way that was at odds with their teachers' expectations and preferences. Further speculation is not warranted, although the point will be discussed again subsequently.

(f) The role of SES in social competence

Again it is appropriate to include only brief reference to the covariance of social measures with the index of SES (Congalton,

1969). Relationships with teachers' ratings and Sociometric popularity were generally negligible except in the case of 5 year old girls, for whom SES was found to covary with Turn taking (r_s = .54, p = .006) and Sharing (r_s = .53, p = .006). This might be taken as indicative of differential socialization processes at work, but would need to be put in the context of the uncertain validity of the SES index itself.

8.3.3 Social cognition and social competence

It will now be appropriate to examine how the two sets of variables interact. Correlations between the various social cognition indices and each of the social competence dimensions are first considered within the two age levels as subcategorised by gender. The effects of the teachers' nomination of the children as well or poorly adjusted are considered in the next section. The further implications of interactions with Academic achievement, Personal perception and Sociometric popularity are again better considered separately.

(a) Age and sex effects

Relationships between the social cognition indices (including the PPVT) and the teachers' ratings of social competence are shown within the matrices for the age and sex subgroupings in Table 8.17. The use of multiple regression as a data reduction technique was considered but found wanting in view of the occurrence of significant negative correlations, with which regression was not of course equipped to deal. These issues have been elaborated in the statistical rationale provided in Appendix 7.B. The negative covariance was of course quite contrary to normal prediction, and is discussed below.

TABLE 8.17. Correlation matrices (r_s) for social cognition and the PPVT indices with social competence ratings within each of the age x sex subgroupings. Significant probability values are shown beneath in brackets.

code: SOC 1 Using others' names
SOC 2 Range of acquaintances
SOC 3 Helping
SOC 4 Contributing to activities
SOC 5 Turn taking
SOC 6 Sharing

5 year old girls

	SOC 1	SOC 2	SOC 3	SOC 4	SOC 5	SOC 6
Borke	.10	.00	-.01	.00	.19	.18
Flavell	.40	-.05	.17	.23	.27	.14
Selman	.03	.28	.02	.15	.39 (.036)	.22
Referential turn taking	.12	.10	.04	.10	.05	.00
Referential teaching	-.10	.32	.06	-.07	-.42 (.026)	-.22
Referential verbal	-.03	.37 (.047)	.12	.00	-.38 (.039)	-.21
Referential social orient	.01	.18	.00	.08	-.14	-.19
PPVT	.21	.21	.22	.22	.35	.40 (.035)

5 tear old boys

	SOC 1	SOC 2	SOC 3	SOC 4	SOC 5	SOC 6
Borke	.38 (.042)	.20	.31	.29	.38 (.042)	.39 (.035)
Flavel	-.21	-.32	-.04	-.11	.02	.17
Selman	.38 (.041)	.24	.49 (.011)	.39 (.038)	.12	.41
Referential turn taking	.36	.11	.38 (.039)	.34	.30	.07
Referential teaching	.33	.16	.30	.03	.09	-.18
Referential verbal	.35	.08	.39 (.035)	.14	.23	.05
Referential social orient	.52 (.007)	.26	.59 (.002)	.45 (.019)	.30	.29
PPVT	.41 (.030)	.11	.28	.20	.03	.23

TABLE 8.17 (cont.)

7 year old girls

	SOC 1	SOC 2	SOC 3	SOC 4	SOC 5	SOC 6
Borke	-.26	.08	.39 (.043)	.15	.26	.44 (.027)
Flavel	.22	-.24	.02	.10	-.10	.01
Selman	.28	.13	-.19	.22	.05	-.17
Referential turn taking	.37	.54 (.008)	.37	.58 (.004)	.13	.00
Referential teaching	.50 (.013)	.53 (.009)	.01	.38	.27	.11
Referential verbal	.33	.29	.00	.22	.13	.10
Referential social orient	.45 (.024)	.50 (.012)	.02	.41 (.037)	.11	.17
PPVT	.65 (.001)	.49 (.014)	.32	.66 (.001)	.37	.40 (.042)

7 year old boys

	SOC 1	SOC 2	SOC 3	SOC 4	SOC 5	SOC 6
Borke	.29	.47 (.025)	.13	.44 (.036)	.56 (.008)	.54 (.010)
Flavell	-.22	.07	-.10	.08	-.45 (.031)	-.22
Selman	-.19	.22	.05	.10	.07	.12
Referential turn taking	.23	.29	.17	.20	-.21	-.06
Referential teaching	.21	.39	.07	.25	.01	.09
Referential verbal	.41 (.047)	.49 (.019)	.18	.37	.13	.22
Referential social orient	.28	.31	-.02	.17	.26	.26
PPVT	.10	.44 (.034)	.15	.46 (.027)	.24	.45 (.030)

It may be noted that, in this discussion, a model is assumed which treats social competence as in part dependent on social cognition. This formulation should not be taken as implying that causal relations in other directions have been ruled out. It can be seen from Table 8.17 that the relationship between social competence and the social cognition indices depended very much on the particular item. Any age or sex patterns were obviously subtle. The only obvious one was that the social cognition indices were consistently weak predictors for the 5 year old girls, and even included two significant negative coefficients.

The predictive power of the individual tasks varied considerably. In general the Referential ratings and the Borke task were the strongest and most consistent predictors, while Flavell's conceptual role taking task fared very badly. Selman's perspective taking task was pertinent, but only in a minor and generally lower-order capacity, and mainly for 5 year olds.

The PPVT index of receptive language was implicated in three items, more particularly for 7 year olds. PPVT was very significant as a correlate of Using others' names for the 7 year old girls, but negligibly for the 7 year old boys, suggesting a differential sex pattern. No such contrast was evident in its prediction of 7 year olds' Contributing to activities or Sharing however. The pattern of these results did imply though that the concurrent validity of the social cognition indices was no greater in this sense than that of the index of receptive language. It can be seen that the two strongest covariates of Table 8.17 both involved the PPVT. This further accentuated the uncertain construct

validity of the present range of social cognition measures.

Nevertheless, it was evident that social cognition tasks tapped something that went far beyond differences in language facility. As indicated earlier in this thesis the PPVT itself was not an important or consistent covariate of the social cognition indices (see Table 8.6). The wider pattern of data led one to suspect the operation of far more subtle social processes than could presently be identified.

One possible clue was the relative strength of the pattern of correlation in the four age by sex subgroupings. There were, for example, only two significant positive correlations and three significant negative correlations in the general pattern for the 5 year old girls. This contrasted with nine significant positive correlations among the 5 year old boys and a similar or stronger pattern for both 7 year old boys and girls. Despite the crudity of such a comparison it could be taken to suggest that the younger girls' behaviour reflected wider social parameters of some kind, there being no particular reason to suspect that the social cognition tasks were any less valid for the younger girls.

One parsimonious explanation was that the younger girls were not as confident or forthcoming in the experimental tasks. In other words the girls seen as polite and helpful by their teachers may have been disproportionately shy and reserved in the presence of a strange adult. This in turn may have been exacerbated by their relatively poorer receptive language skills, inasmuch as the present sample of 5 year old girls had been shown to be significantly weaker than the boys in the PPVT testing. This general interpretation needs

to be treated with some caution, although it seems clear that some important intervening social parameter or parameters were operative for this age group.

A further social factor may have been evident in the minimal relationship between Referential turn taking and Turn taking in all age x sex subgroupings. The strongest correlation was only $r_s = .30$ for the 5 year old boys, while for the 7 year old boys there was an inverse relation ($r_s = -.21$). Apparently Referential turn taking represented something quite distinct from the behaviours on which the teachers based their judgements of social competence. The contrast for the boys from 5 to 7 years implied in particular that some other developmental social parameter was in operation. Further speculation at this point would be inappropriate.

All of these interpretations have been based on the systematic consideration of bivariate correlation coefficients. As a point of interest the effect of using multiple regression on this data has also been included in Appendix 8.C. To simplify its interpretation the multiple regression solutions and the bivariate nonparametric coefficients have been juxtaposed. It will be seen that the discrepancies were minimal, apart from instances where the assumptions of regression analysis were actually violated.

(b) Adjustment effects

The data were also analysed within the eight age by sex by adjustment subgroupings, but their presentation here was considered likely to confuse rather than clarify the situation. Only a few coefficients have warranted comment.

Among the 5 year olds there were effects that pertained to both sex and adjustment differences. The first involved the relationship between Selman's task and Turn taking. Correlations were negative among the 5 year old boys, more so for the well adjusted (r_s = -.58, p = .041) than for the poorly adjusted (r_s = -.15). However relationships among the 5 year old girls were in the predicted positive direction, albeit not significantly (r_s = .44 for well adjusted; r_s = .51 for poorly adjusted). Corresponding correlations for the 7 year olds were negligible or non-significant by negative. This pattern of results was taken as contributory to a broader theme, discussed below, rather than as noteworthy in its own right.

Significant negative correlations were also found between Referential turn taking and Range of acquaintances in the case of the well adjusted 5 year old boys (r_s = -.80, p = .003), and also between Referential teaching behaviour and Contributing to activities (r_s = -.69, p = .014). Referential verbal behaviour was also involved in negative relationships, although these were insignificant. These relationships apparently represented further interactive elements not anticipated in the original formulation of the Referential task.

The importance of these negative correlations was reinforced by a strong pattern of positive covariance in the data for the poorly adjusted 5 year old boys. A similar although weaker contrast might be inferred between negative coefficients among the well adjusted 5 year old girls (r_s = -.53, p = .039 to r_s = -.71, p = .005) relative to the poorly adjusted 5 year old girls. It seemed to be the case that well adjusted 5 year olds were behaving in a manner

contrary to prediction. These effects were not discernible at all among the 7 year olds, which suggested that any mechanism was specific to children in the first year of school. This will be discussed below.

A more systematic approach to these variously derived patterns using multiple regression was again not possible because of its inability to reconcile functions of positive and negative covariance.

In general then it appeared that the 5 year olds were responding to the tasks partly as a function of sex role differences, with girls being less forthcoming, and partly as a function of individual adjustment styles, with popular children displaying greater assertiveness and dominance than anticipated. This affected the probable meaning of the Referential task in particular. One might speculate that the well adjusted 5 year olds adopted a particular strategy that reflected their implicit sense of status and assertiveness relative to their peer partners and perhaps also to the experimenter. They displayed a preoccupation with winning rather than with teaching according to the experimenter's rules. Such a tendency, if present, seemed to have disappeared by the age of 7. The poorly adjusted children by comparison appear to have done as they were told, and produced results consistent with the expectations of the experimenter.

This competitive aspect of the Referential teaching task had been observed in Experiment IV, but was then found to be of no great consequence. The present results suggested that the urge to win was of some significance in defining the construct validity of the task, and how individual children responsed to it.

This differential pattern of responding by the well adjusted children may also have contributed to the pattern of negative covariance found for Borke's and Selman's tasks, even though the tasks emphasised different social cognition skills and made different social demands.

(c) The role of Academic achievement

The teachers' ratings of Academic achievement were considered particularly relevant to any discussion of social reactance because of their potential function as a separate dimension of the children's differential response to school and teacher. This was not to ignore the basic cognitive skills component, but to anticipate the intrusion of other teacher-child interactive factors. These might provide an implicit perspective on the teachers' other ratings.

For example the correlation between Academic achievement and the PPVT index was as low as $r_s = -.10$ for well adjusted 5 year old girls, yet as high as $r_s = .73$ ($p = .020$) for poorly adjusted 7 year old boys. Apparently the teachers' ratings of achievement took account of social and motivational elements that went far beyond the influence of the children's verbal ability.

Age, sex and adjustment patterns for this variable, too, showed a number of significant negative correlations, so scanning of non-parametric bivariate correlations was again necessary as the mode of analysis. Firstly the main positive correlations occurred with respect to Selman's task, although these attained significance only in the case of poorly adjusted 7 year old girls ($r_s = .59$, $p = .038$). Flavell's task was found to be weakly and inconsistently correlated, as too was the PPVT. Borke's task however correlated

TABLE 8.18. Correlations (r_s) between Academic achievement ratings and Borke's task within age x sex x adjustment subgroups. Significant probability values are shown beneath.

	5 year olds		7 year olds	
	girls	boys	girls	boys
well adjusted	-.43 -	.26 -	.29 -	-.39 -
poorly adjusted	.61 .032	.63 .014	-.13 -	.65 .041

significantly with Academic achievement in three of the four subgroups of poorly adjusted children, as shown in Table 8.18, while correlating nonsignificantly or negatively for well adjusted children. This contrast seemed to be at least corroborative of the social reactance effect discussed above, although the internal contradictions left one uncertain as to how stable or meaningful these effects were.

Correlations between Academic achievement and the Referential ratings are shown in Table 8.19. They suggested an even stronger interaction between sex and adjustment at the level of the 7 year olds. Appreciable negative coefficients were evident among the well adjusted boys compared with the poorly adjusted boys. The wider impression of these was by no means a substantive one, but again it contributed to the general interpretation that a systematic social reactance effect may have been operating in the well adjusted boys' orientation to school. This

TABLE 8.19. Correlations (r_s) between Academic achievement ratings and Referential task ratings within age x sex x adjustment subgroups. Significant probability values are indicated in brackets.

covariate	adjustment	5 year olds girls	5 year olds boys	7 year olds girls	7 year olds boys
Referential turn taking	well	.09	-.08	.33	-.26
	poorly	-.15	.47	.47	-.07
Referential teaching behaviour	well	.21	-.50	.26	-.56 (.046)
	poorly	-.28	.31	.57 (.043)	.16
Referential verbal behaviour	well	.21	-.34	.42	-.65 (.021)
	poorly	-.29	.42	.31	.07
Referential social orient	well	-.10	-.33	.47	-.32
	poorly	-.29	.66 (.010)	.70 (.013)	-.05

was of course contingent on the premise that the social cognition tasks were acceptable as criteria in a cross-validation sense. Certainly there was no point in considering the operation of a reverse causality whereby good school achievers might perform badly in the social cognition tasks.

(d) The role of Sociometric popularity

It might reasonably have been expected that the correlations of the social cognition tasks with Sociometric popularity may have given a useful and different perspective on the interpersonal parameters that seemed to be involved. This proved not to be the case; the pattern of covariance was generally slight and inconsistent. Even the correlations between Sociometric popularity and the PPVT index were inconsistent and apparently contradictory. Within this wider pattern the odd significant correlations could only be dismissed as error variance. It remained unclear whether this lack of

relationships reflected the crudity of the particular sociometric index employed. But in general it appeared that the predictive power of the social cognition tasks in this regard was negligible.

(e) The role of teachers' Personal perceptions.

This variable seemed to be of particular interest in terms of its potential capacity to provide a kind of behavioural cross-validation of the social cognition skills inasmuch as these were based upon tasks with at least a certain commonality in their dependence on adult-child interaction. It was of interest then to approach Personal perception as a kind of index of the way the children were regarded in a separate context of adult-child interaction by their classroom teachers.

Firstly the four Referential task ratings correlated significantly with Personal perception for the 5 year old boys (r_s = .41, .39, .42 [p = .05] and .63 [p = .001] respectively). Corresponding correlations for the other age by sex subgroupings were all minor. Similarly Borke's task correlated significantly with this variate for the 5 year old boys (r_s = .54, p = .005) and not for the other sub-groups. Correlates for the other social cognition tasks were all negligible, while further differentiation in terms of adjustment proved fruitless. These findings suggested that the teachers may have been influenced to a considerable extent by the presence or absence of these particular skills among the younger boys but not among the other children generally. Such a pattern might be regarded as indicative in one sense of the teachers' differential expectations of the children, particularly in the light of preceding results.

However this must still be regarded as but a partial and not very authoritative explanation of why the correlations were so focussed in character. Furthermore one must qualify it by noting that the interpretation was drawn from a much larger matrix in which there were many minor correlations. Any effects so identified may thus have been spurious.

Incidentally the foregoing results might also be regarded as indicative of the predictive validity of the Referential ratings and of Borke's task. They did not, however, provide any ready answers as to why the covariance should be thus distributed.

8.3.4. Summary of major results

The preceding analysis revealed a diversity of direct findings and indirect implications that needed to be considered systematically in order to bring some perspective. It may prove helpful at this point to review what might be considered to be the major findings, bearing in mind that such a perspective clearly went beyond the stated objectives of the original design.

(a) Operating characteristics of the social cognition tasks

Selman's task and the Referential ratings displayed their predicted differentiation of the children as a function of age, while Borke's task was not quite significant in its capacity to differentiate age levels. Flavell's task however yielded data contrary to the pilot study (Experiment II) in that many children of both ages were not yet able to display the conceptual role taking skill required. This was considered severely to limit the discriminant validity of the latter task for subsequent analysis.

None of the tasks showed consistent differences between levels of adjustment or gender groups, with the single exception that older girls performed significantly better in Selman's task.

The present set of social cognition tasks were themselves only weakly and inconsistently correlated. In particular Selman's task gave only a minimal indication of its supposed structural significance in terms of providing a super-ordinate framework for the other social cognition skills. The correlations of the tasks with the PPVT index also suggested that there was no consistent language component, and implied that other more complex factors were operating. In particular correlations between Selman's task, the Referential ratings and the PPVT were found to be consistently positive, as would generally be predicted, in the case of poorly adjusted girls, but negligibly or negatively correlated in the case of the well adjusted girls. No such contrast was found amongst the boys. Apparently then the well adjusted girls exercised their skills in a distinctive and differentiated manner.

(b) Operating characteristics of the behavioural measures

The teachers' ratings of social competence showed slight but non-significant developmental trends, a finding consistent with the normative character of this kind of rating methodology (Cairns, 1979). The ratings were also found to discriminate significantly between children originally classified as well or poorly adjusted, a finding which could be seen as confirming the validity of both nominations and ratings. Within the scale four items were identified as representing a broad factor that might be termed 'social competence' or more specifically 'social participation'. Relatively independent

from this was Turn taking, particularly among the 7 year olds, which was apparently measuring some special mechanism of peer interaction that needed to be distinguished from the aforementioned participation factor. Sharing in turn varied in its association with Turn taking and the major factor. Yet all six ratings were found to be unrelated to children's preferential choices for each other, as measured by Sociometric popularity. There was thus little concordance between teachers' observations and peer preferences in this age range. However this might justifiably be attributed in some part to the lack of differentiation of the sociometric index itself.

A pattern of sex differences was also identified which suggested that boys were participating less in classroom activities as they became older and were also deemphasizing Academic achievement as a criterion of their peer preferences. At the same time peer popularity appeared to be decreasingly valued by the teachers themselves in their Personal perception of the older boys. An hiatus thus seemed to be forming between the teachers' expectations and preferences for appropriate behaviour on the one hand, and the implicit expectations of the male peer group regarding adaptive behaviour on the other.

(c) Interaction between social cognition and social behaviour measures

The capacity of the social cognition tasks to predict social behaviour within the one-way model was found to be limited and inconsistent; it depended very much on the particular age and sex grouping. Generally such covariance was the same or lower than that achieved using the PPVT index.

The pattern of covariance was influenced to a considerable degree by individual variability attributable to sex and adjustment factors. This seemed to be most pronounced in the case of 5 year old boys. Among the latter group predicted positive correlations were obtained for the poorly adjusted, while significant negative correlations were obtained for the well adjusted. This latter finding was taken to imply an unexpected behavioural structure, most noticeable in the Referential task, such that the well adjusted boys showed an assertive and competitive orientation rather than any concern for the spirit of the rules of the game as defined. A similar but weaker effect was found for the younger girls, while 7 year olds displayed no signs of this at all.

In similar fashion significant negative covariance was found between performance in Selman's task and the Referential task in the case of the well adjusted children. This again was taken to imply that the responses of the children towards the adult during Selman's task were quite different from those towards their peer partner in the Referential game.

A similar kind of pattern occurred in relation to the correlation between Academic achievement and scores for Borke's task and Referential ratings. Correlations were negative or negligible for the well adjusted children, boys especially, and were strongly negative for the 7 year olds. Much of this correlational data did not reach significance, so the interpretation could only be classed as speculative. But the internal consistency in the observed pattern of negative or reduced covariance did suggest a social reactance effect worthy of further consideration.

8.4. DISCUSSION

The present set of social cognition tasks accounted for as much as a third of the variance of manifest social behaviour, which seemed to be broadly corroborative of the literature reviewed in Chapter five. More importantly though it demonstrated that considerable individual variation was encountered within each of the age levels tested, and that covariance depended heavily on the social context of the task as it was perceived by the children.

At the same time it was evident that the social cognition tasks could not claim any consistent superiority in discriminant validity over an index of receptive language, such as the PPVT. In fact their correlations with manifest social behaviour measures were often found to be considerably less. One might contend that such relativity would itself be age-dependent, but that is not at issue in the present design.

It was thought more relevant to look at the particular operating characteristics of each task used, in order to define its construct validity. Flavell's task might be discounted at the outset because it was just too difficult.

Selman's task on the other hand elicited a good distribution of scores among both age samples, and showed a clear and general developmental trend. This sequentiality of levels was expected to some extent; Chapter five has already discussed Selman's claims for the ecological validity of his structural model and its contingent interview method (Selman, 1974, 1976a, 1976b, in press; Selman & Jaquette, 1976, 1977). The present findings, however, suggested that the issue was far more complex than represented

hitherto by Selman. The task correlated weakly and selectively with the social behaviour dimensions, and provided no structural integrity in its differentiation of other specific social cognition skills. The present data also emphasized that his interview technique differentiated a much greater range of individual variability in social reasoning levels than is usually found with such materials. How much this reflected specific levels of verbal fluency and social reactance among the local children remains indeterminate. Certainly the present results seem idiosyncratic however, and further replication is warranted in view of the widespread influence and acceptance of Selman's work. Meanwhile perhaps Selman's advocacy of the application of his structural model to the clinical delineation and treatment of disabilities in social skills should be regarded cautiously (Selman & Jaquette, 1976, 1977).

The question then remains as to what Selman's task was actually measuring. Clearly its construct validity had little to do with the prediction of interpersonal relations with peers, and tended to decline from age 5 to 7. It was also relatively independent of behaviours displayed in the Referential teaching task. Concurrent validity indices suggested that it was allied more to Academic achievement and receptive language (PPVT). Cutting across these patterns in turn was the suggestion from a number of varied analyses that covariance was negligible or slightly negative in the case of the well adjusted children. This led to speculation about the role of certain social reactance effects, as most recently discussed by Brenner (1981), in the way these particular children

responded to the interview situation.

The increasing correlation with age between Academic achievement and Selman's levels seemed to lead instead to an hypothesis regarding the common skill in getting on with an adult rather than to skills in relating to peers. This might well provide a more parsimonious explanation of the data, and would certainly be consistent with evidence that child-child interactions are quite distinct in character from child-adult ones at this age (Hartup, 1978, p. 139; Rubin, 1980, p. 7). In particular Wright (1980, p. 18) has noted that:

> There is an extensive body of literature which suggests that the social competence of children in preschool is likely to be reflected more in their interactions with peers than with teachers. More able preschoolers tend to increase their contacts with peers and reduce their contacts with teachers over time in the preschool, and popularity with peers is negatively associated with dependency on teachers.

This concept is not yet reflected in the research literature related to school age children.

Speculation of this kind should perhaps be cautious, bearing in mind that children's limited verbalizations are the sole source of data. It became evident from the transcripts that the children generally spoke very little; much responding was monosyllabic. This meant that much scoring depended on interpretation of yes/no/don't know responses, or else on rather isolated instances of explanation given by the children. The form of the present data

precluded any effort to control for this effect of relative verbosity. Certainly partialling out the PPVT index made little difference, although one might challenge the validity of this approach anyway, as pointed out by Waterman et al. (1981, p.146):

> However, a relationship with mental age may be intrinsic to the understanding of others' emotions and motives. It is therefore debatable whether it is appropriate to statistically eliminate the impact of differences in mental age on perspective-taking differences between naturally occurring groups.... Statistically removing the effect of mental age had no substantial impact on findings concerning group differences in cognitive perspective-taking or relationships between the behavioural sub-scales and either measure of perspective taking.

It was thus necessary to acknowledge that all interpretations, including the present speculation on the role of social reactance phenomena, would be predicated on a relatively narrow data base for this particular age level. In a sense though this is an intrinsic dilemma in much research with young children, one that has not been considered adequately by many developmental researchers.

Within this context the present data can be seen to suggest the possibility of an alternative, albeit partial, explanation of Selman's original findings. It need not invalidate the structural model per se, although that does appear to represent an over-simplification. But the results appeared to suggest that the interview technique, based on discourse with younger children, does require close methodological scrutiny.

It remains to be seen then whether the key elements in this issue are cognitive input ones, in terms of children's capacity to comprehend hypothetical content material; linguistic output, in terms of children's use of expressive language; social reactance, in terms of response to a strange adult, or some more complex interactions between them. The present data have primarily served a negative function in suggesting what Selman's task was not. It would appear that we must analyze with great care what is actually being measured.

In contrast with Selman's task, Borke's task employed relatively simple materials and had minimal reliance on children's responsiveness. Accordingly it seemed to stand up far better to behavioural cross-validation. The task covaried significantly with most dimensions of social competence for certain sub-groups, these being more likely to consist of boys than girls. The data neither confirmed nor disconfirmed the original interpretation of Borke's materials as being primarily a measure of stereotype accuracy. What the data did seem to indicate was that a direct and essentially simple face-pointing task might well possess greater ecological validity, and to measure subtleties of individual variability more effectively, than an extended interview and transcript analysis.

The Referential ratings in turn appeared to be the most effective of the present tasks in their behavioural cross-validation, especially with respect to the four items of social competence comprising the major factor. Their special separate relationship with Turn taking and Sharing will be considered in a subsequent section. This greater concurrent validity was achieved despite the

acknowledged simplicity of the rating scales themselves. The technique apparently managed to tap role taking skills as they were applied in a fairly naturalistic setting of peer interaction. Certainly the children were fully involved, and one intuitively felt that they were not especially concerned by the presence of an adult. However the wider meaning of the task for the children proved to be far more complex than anticipated.

First of all there might well be an analogy between the character of the teaching task and Wright's (1980) operationally defined concept of social competence. She suggested that combined quantitative indices of children's attempts to seek peers' attention and successfully influence their behaviour might be used as an index of general interpersonal competence, as reviewed in Chapter five. These skills were ofcourse central to the straw and bottle-top game. One might speculate that the rating of Referential teaching behaviour in particular might be an approximation to this kind of concept of social competence, as something superordinate to specific referential skills.

The rating of Referential social orientation might be regarded as being in this sense the more valid index of social role taking skills in the dyadic encounter. In practice these two ratings correlated highly, and correlated similarly with various behavioural measures. Within the constraints of the rating methodology it was evident then that any distinction between actual social competence and underlying cognitive skill should not be drawn superficially; the relationship was far more subtle.

Further to this it appeared that the Referential task meant different things to different children. A pattern of negative covariance between Referential ratings and social competence ratings among the 5 year old boys in particular suggested that they were responding primarily to the competitive element of the game rather than its overt teaching emphasis. This tendency was more common for the younger boys rather than girls. That it was also more pronounced among the well adjusted 5 year old boys seemed to suggest that it was a developmental function of their assertiveness and single-mindedness in playing and winning. Yet again the finding that such an effect did not continue among the sample of 7 year olds seemed to suggest that it reflected characteristics unique to these younger boys; more subtle mechanisms were apparently involved for the older children. Certainly it seemed to suggest though that the 5 year old boys were relatively immature in their attitudes and skills regarding dyadic interaction and play.

The divergence between children's performance on the Referential task as just discussed and that on Selman's task also accentuated further differences in social reactance (Brenner, 1981). These appeared to be associated in particular with the children's degree of willingness to communicate fluently with an adult, and how far they became involved in a given activity. These parameters could not be specified within the scope of the present design. Clearly though there was a need to question how much a task was actually measuring a specific latent trait cognitive skill, as distinct from being a complex encapsulated social episode. This distinction is so basic, yet so often overlooked.

The role of social reactance phenomena in the social cognition tasks was further accentuated by the finding that the well adjusted boys displayed an inverse relation between Turn taking and Range of acquaintances. This helped illustrate the point that the peers' definition of competence involved qualities of assertiveness and the rejection of certain social conventions which were learned at an earlier stage. Such a definition, it need hardly be added, was at odds with that held by their teachers. Implications of this set of observations ought perhaps be taken into account in the interpretation of experimental studies of prosocial responding and assertiveness (Barrett & Yarrow, 1977).

When adjustment and achievement dimensions were analyzed a similar kind of developmental structure appeared. Thus well adjusted children were significantly better achievers at school than poorly adjusted children. Yet older boys overtly participated less in conventional class activities relative to their achievement level, in a way that distinguished them from girls and the younger children generally. This was evident for well and poorly adjusted boys alike, and suggested that the influence of peer group norms became an increasingly critical determinant of manifest behaviour for the boys.

In a similar vein it was found that older boys' Sociometric popularity correlated negatively with their achievement level, more particularly among the well-adjusted boys. While not reaching significance,this pattern of covariance added credence to the hypothesis that boys felt a need to distance themselves somewhat from the teacher, and not be seen to conform nor participate too enthusiastically.

On the other hand, Personal perception correlated negatively with the major social competence ratings of the well adjusted 5 year old but not 7 year old boys. The younger boys thus appeared to antagonise their teachers, despite their being nominally classified as well adjusted. This pattern appeared to be developmentally distinct from the preceding hypothesis about peer group norms. However it may have been a precursor of such an effect.

An inverse relationship was also found between Personal perception and Sociometric popularity in the case of well adjusted boys at both age levels. Though not significant this seemed to be at least supportive of the interpretation regarding the way they interacted with their teachers.

One might suggest then that there were indications of a developing male peer value structure which was at odds with that of the teachers. This speculation certainly warrants further investigation, for it may prove seminal to further work on social cognition in general, particularly in its implications of differences in modes of adjustment displayed by children in different situations.

From this patchwork the critical importance of individual variability factors in any definition of social cognition skill is evident, The present study has explicitly considered only three such factors, but it has implicated several others which were not anticipated at the outset. Elevation of the importance of these variates, both explicit and implicit, is certainly consistent with the conclusion of the review, in Chapter five, that popular children and good role takers are variously more independent of class norms, more assertive, and possibly more frequently engaged in casual

fighting (Hartup, 1976; Barrett & Yarrow, 1977; Kurdek, 1978a; Light, 1979, 1980; Dodge, 1980). Such a recognition represents an extension of Light's (1980) general point about the subtleties involved in the application of social cognition skills. The present data has done no more than hint at these effects and suggest their social reality for a particular group of Australian children. Further efforts to specify the relevant parameters from a more clinically oriented perspective will be considered in Chapter nine.

The central importance of sex differences and stereotyping in so many aspects of the analysis would appear to re-open a number of questions that have recently tended to be de-emphasized, as in the important review by Maccoby and Jacklin (1974). Girls seemed to display significantly more prosocial behaviour and to be more academically oriented in their school participation, particularly as it pertained to their adherence to their teachers' general expectations. Furthermore academic and interpersonal competence seemed to be mutually facilitative and interdependent.

Boys' adherence to peer group norms was strongly evident as an increasing function of age, with an emphasis on independence from adults and general assertiveness. The immature opportunism of the 5 year old boys' desire to win in the Referential task appeared not to be part of the working out of this trend, although this appearance might be a function of the level of analysis used. The former interpretation does correspond however with the profile of boys' initial adjustment to school (Hughes et al., 1979). The theme of the influence of the peer group is certainly not a new one, as reviewed in Chapter five (Hartup, 1976, 1978), but closer empirical scrutiny is clearly warranted.

Another aspect of sex differences was evident in the finding that social cognition skills were negligible correlates of Helping and Turn taking. These were the very behaviours displaying the strongest pattern of sex differences, and one might reasonably have predicted that social cognition skills would be more important correlates of these behaviours in the case of the girls than the boys. The absence of these relationships implied that further intervening variates are involved. This interpretation is perhaps rendered less confident by the fact that the sample appeared to over-represent girls who were significantly weaker in receptive language skills. Precise comparison of boys and girls in terms of matched groups was thus not feasible. But the findings were at least consistent with a theme discussed in Chapter five that boys and girls displayed a difference in style of responsibeness rather than an absolute difference in actual social cognition skills (Hoffman, 1977a; Burstein et al., 1980). The issue is more fully considered in Chapter nine.

Lastly it seems appropriate to mention in passing the issue of the bias and selectivity with which it is often alleged that teachers perceive and rate their children. The label of bias has long-standing connotations of unreliability in a process of one-way observation. The present findings would appear to suggest rather that the process of observation was highly interactive, and that the teachers were responding with considerable intuitive skill and sensitivity to the subtleties of children's actual behaviour. The teachers' judgements did appear to be influenced by subtleties unable to be determined by the present design; but it would be

simplistic to gloss over this in the name of bias. At present little could be, or should be, concluded.

In conclusion the design of this experiment was inappropriate in terms of its capacity to deal with the subtleties of individual social interactionist and reactance phenomena that were so evidently important in both experimental tasks and the teachers' ratings. At the same time the design offered a number of valuable perspectives regarding the construct validity of the social cognition tasks themselves. These perspectives seemed to be worth pursuing by the administration of longitudinal indices of social adjustment that might be applied to the same children and correspondingly related to their original performance on these particular social cognition tasks.

The desirability of a longitudinal perspective in research of this kind has long been emphasized (Shantz, 1975). Apart from this the potential use of repeated measures of social competence and so on would permit finer analysis of the changing behavioural context which the social cognition skills were supposed to be predicting. A final consideration was the possibility of extending the experimental delineation of individual differences in social adjustment, for this had been shown to be a major limitation of the present research. All of these concerns were responsible in part for the decision to take the research one step further, and provided the initiative for Experiment VIII.

CHAPTER NINE

EXPERIMENT VIII : A LONGITUDINAL APPROACH

9.1. PREAMBLE

The analysis of data from Experiment VII implicated numerous dimensions not previously considered, and helped direct the way towards a more ecologically meaningful appraisal of the social cognition skills presently under consideration. Closer examination of issues of discriminant and construct validity was precluded by the restricted information about inter-individual variability, as assessed by teachers' ratings and peers' sociometric preferences. This restriction was particularly evident in the consideration of adjustment in terms of a dichotomy, the simplicity of which appeared, in retrospect, not to match the apparent complexity of the system.

Experiment VIII considered a set of longitudinal indices of social behaviour with which the same social cognition data could be more thoroughly correlated. Such a perspective, it was hoped, would permit a more stringent evaluation of the predictive power of the one-way model. That is, to what extent could social cognition task performance predict manifest social behaviour and adjustment over a two year period? This kind of evidence remains scarce (Shantz, 1975, p. 313), yet it is obviously an important research priority if developmental researchers are to take seriously the notion of social cognition skills as meaningful latent trait entities.

The correlations over the two year period would also permit, it was hoped, a more penetrating cross-validation that would go beyond most of the ephemeral aspects of the earlier concurrent analysis.

A further objective was to achieve increased differentiation of individual adjustment processes. This objective led to the inclusion of the BSAG instrument and also to modifications to the existing measure of peer sociometric preferences. In addition, the measurement of Academic achievement was supplemented by specific ratings of Reading and Mathematics skills.

A preliminary check indicated that 66 of the original 82 children (81%) from Experiment VII were still accessible in the local schools. This fell below an optimal sample size of about 40 for the major age groupings (Hays, 1963, p. 333), particularly in view of the further differentiation into sub-categories that was intended. A particular effect of this would be that some analyses would err conservatively (loc cit, p. 332). However it was felt that the benefits of the longitudinal approach would outweigh these disadvantages.

9.2 METHOD

9.2.1 The sample

The 66 accessible children were fairly evenly distributed with respect to the two age levels, sex, and the initial classification of well/poorly adjusted, as shown in Table 9.1. The children were located in Junior Primary Grade II and Primary Grades III and IV, as a function of age at initial entry to school and subsequent promotion. They were located within 29 classrooms, all of conventional design. In each case teaching techniques were conventional, and the teacher was in sole charge. The teachers were required to observe on average two children each. The maximum number of children observed by one teacher was five, although she encountered no particular problems in dealing with this number. Variability that might be attributed to

TABLE 9.1. Distribution of the available sample with respect to age level, sex and original adjustment classification.

Age level	Adjustment	Boys	Girls	N
7 year olds*	well	7	8	32
	poorly	8	9	
9 year olds**	well	7	10	34
	poorly	8	9	
		30	36	66

* $\bar{X}$ = 7 years 7 months, SD = 2.6 months, range = 9 months

** $\bar{X}$ = 9 years 1 month, SD = 3.3 months, range = 12 months

the effects of age of school entry (Hughes et al., 1979), grade level expectations (especially Junior Primary versus Primary) or non-promotion were not considered.

9.2.2 Instrumentation : teachers' observations

The current teachers of the 66 children all volunteered to participate in the study. Observation and other data gathering took place during the last four weeks of the winter term of 1978, exactly two years after the cross-sectional work of Experiment VII. The teachers were asked to complete the same six-item scale of social competence as before (Appendix 8.B). This was judged as still suitable since only one item, Using others' names, had appeared to reach its limit of developmental discriminability by age 7. That was of course consistent with wider experience of the application of ratings to children of varying age levels, as discussed earlier (Cairns & Green, 1979).

The next content area rated by the teachers was that of Academic achievement. The original five point rating scale from Experiment VII was retained, and was augmented by four point ratings of specific

achievement in Reading and Mathematics. These followed the format provided on the BSAG protocol (Stott, 1974). In similar fashion the teachers applied to the children the four point Personal perception scale used in Experiment VII.

The teachers were additionally asked to complete a BSAG protocol on each child (Stott, 1974, 1978). This was intended to give more precise specification of the variability of maladjusted behaviour, in order to supplement the measurement of socially competent behaviour. It was also hoped that the one-way model could be evaluated in terms of how well each social cognition task predicted the various syndromes of maladjustment over two years.

Characteristics of the BSAG and reasons for its selection have already been discussed briefly in Chapter one and the general methodology review of Chapter four. However it seems appropriate to elaborate on the matter at this point.

Stott's BSAG has been the most widely used British instrument for classroom observation of behavioural variability. Other instruments like the Children's Behaviour Questionnaire (Rutter, 1967) have similarly been popular for general screening (McMichael, 1981), but none have offered the same breadth of behavioural coverage leading to specific narrow-based syndromes of individual variability. Comparable US research offered a wider range of instruments, as reviewed most recently by Achenbach and Edelbrock (1978), Glow (1978), and Glow et al. (in press). But the focus was again on general screening of children at risk or for other specific clinical objectives. None offered sub-scales with sufficient items to discriminate the narrow-band syndromes in a way that was comparable to the BSAG.

Apart from this the BSAG protocol represented a wider spectrum of normal behaviours using more accessible terminology (McDermott, 1980b, p. 514). This would perhaps make the BSAG easier for the teacher to complete than yes/no or never-sometimes-always kinds of distinctions. It might also avoid, or at least reduce, halo effects (McMichael, 1981, p. 61).

The concurrent validity of the BSAG was shown in Chapter four to be inadequately established. But wider appraisals of ecological significance and stability are still lacking for all such instruments (Glow et al., in press). Little has yet been done on the cross-validation of rating scales of this kind in different behavioural settings by different observers (Brown & Hammill, 1978). However a change of emphasis may be occurring, one facet of which would seem to be an increasing reliance on peer-based measures (Glow & Glow, 1980).

The other point of particular interest about the BSAG pertained to the narrow-band syndrome termed Inconsequence. It was defined by Stott (1971, p. 11) as follows:

> This form of temperamental handicap consists essentially in a failure to inhibit the first response-impulses which come to a child's mind. These are of a primitive, physical type, such as aggressive responses to frustration, or domineering. The child acts impulsively without an advance mental rehearsal of the consequences, so that the trials and errors take place in actual dealings with objects. The child thus behaves in ways which are unsuitable, or harmful, or annoying to other people, and he is forgetful of the bad results of previous actions in the past.

The character of the behaviours represented by this syndrome led to the formulation of an hypothesis that it appeared at least partially attributable to inadequacies in social role taking skills. This implied causality, furthermore, appeared to apply only to Inconsequence within Stott's larger model. Such an association has not, apparently, been suggested elsewhere. This seemed worthy of closer investigation, notwithstanding the recent evidence discussed in Chapter five that the relationship between social cognition skills and manifest behaviour may be highly complex in more normal children.

Another aspect of this and the other syndromes has been accentuated by McDermott (1980b), who carried out a cluster analysis of recent normative data on the BSAG. He suggested that the basic syndromes might need to be broken down into sixteen homogeneous syndromic profiles, and that many maladjusted children seemed to have multiple syndromic profiles. This observation may presage finer differentiation of all the present syndromes, including Inconsequence. Such a development may well prove critical, although the current study, because of its limitations in sub-sample size, could not have been expected to display such fine differentiation of individuals.

9.2.3 Characteristics of the teachers

As in Experiment VII the only attempt to focus on the teachers directly was through their ratings of their Personal perception of each child. The characteristics of the teachers in this experiment were in fact even more heterogeneous in that both men and women teachers from both Junior Primary and Primary schools were involved. Their range of professional experience was also more diverse than that encountered previously.

There was of course the possibility that personal characteristics of the teachers in terms of sex, temperament, professional experience, teaching style or whatever may have been instrumental in influencing the children's behaviour and its evaluation. This sort of teacher-pupil interaction has often been discussed (Brophy & Good, 1974; Delamont, 1976; Calderhead, 1981). So far little of this research has focussed on children in the junior school.

However, the conditions of the current study, requiring as it did massive cooperation from the teachers, did not seem to make it appropriate to request them to accept personal evaluation. In any case one was influenced by the results of Experiment VII, which suggested that many apparent bias and selectivity effects could be more parsimoniously explained in terms of real differences in the children. This does not deny the role of bias, but implies that its operation is interactive with these differences, and thus far more subtle than at first appears.

9.2.4 Scoring of teachers' observations

The various teachers' ratings of social competence, Academic achievement and Personal perception were assigned ordinal values in a manner identical to that of Experiment VII, using either four or five point scales. The completed BSAG forms were scored using the published templates to provide the five syndromic scores of Unforthcomingness, Withdrawal, Depression, Inconsequence and Hostility (Stott, 1974). The associated grouping of Peer Maladaptiveness that followed from Inconsequence or Hostility was also included when appropriate. The non-syndromic groupings commented only on the two broad-band syndromes and were thus not considered.

Stott's manual (1974) provided for the normative classification of children as 'Mild', 'Moderate' or 'Severe' with respect to each of the five syndromes. In the present sample the number of children so classified within each of these levels for a given syndrome was of course relatively small. Even an arbitrary clumping together of Mild, Moderate and Severe classifications yielded artificial sub-groups of only ten children or less in three of the syndromes. This made analysis of such groupings inappropriate in most instances, for correlational procedures would have been unnecessarily weakened by focussing arbitrarily on these particular children, when in practice syndrome scores were available for the total sample. Similarly it was not meaningful to contrast children classed as displaying a given syndrome with those who did not; for the scores were continuously distributed, and a low score could not be taken as indicative of an absence of maladjustment on that particular syndrome.

In practice then the syndromes have been most appropriately considered as ordinally scaled data, albeit highly skewed, that could be correlated with any other variate. The children's syndrome scores could then be analysed within age and sex sub-groupings as seemed appropriate, as was the case with all other variables.

9.2.5 Sociometry

Each teacher also conducted a sociometric assessment of his/her whole class during the last week of observations. Children nominated up to five of their best friends from within the class. They recorded these on paper for the teachers' private use, nominally for purposes of class grouping in relation to shared activities. Preferences from one to five were assigned equal weightings in order to give a

sociometric index for each child, as originally recommended by Lindzey and Byrne (1968, p. 466). The issue of the comparability of such indices across diverse class groups has already been considered in Chapter eight.

Two specific sociometric indices were selected from an array of possible techniques for examining intra-group data (Kerlinger, 1964; Lindzey & Byrne, 1968). One, Mutual preferences, consisted of the number of matched unilateral choices (A chooses B, B chooses A) made by each child. An ordinal scale was generated with values from zero to five, the latter representing a maximum of five fully reciprocated choices.

The other index of Popularity was established by scaling the raw number of choices received by each child into a category system that provided the best fit for the data itself. Such a transformation was needed because of the between-group variation in the median number of choices received. One possible formula was Sum of choices/N-1 (Kerlinger, 1964, p. 559); but N ranged from 7 to 29, even for same sex children, whilst the number of choices received ranged up to 15. Cross-sex choices also varied as a function of class dynamics; four classes showed a complete sex cleavage. The criterion for any definition of N was thus not determinable in any consistent or defensible way. Thus, given that in some class groups there were few or no choices across the gender barrier, it is arguable that the sex sub-samples should have been treated separately for this analysis, and therefore have separate values of N. It was consequently not feasible to use a single formula.

The only other option appeared to be ordinal scaling that was directly adapted to the data itself. The choice of the number of

categories was made on the basis of attempting to achieve a balance between the number of choices given and the number of potential choosers. Five seemed from this point of view to be the appropriate number of categories. The scale was as follows:

0 : No preferences

1 : One preference

2 : Two or three preferences

3 : Four to six preferences

4 : Seven or more preferences

No differentiation was made between one-way and mutual preferences, while differentiation of highly popular children was thought inapproprate because of the smallness of the frequencies and the structural differences between the groups.

9.3 RESULTS

Analysis of this data was in practice often exploratory and tortuous in the way discernible patterns were pursued. The present format, it needs be said, is but one way of representing the diversity of findings. It has been presented in such a manner as to convey what were taken to be the major findings in the light of a larger interpretive schema. Even so the profusion of data may prove confusing initially. For this reason a summary of the major findings has again been presented at the end of the present section.

9.3.1 General comments about the longitudinal data

The varied observations and judgements about the children's behaviour by the new group of teachers in 1978, together with the sociometric evaluation within these latter class groups, provided a

quite different perspective on the social processes then at work. Presentation of these findings needs be preceded however by comments as to what might legitimately be inferred from the present ratings, and their relationship to the comparable data collected two years previously in 1976.

Firstly, it could be argued that one should not treat these particular ratings as indicators of meaningful or stable traits of various social competence skills, in the sense that psychologists are sometimes disposed to talk of intelligence or certain personality characteristics such as extraversion/introversion. They are but artificially defined sub-elements in a larger behavioural stream, not even necessarily expected to be stable in operation. Their nature and structural inter-dependence have yet to be clarified in their own right, let alone within the constraints of a rating methodology.

This point might also be applied in a slightly different sense to Academic achievement and Personal perception ratings. But these might be regarded as otherwise complex in their own way, for reasons already discussed in Chapter eight. For the moment it will be sufficient to limit attention to the ratings of ostensibly manifest social competencies.

It would follow from the prior point that comparisons of ratings between, for instance, age samples or between repeated observations of the same children, would need to be treated with considerable caution. One would need to be wary, for example, about deciding what represented an actual developmental change. It would be desirable to establish whether the behavioural dimension was already undergoing change when first measured, and then whether the next set

of observations represented (a) a real developmental progression in skill; (b) an elaboration without progression - a kind of plateau effect; (c) a transformation or even apparent deterioration of the behaviour because of extraneous factors in the interactional system; or (d) some other kind of mechanism or combination of mechanisms.

One might note in particular that a difference over time in the quantitative occurrence of a behaviour is not to be taken as synonymous with a change in the sophistication of that behaviour in terms of its alleged development. In this sense the only unarguable indication of behavioural change is that which occurs between the absence and presence of a behaviour. A child may display more, or even less, occurrences of a behaviour without one being able to legitimately conclude that a form of psychological development has occurred. All of these considerations then need to be put in perspective by remembering that, in general, ratings of children do not tend to reflect developmental changes clearly, given the implicit normative framework of the observers (Cairns & Green, 1979).

One could hardly expect teachers to recognize such subtleties directly in trying to untangle these potential elements. Within the constraints of the present study it was only considered feasible to examine the patterns in an eclectic and open-ended manner, and look for internal consistency.

9.3.2 Ratings of social competence : indicators of development

Mean scores indicated that the teachers did rate the 9 year olds as slightly higher in social competence than 7 year olds in five of the six scales. The exception was Turn taking, which showed a minor absolute decline for both boys and girls. None of these

TABLE 9.2. Mean ratings on the social competence scales within age and sex subgroupings.

	7 YEAR OLDS			9 YEAR OLDS		
	Girls	Boys	Total	Girls	Boys	Total
Using others' names	3.47	3.93	3.67	4.32	4.47	4.38
Range of acquaintances	3.53	4.07	3.78	3.90	4.27	4.06
Helping	3.06	3.40	3.22	3.37	3.27	3.32
Contributing to activities	3.94	3.93	3.94	4.00	4.20	4.09
Turn taking	3.65	3.27	3.47	3.58	3.13	3.38
Sharing	2.94	3.13	3.03	3.11	3.13	3.12

differences were significant however except for Using others' names ($U = 357$, $z = -2.46$, two tailed $p = .012$). The mean values are shown in Table 9.2. The distinctiveness of Using others' names again appeared to reflect the developmental language component of the scale, as discussed in relation to Experiments VI and VII. The pattern of change from 7 to 9 year olds, incidentally, was comparable to that found in Experiment VII from 5 to 7 years; the only appreciable variation was the slight decline in Turn taking. The presence of these variations in the size of the ratings for different scales over the age groupings must, at the least, count against any suggestion of a systematic bias over the period in the teachers' normative criteria (Cairns & Green, 1979).

Some variation was apparent in mean ratings for boys and girls, as shown in Table 9.2, but none of these differences reached significance. This finding was at odds with that of Experiment VII insofar as 7 year old girls then displayed significantly more Helping and Turn taking. The apparent contradiction between comparable

administrations of the same rating scale to comparable samples of 7 year olds was not readily explained. The only apparent source of non-comparability was that most of the present group were in Grade III in the Primary school, while all of the original 7 year olds in Experiment VII were in Grade II in the Junior Primary school. It is not possible to untangle this distinction from sampling variation or other factors. However, the contrast in results does serve to accentuate the subtlety of any findings and the caution needed in generalizing from them.

Analysis of the present results in terms of the ratings made two years previously explored the themes of consistency and change discussed above. Initially the two sets of observations were inter-correlated within age and sex sub-groupings, as shown in Table 9.3. These could not be considered indices of test-retest reliability in the strict psychometric sense, for reasons already considered in section 9.3.2.

TABLE 9.3. Intercorrelation of ratings of social competence over the two year period within age and sex sub-groupings. Only significant probability values are shown.

	7 YEAR OLDS				9 YEAR OLDS			
	Girls		Boys		Girls		Boys	
item	r_s	p	r_s	p	r_s	p	r_s	p
Using others' names	.08	-	.47	.038	.18	-	.71	.002
Range of acquaintances	.09	-	.55	.017	.24	-	.09	-
Helping	.53	.015	.41	-	.44	.031	.38	-
Contributing to activities	.00	-	.74	.001	.60	.004	.73	.001
Turn taking	.33	-	.20	-	.43	.035	.12	-
Sharing	.13	-	.25	-	.29	-	.25	-

It can be seen that there was considerable variation across age and sex sub-groupings. Of particular interest was the consistency of the scale Contributing to activities in all such sub-groups except for the 7 year old girls. One interpretation of this pattern was that the girls underwent a change from age 5 to 7 in the dynamics of their school participation. There may thus be a reorientation in their disposition towards participation, or other pre-emptive factors, during the initial school years. Speculation about the nature of these processes would be premature.

There was also some indication that Turn taking was more consistently correlated over time for girls than boys. This was corroborated by the pattern of means of the ratings for girls and boys on this scale. These are shown for both 1978 and equivalent 1976 observations in Table 9.4. Boys consistently displayed fewer Turn taking behaviours as defined. Thus the consistency and strength of the ratings for the girls were always greater. This was, at the very least, suggestive of a much more stable and unified mechanism for the display of this behaviour among girls than boys. The implications of this will be considered subsequently.

TABLE 9.4. Means for the ratings of Turn taking within age and sex subgroupings for 1978 and equivalent 1976 observations.

	5 years old in 1976		7 years old in 1976	
	1976	1978	1976	1978
Girls	3.35	3.65	3.47	3.58
Boys	2.65	3.27	2.80	3.13

TABLE 9.5. Means of ratings of social competence for Experiment VIII (1978) and their equivalents from Experiment VII (1976), shown within age level groupings. Significant differences between the samples have been calculated using Wilcoxon's Matched Pairs Ranked Signs Test (Siegel, 1956, p. 75). [Values of z are given with significant two tailed probability values in brackets].

	7 YEAR OLDS (1978) (N = 32)			9 YEAR OLDS (1978) (N = 34)		
	1976 ratings	1978 ratings	Z p	1976 ratings	1978 ratings	Z p
Using others' names	3.50	3.67	-.65	3.97	4.38	-1.55
Range of acquaintances	3.61	3.78	.71	3.50	4.06	-2.20 (.028)
Helping	3.06	3.22	-.42	3.38	3.32	- .30
Contributing to activities	3.38	3.94	-2.09 (.036)	3.68	4.09	-2.28 (.023)
Turn taking	3.00	3.47	-1.81	3.18	3.38	-1.06
Sharing	2.75	3.03	- .57	2.94	3.12	- .87

Table 9.5 shows the pattern of means and standard deviations for each age sub-group over the two years. It will be noted that there were clear increases in every instance except Helping among the older age group. The significance of these differences was confirmed with Wilcoxon's Matched Pairs Ranked Signs Test (Siegel, 1956, p. 75), in accord with statistical criteria elaborated in Appendix 7.B. This implied that Helping appeared to be observed in a relatively stable manner from age 7 to 9 years despite increased ratings in other elements of the major factor.

The consistent increase in teachers' ratings of Contributing to activities was of particular interest. It served to accentuate the impression noted in Experiment VII that this scale was measuring

a more basic temperamental trait, one that was robust and continuing to occupy a significant role over the total period in its visibility for the teachers.

The only other significant increase in absolute ratings was for Range of acquaintances from 7 to 9 years. It suggested that teachers were discriminating a widening of children's peer group contacts during the early Primary school years. This would appear to be consistent with the literature reviewed in Chapter four.

Wilcoxon's test was also employed to conduct further analysis of these absolute changes in ratings over two years within age by sex sub-groupings. This indicated no significant differences among 7 year olds of either sex or the 9 year old girls. However the 9 year old boys (N = 15) were rated significantly higher in Experiment VIII on the scales of Using others' names ($z = -2.11$, two tailed $p = .035$), Range of acquaintances ($z = -2.00$, two tailed $p = .045$) and of course Contributing to activities ($z = -2.19$, two tailed $p = .028$). These particular differences suggested an important broadening of the boys' participation in the peer group from 7 to 9 years. The implications of this will be considered subsequently.

9.3.3 Ratings of social competence : structural characteristics

Relationships between the 1978 ratings of social competence indicated a pattern broadly consistent with previous administration of the scale in 1976. As can be seen in Table 9.6 the distinctiveness of Turn taking was again marked in both age groups, while Sharing again played a dual role in its association with Turn taking and the four items comprising the major nominal grouping.

TABLE 9.6 Correlation matrices (r_s) of the six social competence ratings within age level and sex sub-groupings. Significant probability values are shown beneath.

7 year old girls (N=17)

	Range of acquaintances	Helping	Contributing to activities	Turn taking	Sharing
Using others' names	.47 .024	.31 -	.38 -	.00 -	.59 .007
Range of acquaintances		.10 -	.05 -	.04 -	.37 -
Helping			.08 -	-.23 -	.17 -
Contributing to activities				.15 -	.33 -
Turn taking					.17 -

7 year old boys (N=15)

	Range of acquaintances	Helping	Contributing to activities	Turn taking	Sharing
Using others' names	.69 .003	.50 .031	.68 .003	.05 -	.50 .031
Range of acquaintances		.30 -	.76 .001	-.09 -	.11 -
Helping			.60 .009	.24 -	.45 .046
Contributing to activities				-.01 -	.46 .043
Turn taking					.31 -

TABLE 9.6 cont.

9 year old girls (N=19)

	Range of acquaintances	Helping	Contributing to activities	Turn taking	Sharing
Using others' names	.40 .045	.41 .043	.45 .028	-.11 -	.28 -
Range of acquaintances		.60 .004	.48 .019	.05 -	.00 -
Helping			.68 .001	.14 -	.54 .009
Contributing to activities				.17 -	.28 -
Turn taking					.39 .050

9 year old boys (N=15)

	Range of acquaintances	Helping	Contributing to activities	Turn taking	Sharing
Using others' names	.07 -	.51 .027	.65 .005	.12 -	.02 -
Range of acquaintances		.34 -	.36 -	-.26 -	.29 -
Helping			.41 -	.02 -	.27 -
Contributing to activities				.46 .045	.38 -
Turn taking					.40 -

TABLE 9.7. Factor analysis with varimax rotation of the social competency ratings for sex and age sub-groupings

item	7 YEAR OLD GIRLS (N = 17) FACTOR I*	7 YEAR OLD BOYS (N = 15) FACTOR I*	9 YEAR OLD GIRLS (N = 19) FACTOR I	FACTOR II	9 YEAR OLD BOYS (N = 15) FACTOR I	FACTOR II
Using others' names	.93	.77	.60	.09	1.00	-.00
Range of acquaintances	.48	.97	.68	-.16	.12	.00
Helping	.33	.47	.84	.36	.56	.13
Contributing to activities	.38	.86	.64	-.01	.65	.46
Turn taking	-.04	-.03	-.04	.36	.15	.87
Sharing	.61	.30	.19	.99	.05	.61
Eigenvalue	2.04	2.98	2.18	1.08	2.26	1.04
% Variance	82.9	76.8	67.0	33.0	53.7	24.8

* Only factors with eigenvalues greater than one have been shown.

These patterns were clarified by the factor analysis shown in Table 9.7, which also accentuated a sex difference among the 9 year olds in the relative independence and dominance of Turn taking and Sharing. Of further interest was the pattern of low correlations for Contributing to activities among the 7 year old girls, confirming the distinct operation of that variate for that sub-group.

Finer analysis in terms of age by sex by adjustment groupings was not feasible given the reduced sub-group sample size.

Another approach to the present structure of the items was to compare these results with comparable administrations of the scale to 5 and 7 year olds in 1976. This might be expected to provide an indication of the internal stability of the scale, particularly in a comparison of the two equivalent groups of 7 year olds. A comparison

TABLE 9.8. Factor analysis with varimax rotation of the original (1976) social competence ratings for sex and age sub-groupings of Experiment VIII (N = 66).

item	7 YEAR OLD GIRLS (N = 17) FACTOR I*	7 YEAR OLD BOYS (N = 15) FACTOR I*	9 YEAR OLD GIRLS (N = 19) FACTOR I	9 YEAR OLD GIRLS (N = 19) FACTOR II	9 YEAR OLD BOYS (N = 15) FACTOR I
Using others' names	.94	.90	.81	-.16	.79
Range of acquaintances	.76	.83	.78	-.01	.38
Helping	.89	.92	.62	.13	.86
Contributing to activities	.73	.98	.99	.07	.82
Turn taking	.72	.85	.04	.68	.10
Sharing	.78	.91	-.01	.91	.50
Eigenvalue	3.92	4.85	2.65	1.35	3.66
% Variance	100.0	100.0	66.3	33.7	84.2

*Unrotated

of the factor loadings from Table 9.7 might thus be made with loadings for the equivalent sample of 66 children on the original 1976 ratings, as shown in Table 9.8.

Loadings for the two equivalent groups of 7 year olds (the 7 year olds in Table 9.7 and the 9 year olds in Table 9.8) revealed a general similarity. However their consistency was not as great as might perhaps have been expected. As already mentioned the most obvious source of contributory variance would appear to be possible differences in the behavioural context of Grade III versus Grade II, an hypothesis not able to be tested in the present design.

Other comparisons of ratings for the age and sex subgroupings over the two year period also indicated some variation. Younger children's Helping displayed much weaker loadings in the main factor after two years, emphasising its lesser validity in relation to the

main factor. This might be regarded as suggestive of a decline in the relative importance of Helping, as defined, as a component of the definition of social competence among older children. Being helpful evidently became a somewhat more subtle component of children's social orientation.

The loadings for Turn taking among the 5 year olds in the original study could also be seen to be initially tied fairly closely to the main factor. But the scale then showed evident independence of operation in all subsequent age and sex sub-groupings. This kind of finding should suggest caution in assuming that an index that functions effectively at one age level will continue to do so at subsequent age levels.

Given these kinds of variations, and the uncertainties they represented in terms of inter-variate consistency over time, it made little sense to pursue finer analysis of structural inter-dependencies. Too many unknown elements were evidently at work in the ratings themselves.

One other aspect of prediction over the two years warrants a brief mention.

The teachers' original (1976) classification of the children's adjustment was still found to be pertinent in that it continued to discriminate between the children on several of the social competence ratings, as shown in Table 9.9. It was of particular interest to note that the classification did not so discriminate Turn taking, which reinforced the impression that this scale underwent some appreciable change of behavioural meaning over the two year period. Conversely the significance of the difference between adjustment

TABLE 9.9. Differences in rated social competence between well and poorly adjusted children (1976 classification).

	Age level	Mean rating well adj.	Mean rating poorly adj.	U	Z	significant two-tailed P
Using others' names	7	4.00	3.41	92	-1.39	-
	9	4.77	4.00	92	-2.13	.032
Range of acquaintances	7	4.20	3.41	72.5	-2.18	.029
	9	4.35	3.77	83	-2.26	.023
Helping	7	3.87	2.65	59.5	-2.67	.007
	9	3.88	2.77	71	-2.65	.008
Contributing to activities	7	4.27	3.65	88.5	-1.55	-
	9	4.53	3.65	47	-3.59	.000
Turn taking	7	3.60	3.35	98	-1.32	-
	9	3.53	3.24	106	-1.48	-
Sharing	7	3.20	2.88	102	-1.05	-
	9	3.35	2.88	90.5	-2.05	.040

groups in Contributing to activities among the 9 year olds served to re-emphasise the key nature of this variate. The absence of such a significant difference among the 7 year olds was attributable to the special character of that scale for the younger girls, as already discussed.

9.3.4 Analysis of BSAG findings

The BSAG syndromic groupings of children classed as mildly to more severely maladjusted were found to be very closely predicted by theclassification of adjustment made in 1976. As can be seen in Table 9.10 the syndromes of Depression, Inconsequence and Hostility were discriminated in a particularly clear way. BSAG syndromes were also considered in their ordinal form; the nominated adjustment

TABLE 9.10. Analysis of the BSAG syndromic sub-groupings in terms of distribution by sex and by the teachers' original classification of well/poorly adjusted.

BSAG syndrome	Original Adjustment Classification	Boys*	Girls*	Total*
Unforthcomingness	Well	2	7	9
	Poorly	4	8	12
	Total	6	15	21
Withdrawal	Well	4	2	6
	Poorly	4	6	10
	Total	8	8	16
Depression	Well	-	-	-
	Poorly	5	5	10
	Total	5	5	10
Inconsequence	Well	-	-	-
	Poorly	7	2	9
	Total	7	2	9
Hostility	Well	1	-	1
	Poorly	4	4	8
	Total	5	4	9

*The frequencies do not sum to the sample sub-totals since the BSAG is multi-syndromic, so a particular child may be classified more than once or not at all within this table.

dichotomy was related to the syndromes by means of point-biserial correlations. These coefficients confirmed the pattern of Table 9.10 insofar as they were minor for Unforthcomingness and Withdrawal, and significant for Depression ($r_s = -.41$, $p < .001$) and Inconsequence ($r_s = -.49$, $p < .001$), with no gender differences evident. The correlation with Hostility was significantly only among the girls ($r_s = -.36$, $p = .015$).

The present sample also displayed a pattern of syndrome incidence that was broadly corroborative of the normative Canadian study (Stott, 1978; Stott et al., 1975). The sex pattern was similar in that, in both studies, girls outnumbered boys by about 5:2 in Unforthcomingness and boys outnumbered girls by about 3:1 in

Inconsequence. The factorial structure of the syndromes was also compared with a reanalysis of Stott's Canadian data (McDermott, 1980a, p. 226), as shown in Table 9.11. Although there were some differences, the correspondence between the two studies is quite striking, and attests to the fact that some stable and general dimensions are being measured by this instrument. No attempt was made to differentiate finer syndromic clusters, as discussed previously (McDermott, 1980b).

TABLE 9.11. Factor analysis with varimax rotation of raw scores of the BSAG syndromes and associated groupings for the total sample and for McDermott (1980a).

	Experiment VIII (N=66)			McDermott		
	FACTOR		Communality	FACTOR		Communality
item	I	II		I	II	
Unforthcomingness	-.18	.68	.49	-.22	.56	.36
Withdrawal	.14	.49	.26	.10	.55	.31
Depression	.21	.77	.63	.29	.49	.32
Non-syndromic under-reaction	-.09	.91	.84	-.04	.85	.73
Inconsequence	.80	-.08	.64	.75	-.03	.56
Hostility	.81	.07	.66	.66	.04	.44
Peer-maladaptiveness	.73	.07	.54	.70	-.01	.50
Non-syndromic over-reaction	.69	.05	.48	.79	.08	.64

Interpretation of the role of SES was again suspect in view of aforementioned qualification about the validity of the classification (Congalton, 1969) and the reliability of available records. Significant predicted correlations were found only for 7 year olds with respect to Inconsequence (r_s = -.57, p = .001) and

associated Peer Maladjustment (r_s = -.46, p = .004). In practice four out of the five 7 year old boys found to display Inconsequence were in the bottom SES category, while the fifth was in the adjacent category. This was certainly consistent with the normative finding that Inconsequence in boys was associated with a lower SES background (Stott, 1978, p. 134). Most of the other post-hoc BSAG groupings similarly revealed a disproportionate incidence of lower SES children. To that extent the results were consistent with a link between maladjustment and SES.

9.3.5 BSAG and social competence ratings

Correlations between the two kinds of observation are shown in Table 9.12. There were specific indications of concurrent validity, but these need not be examined in detail. Of particular interest was a pattern of sex differences among the 7 year olds in that Unforthcomingness, and to a lesser extent Hostility, correlated significantly with social competence ratings in the predicted negative manner among the boys yet displayed negligible or minimal covariance among the girls. In contrast to this Withdrawal correlated with social competence among the girls but hardly at all among the boys. Such indicators of a sex difference were not at all apparent among the 9 year olds, for whom the larger pattern of correlation was greatly reduced overall.

There was, then, considerable variation in concurrent validity between subsets of observations by the same teachers, which suggested that extraneous factors were at work in the way the teachers defined the children's manifest social behaviour. One possible contributory

TABLE 9.12. Correlation matrices (r_s) for the relationships between social competence ratings and the BSAG syndrome scores within age and sex subgroupings. Significant probability values are shown beneath.

CODE:

SOC 1	: Using others' names	U	: Unforthcomingness
SOC 2	: Range of acquaintances	W	: Withdrawal
SOC 3	: Helping	D	: Depression
SOC 4	: Contributing to activities	Q	: Inconsequence
SOC 5	: Turn taking	H	: Hostility
SOC 6	: Sharing	PM	: Peer maladaptiveness

7 year old girls (N = 17)

	U	W	D	Q	H	PM
SOC 1	-.04	-.65 .003	-.35	-.64 .003	-.17	-.43 .044
SOC 2	-.29	-.34	-.43 .042	-.42 .049	-.03	.02
SOC 3	-.16	-.60 .006	-.45 .036	-.52 .017	-.18	-.15
SOC 4	-.13	-.54 .013	-.40	-.36	-.11	-.14
SOC 5	.04	-.33	-.46 .031	-.79 .001	-.28	-.65 .003
SOC 6	.09	-.38	-.12	-.66 .022	.02	-.44 .041

7 year old boys (N = 15)

	U	W	D	Q	H	PM
SOC 1	-.62 .007	-.03	-.63 .006	-.55 .017	-.42	-.48 .036
SOC 2	-.53 .022	-.07	-.61 .009	-.52 .024	-.44	-.50 .029
SOC 3	-.50 .028	-.14	-.67 .003	-.58 .012	-.45 .045	-.50 .030
SOC 4	-.72 .002	-.06	-.63 .006	-.37	.047 .039	-.51 .026
SOC 5	-.55 .018	-.08	-.54 .020	-.43	-.56 .015	-.53 .021
SOC 6	-.60 .009	-.15	-.68 .003	-.35	-.34	-.43

TABLE 9.12. (continued)

9 year old girls (N = 19)

	U	W	D	Q	H	PM
SOC 1	-.20	-.16	-.13	-.14	.08	-.22
SOC 2	-.28	-.17	-.26	-.27	-.13	-.10
SOC 3	-.16	.07	-.46 .023	.03	.02	.29
SOC 4	-.09	-.01	-.45 .028	-.32	-.04	-.16
SOC 5	.18	.04	-.15	-.47	-.47 .021	-.39 .048
SOC 6	.12	-.20	-.37	-.26	-.39 .048	-.11

9 year old boys (N = 15)

	U	W	D	Q	H	PM
SOC 1	-.37	.07	-.36	-.20	.10	-.31
SOC 2	.07	.02	-.41	-.21	-.19	-.69 .003
SOC 3	-.10	-.04	-.38	-.13	-.01	-.21
SOC 4	-.15	.09	-.39	-.44 .050	.10	-.16
SOC 5	.17	0	-.26	-.43	-.11	-.41
SOC 6	.04	.26	-.42	-.41	.06	-.30

explanation for this variability was the content validity of the actual behavioural indicators comprising the BSAG syndromes.

Examination of the items suggested that numerous instances in each syndrome might really be termed teacher-oriented, or otherwise related to guidelines of behaviour that were of concern primarily to the teacher. This applied specifically to Unforthcomingness (UA 1-7, UB1, UB6), Withdrawal (WA1-2, WA4-5, WB1-2), Depression (DA1-5, DB1, DB3, DB5), Hostility (HA1-7, HB1-5, HC1), and Inconsequence (QA1-6, QB1-6, QC1-7).

The focus of attention in the present research was on maladjustment within the peer group. But the BSAG may only partially have been measuring social maladjustment of this kind; it may also have been measuring the quality of the relationship between the child and his/her teacher. The current data is consistent with that of other recent studies (e.g. Wright, 1980) in suggesting this kind of distinction and hence the necessity for reappraisal of the BSAG.

In the more immediate context of this research this suggested distinction might permit a more meaningful interpretation of the data. It could be argued that girls might display Unforthcomingness, and to a lesser extent Hostility, in relation to the teacher and the formally oriented aspects of the classroom environment, while still displaying relatively normal levels of prosocial and interpersonal behaviours with peers. It might similarly follow that younger boys could have a less effective relationship with their teacher, as measured by Withdrawal, while still displaying normal socially competent relations with their peers. Such an interpretation would certainly be consistent with conventional gender

stereotypes, as discussed previously. The reduction in correlations from age 7 to age 9 might also be treated, in this interpretation, as indicative of a tendency for teachers of the older children to regard as maladaptive behaviours that are regarded as quite normal, if not highly adaptive, by the children themselves. This would be consistent with other findings in the present analysis. One would certainly wish to keep this hypothesis in mind in relation to the subsequent discussion, particularly in examining the correlations between the BSAG and the sociometric indices. In a more general sense the widespread use of the BSAG, and its largely uncritical adoption, certainly suggest that further consideration of this potential dichotomy is warranted.

9.3.6 Correlates of Academic achievement

Results of the earlier studies suggested that Academic achievement warranted special examination, since it appeared to measure not only children's relative competence in formal curricula but also their capacity to display adult-oriented behaviours in the classroom. This section will focus on its correlations with the ratings of social competence, the BSAG, and the sociometric indices. Its correlations with the social cognition indices will be considered separately in a later section.

First of all the teachers' ratings of Academic achievement were found to be relatively consistent in operation over the two year period, as shown in Table 9.13. As mentioned before this was not necessarily to be regarded as an indication of test-retest reliability in the usual psychometric sense. It was also found

TABLE 9.13. Covariance between 1976 and 1978 ratings of Academic achievement within age and sex sub-groupings. Significant probability values are shown beneath.

Age level	Girls	Boys
7 year olds	.64 .003	.71 .002
9 year olds	.58 .005	.73 .002

that the 1976 ratings of Academic achievement correlated with the other behavioural ratings of Experiment VIII in a way that was consistent with the 1978 ratings. For this reason the 1976 ratings did not warrant inclusion here. The subject ratings of Reading and Mathematics in the 1978 study were similarly consistent with Academic achievement, and have also been omitted from consideration.

The correlations between Academic achievement and the social competence ratings are shown in Table 9.14. Of particular interest was the stronger association with Turn taking among boys than girls,

TABLE 9.14. Correlation (r_s) between Academic achievement and social competence ratings within age and sex sub-groupings.

item	Age level	Girls		Boys	
		r_s	p	r_s	p
Using others' names	7	.47	(.029)	.51	(.027)
	9	.16	-	.27	-
Range of acquaintances	7	.40	-	.58	(.012)
	9	.21	-	-.07	-
Helping	7	.19	-	.47	(.038)
	9	.54	(.009)	.12	-
Contributing to activities	7	.47	(.028)	.66	(.004)
	9	.71	(.001)	.57	(.013)
Turn taking	7	.34	-	.46	(.042)
	9	.04	-	.62	(.007)
Sharing	7	.27	-	.39	-
	9	.11	-	.06	-

especially for the 9 year olds. One interpretation was that the teachers' frame of reference for this scale was more explicitly task-oriented in the case of the older boys. One was led to speculate as to whether this was contributory to the way the Turn taking scale showed such distinct operating characteristics. To that extent it might help to explain its weak relationship with the peer-oriented sociometric indices.

The most consistent correlate of Academic achievement seemed to be Contributing to activities. This had evident face validity, and further corroborated the earlier impression that this was a basic and pervasive dimension of the children's behaviour, and their teachers' perceptions of that behaviour.

The correlations between Academic achievement and the BSAG syndromes within age and sex sub-groupings are shown in Table 9.15.

TABLE 9.15. Correlations (r_s) between ratings of Academic achievement and the BSAG syndromes in their continuously distributed form, analysed within age and sex subgroupings. Significant probability values are shown in brackets.

syndrome	age level	Girls		Boys	
		r_s	p	r_s	p
Unforthcomingness	7	-.23	-	-.64	(.005)
	9	-.24	-	.09	-
Depression	7	-.56	(.010)	-.58	(.013)
	9	-.47	(.022)	-.20	-
Withdrawal	7	.08	-	-.15	-
	9	-.02	-	-.18	-
Inconsequence	7	-.42	(.046)	-.59	(.011)
	9	-.25	-	-.62	(.007)
Hostility	7	-.19	-	-.71	(.002)
	9	.19	-	.28	-
Peer maladjustment	7	-.18	-	-.70	(.002)
	9	.07	-	-.02	-

A major source of interest appeared to be the sex difference in the pattern of significant correlations at the level of 7 year olds. There was some suggestion that the over-reactive syndromes were more consistently correlated with Academic achievement in the case of the 7 year old boys. The effect was limited to Inconsequence among the 9 year olds. This suggested something about the kind of problem behaviour among boys that was associated with poor school achievement. Equally it may have reflected something of the way teachers were attuned to the role of behavioural considerations in their academic judgements of boys versus girls.

The correlations between Academic achievement and the sociometric indices are shown in Table 9.16. There was evidently a change of emphasis among the boys in that the correlation was significant at the level of the 7 year olds, yet displayed an inverse (nonsignificant) relation at the level of the 9 year olds.

TABLE 9.16. Correlations (r_s) between Academic achievement ratings and the sociometric indices within age and sex subgroupings. Significant probability values are shown beneath.

	7 YEAR OLDS		9 YEAR OLDS	
	Girls (N=11)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Mutual preferences	.15	.51	.33	-.04
	-	.028	-	-
Popularity	.38	.65	.47	-.21
	-	.005	.022	-

A wider perspective on these various correlates of Academic achievement enables certain generalizations to be tentatively put forward. In Tables 9.14, 9.15 and 9.16 one might note firstly that Academic achievement correlated significantly with five of the social competence ratings, all but one of the BSAG syndromes, and both sociometric indices in the case of the younger boys. The corresponding pattern for the girls, incidentally, was much weaker. A potential explanation for part of this may have been the original superiority of the boys in verbal skills (the PPVT). But the use of partial correlation to control for the latter variate made little difference; something more subtle was at work.

Among the older boys however a quite different profile appeared to be emerging. Only Inconsequence displayed consistency in its correlation with Academic achievement. The other BSAG syndromes and three of the social competence ratings showed an appreciable drop in their correlation with Academic achievement, as too did the sociometric indices.

This total pattern appeared to suggest a subtle but undoubtedly important change in the boys' orientation towards school and the form of their participation in school activities over this period. Such a change occurred despite a corresponding reduction in sex differences in actual school attainment levels. Thus boys were no longer inferior in attainment, but were apparently undergoing a social re-evaluation of what school itself meant to them. Being good at school, it may be argued, seemed to be increasingly irrelevant, if not possibly a social handicap, within the terms of the boys' peer group.

Some corroboration for this interpretation can be found in the fact that the original adjustment classification (1976) significantly discriminated Academic achievement among the 7 year olds ($U = 29$, $z = -3.96$, two tailed $p < .000$) but did not do so for the 9 year olds. In this instance there was no corresponding sex difference. The general rules for children's participation in school thus seemed to be changing. Teachers of 5 year olds could, in these terms at least, successfully predict Academic achievement at the age of 7. Yet teachers of 7 year olds could not similarly predict Academic achievement at the age of 9. This appeared to be at least partly a function of differences in orientation between the Junior Primary and Primary school teachers.

Further subtleties in the way children's attitudes to school changed, and/or the way in which they were perceived by the teachers, were evident in the correlations between the sociometric indices and Academic achievement. Apart from the decline in correlation from age 7 to 9 among the boys there was a lesser but interesting comparison to be drawn between the patterns for Popularity and Mutual preferences.

One interpretation of this would be that Academic achievement was implicitly devalued far more strikingly by the 9 year old boys with respect to Popularity than it was with respect to Mutual preferences. This difference in emphasis was attributed to the nature of Popularity as an index of general acceptance, while Mutual preferences may have reflected a more intimate, stable, and resilient dimension of personal friendship. It would follow then that Popularity would reflect more than Mutual preferences the transitory revaluation of peer status that seemed to be involved.

The association between the sociometric indices and Academic achievement among the girls showed no sign of these patterns. The relationship was positive and increased slightly with age, but not strikingly so. In perspective it did not seem to be especially important at all.

These changes that appeared to be occurring among the boys from age 7 to 9 might also be seen in the context of Stott's comment that there was a deterioration after age 8 in the frequency of over-reactive forms of social maladjustment, with fewer well adjusted and more poorly adjusted children. He suggested:

> Partly this could be due to a growing confidence in being aggressive or to the growth in Hostility as an environmental complication.
> (Stott et al., 1975, p. 87).

But what might this "environmental complication" actually be that led to such an unpredicted change for these older boys? There would seem to be no accepted psychological development mechanism that would give a coherent perspective.

One explanation might be the changing cognitive and social demands of the school system itself. A hint of this was given in Chapter eight. It might be that the two year adjustment to school and the major transition from Junior Primary to Primary in these particular schools helped precipitate an important change in the boys' attitudes to school and their mode of participation. One could only speculate that this was in part a response to the changing attitudes of teachers and the way different styles of classroom organization affected the children. The matter will be discussed at greater length later in this chapter. Certainly it would seem

to be worthy of further empirical consideration, for the educational implications are considerable.

9.3.7 Correlates of teachers' Personal perception

This variable similarly warranted a separate analysis, for reasons already discussed. The first point for consideration was the consistency over time of the rating itself. Correlations between the teachers' Personal perception of the children in 1976 and in 1978 are shown in Table 9.17. The high correlation for the older girls was striking, bearing in mind the change in teachers and the size of the intervening period. That the correlation for the older boys was not so high would be interpreted as further support for the hypothesis of a developmental sex difference in children's adjustment patterns and/or teachers' changing receptivity to those changes. Thus girls' behaviour evidently changed less between 7 and 9 years, while teachers' expectations remained stable. A further possibility was that the boys' behaviour was changing, and/or that their teachers' expectations were changing.

TABLE 9.17. Correlations (r_s) between corresponding ratings of Personal perception in 1976 and 1978, within age and sex subgroupings.

age	sex	N	r_s	significant p
7 years	girls	17	.44	.038
	boys	15	.44	.052
9 years	girls	19	.86	.001
	boys	15	.37	-

TABLE 9.18. Correlations (r_s) between teachers' Personal perception and their ratings of social competence, within age and sex subgroupings. Significant probability values are shown beneath.

	7 year olds		9 year olds	
	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Using others' names	.13	.17	.43	.05
	-	-	.033	-
Range of acquaintances	.25	.53	.13	.33
	-	.022	-	-
Helping	.11	.17	.72	.38
	-	-	.001	-
Contributing to activities	.13	.42	.62	.51
	-	-	.003	.027
Turn taking	.15	.33	.25	.24
	-	-	-	-
Sharing	.57	.01	.71	.49
	.009	-	.001	.034

The correlations between Personal perception and the ratings of social competence are shown in Table 9.18. These might be employed in one sense to indicate which social criteria appeared to be valued by the teachers in shaping their reactions to the children. Interpreted in this way, the table suggested that teachers did approve certain sex-role stereotypes, especially Using others' names, Helping and Sharing. To that extent the teachers did recognize and emphasise the importance of a pro-social orientation among the 9 year old girls far more than the boys.

The continuing importance of Contributing to activities as a correlate among the 9 year olds again emphasised its central role as a basic characteristic of the children's observable behaviour, in possible interaction with the teachers' own frame of reference.

TABLE 9.19. Correlations (r_s) between Personal perception and the BSAG syndrome scores, within age and sex subgroupings. Significant probability values are shown beneath.

	7 YEAR OLDS		9 YEAR OLDS	
	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Unforthcomingness	-.23	-.64	-.11	.06
	-	.006	-	-
Withdrawal	-.57	-.14	-.32	.00
	.009	-	-	-
Depression	-.18	-.63	-.35	-.33
	-	.006	-	-
Inconsequence	-.45	-.69	-.26	-.26
	.035	.003	-	-
Hostility	.16	-.67	-.19	.12
	-	.003	-	-
Peer maladaptiveness	-.09	-.72	-.13	-.02
	-	.002	-	-

The corresponding correlations between Personal perception and the BSAG syndromes are shown in Table 9.19. There were two main patterns. Firstly the teachers might be said to be sensitized to maladjusted behaviour far more among the 7 year olds than the 9 year olds. Secondly the strongest effect was apparent for the 7 year old boys in all syndromes except Withdrawal, and was most pronounced for the over-reactive syndromes. There was no evident explanation within the data for the strength of this focus, although one was reminded of the findings of Experiment VIII that the younger boys then had experienced greater apparent difficulty in adjusting to the constraints of school.

The corresponding correlations between Personal perception and the two sociometric indices are shown in Table 9.20. The data

TABLE 9.20. Correlations (r_s) between Personal perception and the sociometric indices, within age and sex subgroupings. Significant probability values are shown beneath.

	7 YEAR OLDS		9 YEAR OLDS	
	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Mutual preferences	.72	.47	.51	.21
	.001	.040	.013	-
Popularity	.73	.59	.59	.19
	.001	.011	.004	-

again suggested a developmental pattern in that all coefficients declined markedly from age 7 to age 9, together with correlations at both ages being higher for the girls. This was strikingly so at age 9, suggesting that at this age there was decreasing concordance between what teachers valued and what the boys' peer group valued.

The wider perspective on these three sets of correlations was again suggestive of subtle but important changes in what Teachers' perception, regarded here as a dependent variable, was in fact responsive to. In general teachers might be said to be far more sensitised to maladjusted behaviour at the level of the 7 year olds than the 9 year olds, and were correspondingly more attuned to younger children's peer popularity. Conversely they were more attuned to children's social competence among the older age level.

It would be facile to attach too much weight to these patterns in view of the known problems of untangling the interactive sources of variance. Yet it would appear that teachers of the two age levels were attuned to different kinds of things. Whether they held different normative criteria or whether they were responding to real

differences in observable behaviour remains a speculative issue. The most important pattern would seem to be that relating to the sociometric indices, insofar as they can be regarded as independent measures. Correlations involving these parameters implied that an important hiatus was developing between the characteristics the teachers valued and those of the boys' peer group. This of course was corroborative of the generalizations formed in the preceding section with regard to Academic achievement.

These kinds of finding about sex differences might easily be construed as indicative of a certain bias towards girls in the sense of the encouragement of a pro-social stereotype by the teachers. This attribution of bias would need to be reconciled with the possibility that the girls' social interactions were, in practice, more visible and accessible to observers than the boys' interactions. Boys have been found to form larger and looser networks, reflecting wider sporting and other recreational considerations (Hartup, 1970). The latter might well be harder to observe and quantify.

Similarly the boys' pro-social behaviour may have been more subtle in operation, reflecting peer group norms as to the ways in which one could publicly conform to adult expectation or show non-masculine qualities. The normatively required styles of assertiveness and dominance would presumably create conflicts, and necessitate in a sense a more skilled social performance by the boys than was required by the girls. Certainly the present data would support the suggestion that definitions of social competence for the boys will need to be more complex and will be harder to measure accurately than would appear to be the case for the girls.

Yet this still leaves unresolved the question of bias, the degree to which the data were reflecting the teachers' normative expectations, differential sensitivity, or appreciation of the interactive nature of the observational process itself. The present design was obviously unable to sort out these sources of variance. In some instances the problem did appear to reside in the complexity and accessbility of the behaviours themselves, together with the intrinsic limitations of the teachers' role as observer. In others one sensed that the teachers really were influenced unduly by their framework of personal constructs. For the present one can only interpret the data with great caution.

9.3.8 Peers' judgements versus teachers' judgements

The sociometric indices have already been considered in relation to Academic achievement and Personal perception. They now need to be examined on their own terms, particularly with respect to their correlations with social competence ratings and the BSAG.

The two sociometric indices were themselves closely correlated, as shown in Table 9.21, although they probably warranted consideration as separate entities.

TABLE 9.21. Correlations (r_s) of the two sociometric indices within age and sex subgroupings.

	7 YEAR OLDS		9 YEAR OLDS	
	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Mutual preferences with Popularity	.77 (.001)	.88 (.001)	.88 (.001)	.81 (.001)

TABLE 9.22. Correlations(r_s) between the current sociometric indices and the original (1976) sociometric index, shown within age and sex subgroupings. Significant probability values are given beneath.

	7 YEAR OLDS		9 YEAR OLDS	
	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Mutual preferences with original Popularity index	.16 -	.09 -	.10 -	.38 -
Popularity with original Popularity index	.09 -	.17 -	-.10 -	.53 .022

Correlations between the present sociometric indices and the single index calculated two years previously are shown in Table 9.22. They were expected to be minor because of the size of the intervening period and the kinds of environmental changes in interpersonal contacts associated with these two years at school. As can be seen this was the case with the notable exception of the 9 year old boys, who displayed considerable relative stability. This was particularly interesting in the light of other evidence herein that boys appeared to alter their behaviour over time in the direction of less conformity to teachers' expectations and greater adherence to peer group norms. The present data might thus suggest that the same boys tended to remain popular in spite of changes in criteria that determine popularity.

Conversely, among girls, different children appeared to be popular at different ages, in spite of the greater stability of criteria being employed. Their friendships, then, appeared to be far more volatile than was the case for the boys. This was corroborative of earlier work (Hartup, 1970).

The correlations between ratings of social competence and the two sociometric indices are shown in Table 9.23. The most important feature was the generally higher concordance apparent for the 9 year

TABLE 9.23. Correlations (r_S) between ratings of social competence and the sociometric indices of Mutual preferences and Popularity within age and sex sub-groupings. Significant probability values are shown beneath.

Mutual preferences	7 year olds		9 year olds	
	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Using others' names	-.13	.01	.40	.14
	-	-	.048	-
Range of acquaintances	-.18	-.09	.39	.42
	-	-	.049	-
Helping	.43	.30	.42	-.09
	.045	-	.036	-
Contributing to activities	.01	.27	.57	.11
	-	-	.006	-
Turn taking	.28	.43	.50	-.34
	-	-	.015	-
Sharing	.01	.23	.41	-.13
	-	-	.040	-
Popularity				
Using others' names	.16	.21	.31	.31
	-	-	-	-
Range of acquaintances	-.07	.08	.47	.71
	-	-	.021	.002
Helping	.51	.29	.50	.15
	.019	-	.015	-
Contributing to activities	.01	.29	.52	.22
	-	-	.012	-
Turn taking	.08	.62	.48	-.40
	-	.008	.020	-
Sharing	.13	.25	.28	.12
	-	-	-	-

old girls relative to the other age and sex sub-groups. This again suggested that the older girls were increasingly in accord with their teachers in their judgements of what represented socially valued behaviours among their peers.

Interestingly, the correlations of Turn taking for the 9 year old boys were actually negative and, while they did not quite reach significance, it is tempting to wonder whether they nevertheless reflected a change in the import of this variate. That is, perhaps very open pro-social behaviours of this kind would actually reduce the popularity of 9 year old boys. Certainly this interpretation would be consistent with preceding analyses regarding this rating.

Incidentally the only rating of social competence that apparently reflected the implicit special qualities that influenced sociometric status among the older boys was Range of acquaintances. This seemed to corroborate the role of the wider peer group among the boys.

The overall pattern of correlations could thus be regarded as further evidence of a continued trend towards shared consensus of socially desirable behaviour on the part of teachers and the girls. Conversely the boys became increasingly responsive to a different

TABLE 9.24. Differences in sociometric status (Mutual preferences, Popularity) between subgroupings of children in terms of the original adjustment classification (1976). (Mann Whitney U test).

	Well adjust. $\bar{X}$	Poorly adjust. $\bar{X}$	U	Z	significant two tailed p
7 year old girls (N=17)					
Mutual preferences	3.38	2.22	21	-1.47	-
Popularity	3.25	2.11	18	-1.80	-
7 year old boys (N=15)					
Mutual preferences	2.57	1.88	19	-1.06	-
Popularity	3.00	2.00	15	-1.55	-
9 year old girls (N=19)					
Mutual preferences	4.20	1.11	4.5	-3.39	.000
Popularity	3.60	1.22	7.0	-3.21	.001
9 year old boys (N=15)					
Mutual preferences	3.00	2.25	19.5	-1.00	-
Popularity	2.86	2.25	17.0	-1.33	-

set of guidelines, presumably guided by peer group norms. This was again evident in the way the original (1976) classification of adjustment continued to discriminate only the older girls with respect to the two sociometric indices, as shown in Table 9.24.

The correlations between the sociometric indices and the BSAG scores are shown in Table 9.25. One might note that the 7 year old

TABLE 9.25. Correlations (r_s) between BSAG syndrome scores and the sociometric indices of Mutual preferences and Popularity within age and sex sub-groupings. Significant probability values are shown beneath.

	7 year olds		9 year olds	
Mutual preferences	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Unforthcomingness	-.04	-.65 .005	-.19	-.18
Withdrawal	-.57 .009	.06	-.28	-.02
Depression	-.12	-.04	-.30	-.13
Inconsequence	-.37	-.25	-.63 .003	-.09
Hostility	-.23	-.61 .009	-.37	.09
Peer maladaptiveness	-.16	-.56 .015	-.61 .003	.09
Popularity				
Unforthcomingness	-.12	-.55 .017	-.01	-.15
Withdrawal	-.25	.08	-.29	.07
Depression	-.35	-.16	-.33	-.23
Inconsequence	-.25	-.33	-.74 .001	-.03
Hostility	-.17	-.72 .002	-.23	-.02
Peer maladaptiveness	.05	-.61 .008	-.58 .006	-.07

girls appeared to disparage excess Withdrawal by their peers in one instance, while 7 year old boys disparaged Hostility and associated Peer maladaptiveness. These inferences are again drawn on the assumption that it is reasonable to impute causation in this manner.

Both of these correlations were unexpected in their context. One possible reason why the 7 year old boys seemed to react more negatively to Hostility than did girls may have been that the range of such behaviour displayed by the girls was less to begin with, so their frame of reference may have been different. That is, however, no more than a suggestion, and the findings must be put aside for now as contrary to expectation.

Of greater interest was the suggestion that the 9 year old girls disparaged Inconsequence, its associate Peer maladaptiveness, and to a lesser extent Hostility, while the boys appeared to be indifferent to any of the corresponding syndrome indicators when selecting their friends.

These results appeared to add a further dimension to themes raised earlier regarding developmental and sex patterns in the way children perceived and interacted with their peers. The interpretation perhaps needed to be qualified with respect to the earlier suggestion that certain BSAG syndrome items may have been teacher- and task-oriented rather than peer-oriented. Yet the present findings emerged despite the negative effect that this would have been expected to have.

One was led to speculate from this whether the boys really were learning to ignore, or be insensitive to, the manifestation of social maladjustment in their peers, particularly that of an

over-reactive kind. The issue was intuitively more complex than that represented by the preceding data and its aforementioned interpretation.

9.3.9 Social cognition measures as predictors of social behaviour

The indicators of social behaviour in 1978 were inter-correlated with the indices of social cognition obtained two years earlier. The analysis was conducted within age level and sex sub-groupings because these had already been shown to be highly pertinent to the children's behaviour. Further sub-division in terms of the original adjustment dichotomy of 1976 was not employed, most obviously because of the smallness of sub-groups employed.

The analysis was based primarily on bi-variate correlation because more sophisticated regression procedures were again rendered invalid by the occurrence of significant negative coefficients. These issues have already been considered in Appendix 7.B.

(a) Correlations with the social competence ratings

The age and sex sub-group matrices are shown in Table 9.26. The data contained a number of significant negative correlations which implied that the relationships would prove to be highly complex and multi-faceted in character.

The behavioural correlations with Flavell's task remained weak in Experiment VII, presumably because this task had proved to be too difficult for a large proportion of the children tested. The present longitudinal correlations were negligible, so added nothing in this respect.

The behavioural correlations with Selman's task needed to be taken far more seriously, it may be recalled, in that it seemed to

TABLE 9.26 Correlation matrices (r_s) of contemporary ratings of social competence with the original indices of social cognition within age and sex subgroupings. Significance probability values are shown beneath.

CODE: SOC 1 : Using other's names
SOC 2 : Range of acquaintances
SOC 3 : Helping
SOC 4 : Contributing to activities
SOC 5 : Turn taking
SOC 6 : Sharing

	SOC 1	SOC 2	SOC 3	SOC 4	SOC 5	SOC 6
7 year old girls (N = 17)						
Borke	-.45	-.23	-.62	-.07	.43	-.01
	.035	-	.005	-	.043	-
Flavell	-.06	.10	-.01	.02	-.02	-.02
	-	-	-	-	-	-
Selman	-.10	-.14	-.17	-.03	.21	-.05
	-	-	-	-	-	-
Referential turn taking	.34	.16	.22	-.06	-.54	-.12
	-	-	-	-	.013	-
Referential teaching	.11	-.05	.06	-.11	-.61	-.08
	-	-	-	-	.005	-
Referential verbal	.16	-.03	.23	-.08	-.68	-.03
	-	-	-	-	.002	-
Referential social orient	.51	.17	.28	.23	-.46	.16
	.019	-	-	-	.033	-
PPVT	-.26	.42	.09	.34	.18	.07
	-	.048	-	-	-	-
7 year old boys (N = 15)						
Borke	.26	.29	.19	.58	.08	.45
	-	-	-	.012	-	.048
Flavell	-.05	.23	.09	.05	-.04	.26
	-	-	-	-	-	-
Selman	.19	.14	-.16	.16	-.20	.15
Referential turn taking	.56	.39	.53	.47	.01	.38
	.016	-	.021	.040	-	-
Referential teaching	.47	.32	.02	.10	-.23	.12
	.038	-	-	-	-	-
Referential verbal	.40	.20	.16	.16	-.05	.26
	-	-	-	-	-	-
Referential social orient	.65	.44	.46	.51	.01	.43
	.005	-	.042	.027	-	
PPVT	.36	.12	.29	.35	.25	.61
	-	-	-	-	-	.009

TABLE 9.26. (continued)

9 year old girls (N = 19)	SOC 1	SOC 2	SOC 3	SOC 4	SOC 5	SOC 6
Borke	-.19	-.34	.00	-.14	.07	.07
	-	-	-	-	-	-
Flavell	-.18	-.17	-.22	.04	.12	-.37
	-	-	-	-	-	-
Selman	.26	.31	.17	.28	.30	.42
	-	-	-	-	-	.039
Referential turn taking	-.01	.29	.31	.26	.31	.14
	-	-	-	-	-	-
Referential teaching	.40	.29	.12	.21	.16	.16
	.044	-	-	-	-	-
Referential verbal	.44	.43	.11	.22	.20	.09
	.029	.035	-	-	-	-
Referential social orient	.43	.28	.06	.19	.08	.19
	.034	-	-	-	-	-
PPVT	.26	.13	.29	.50	.31	.44
				.015	-	.031
9 year old boys (N = 15)						
Borke	.05	.47	.10	.65	.58	.72
		.039		.005	.013	.002
Flavell	-.17	-.65	-.20	-.06	.41	-.35
	-	.005	-	-	-	-
Selman	.07	-.14	-.12	.19	.31	.10
	-	-	-	-	-	-
Referential turn taking	.21	-.32	.25	.15	.28	-.19
	-	-	-	-	-	-
Referential teaching	.06	-.13	.26	.12	.29	-.14
	-	-	-	-	-	-
Referential verbal	.26	.04	.26	.36	.29	.02
	-	-	-	-	-	-
Referential social orient	.24	.15	-.07	.28	.03	-.17
	-	-	-	-	-	-
PPVT	.31	-.25	-.08	.40	.56	.07
	-	-	-	-	.016	-

have major implications for Selman's methodology and for the wider conceptual model predicated upon that methodology. The addition of the longitudinal correlations revealed a negative predictive efficacy which served to reinforce doubts about the validity of the form of Selman's task used in the current research. One must remain cautious about generalizing beyond the present age range, however; further related work with this and older age groups is clearly needed.

The predictive pattern for Borke's task was stronger inasmuch as there were significant correlations with Range of acquaintances, Contributing to activities, Turn taking, and Sharing, in the case of the 9 year old boys particularly. This echoed certain of the findings from Experiment VII, and appeared suggestive of a special kind of relationship for this sub-grouping. The relative strength of these coefficients over two years warranted a closer examination, especially since there was no self-evident reason for that particular association. The matter will be discussed further in a subsequent section.

The Referential task ratings displayed quite a striking number of significant negative correlations, notably for the 7 year old girls. This implied that a specific kind of social reactance effect was operating, in contrast to the pattern of significant positive correlations among the 7 year old boys. No such contrasts were evident among the 9 year olds.

One was reminded of a similar kind of finding in Experiment VII, which was then attributed to the shyness and reticence of the younger girls in the original testing situation. The present findings certainly appeared to be corroborative of that interpretation.

Finally the PPVT index of receptive language correlated positively with some of the longitudinal ratings, without displaying

any consistent age or sex patterns.

In general then the social cognition tasks did appear to predict some aspects of social competence over the two years; but the main impression was of the crucial role of individual differences in how the children had reacted originally to the tasks (Brenner, 1981) and in the complex mechanisms of the children's intervening adjustment. This substantially eroded the predictive validity of the tasks in the terms of the original one-way model.

(b) Correlation with the BSAG

The covariance of the social cognition indices with the BSAG syndromes has been examined firstly for the total sample, then within age level and gender sub-groupings. It will be recalled that it was considered appropriate to examine the syndromes in their continuously distributed form, rather than within the artificial constraints of the small, normatively defined sub-groups of children with syndromic scores that were 'Mild' to 'Severe' within Stott's (1974) classification. It need also be recalled that the syndromes were not mutually exclusive; a child might score highly on several syndromes of maladjustment. McDermott (1980b) found in practice that some 60% of children classified as maladjusted were multi-syndromic in Stott's terms.

The correlations between the social cognition indices and the BSAG syndromic scores for the total sample are shown in Table 9.27. At this general level it was apparent that Borke's task was again the strongest predictor, and that the effect was strongest for Inconsequence. The relationships for the other social cognition tasks tended to be weak, with the occasional significant coefficient

TABLE 9.27. Correlations (r_s) between the social cognition tasks (1976) and BSAG syndrome scores (1978) for the total sample (N=66). Significant probability values are shown beneath.

	Unforth-comingness	With-drawal	Depression	Incon-sequence	Hostility	Peer maladaptiveness
Borke	.07	.03	-.27	-.38	-.21	-.24
	-	-	.014	.001	.050	.025
Flavell	.11	0	-.09	-.10	.05	-.10
	-		-	-	-	-
Selman	.14	-.09	-.19	-.30	-.13	-.11
	-	-	-	.008	-	-
Referential turn taking	-.08	.06	-.35	-.15	-.01	-.17
	-	-	.003	-	-	-
Referential teaching behaviour	-.09	.02	-.08	-.11	.14	-.04
	-	-	-	-	-	-
Referential verbal behaviour	-.25	-.02	-.10	-.11	.13	-.09
	.021	-	-	-	-	-
Referential social orientation	-.32	-.01	-.16	-.14	.14	-.16
	.005	-	-	-	-	-
PPVT	-.11	-.06	-.25	-.22	-.08	-.28
	-	-	.023	.041	-	.011

appearing of little consequence in that context.

The PPVT was again a significant correlate in three instances. These coefficients were all below .30, but still served to accentuate the discriminant validity of the PPVT relative to the social cognition tasks other than Borke's.

Table 9.28 shows the correlations within the age and sex sub-groupings. There were evidently more subtleties involved, and a number of interactive patterns might be noted.

TABLE 9.28. Correlation matrix (r_s) for the relationships between BSAG syndromes in their continuously distributed form and the social cognition indices within age and sex subgroupings. Significant probability values are shown beneath.

CODE:- BSAG Syndromes
U : Unforthcomingness, W : Withdrawal, D : Depression
Q : Inconsequence, H : Hostility.

	7 year old girls					7 year old boys				
	U	W	D	Q	H	U	W	D	Q	H
Borke	.48 .026	-.01 -	.13 -	-.11 -	-.08 -	-.75 .001	-.38 -	-.40 -	-.26 -	-.31 -
Flavell	.27 -	.06 -	-.05 -	-.08 -	-.24 -	.17 -	-.20 -	-.22 -	-.43 -	-.14 -
Selman	.12 -	-.09 -	-.38 -	-.35 -	-.15 -	-.06 -	-.19 -	-.37 -	-.29 -	.01 -
Referential turn taking	-.17 -	.35 -	-.16 -	.25 -	.26 -	-.51 .026	-.37 -	-.41 -	-.42 -	-.44 .050
Referential teaching	-.38 -	.11 -	.16 -	.44 .040	.64 .004	-.08 -	-.07 -	-.16 -	-.21 -	-.10 -
Referential verbal	-.56 .011	-.00 	-.07 -	.39 -	.53 .015	-.10 -	.02 -	-.03 -	-.42 -	-.21 -
Referential social orient	-.65 .003	.16 	-.10 -	.12 -	.45 .037	-.48 .034	-.31 -	-.46 -	-.53 .020	-.41 -
PPVT	.05 -	-.09 -	-.30 -	-.27 -	.00 -	-.27 -	-.18 -	-.11 -	-.24 -	-.31 -

	9 year old girls					9 year old boys				
	U	W	D	Q	H	U	W	D	Q	H
Borke	.30 -	.34 -	-.38 -	-.17 -	-.27 -	-.16 -	.27 -	-.45 .048	-.83 .001	-.12 -
Flavell	-.11 -	.04 -	-.16 -	.07 -	.51 .014	.25 -	.08 -	.07 -	-.00 -	.19 -
Selman	-.24 -	-.11 -	.16 -	-.17 -	-.07 -	.62 .007	.00 	.10 -	-.15 -	-.26 -
Referential turn taking	.17 -	.04 -	-.46 .023	-.49 .017	-.08 -	-.14 -	.18 -	-.14 -	.29 -	.10 -
Referential teaching	.05 -	-.14 -	-.07 -	-.48 .020	-.23 -	-.10 -	.24 -	.03 -	.08 -	.26 -
Referential verbal	-.14 -	-.27 -	-.01 -	-.39 .051	-.19 -	-.24 -	.24 -	.03 -	-.06 -	.26 -
Referential social orient	-.07 -	-.18 -	-.04 -	-.38 -	-.07 -	-.23 -	.33 -	.29 -	.10 -	.51 .025
PPVT	-.16 -	-.03 -	-.30 -	-.32 -	-.17 -	.13 -	-.05 -	-.37 -	-.40 -	.02 -

Firstly, Borke's task correlated significantly, in the predicted negative direction, with Unforthcomingness among the 7 year old boys, while the corresponding correlation for the 7 year old girls was significantly positive. Correlations with the other syndromes were non-significant but displayed the same general pattern. A similar, albeit weaker, pattern for boys relative to girls might be noted among the 9 year olds.

The particular correlation for the 7 year old girls noted above might be regarded speculatively as confirmation of the earlier interpretation that these girls displayed excessive reticence in the original testing situation. But the strength of the correlation for the 7 year old boys ($r_s = -.75$, $p = .001$, over two years) was taken as quite a convincing indication that this task was measuring an important dimension of the social sognition skills necessary for their subsequent adjustment. In this sense the finding was parallel to those already reported for the social competence ratings.

Little needs be said about the pattern of coefficients for Flavell's task or for Selman's social reasoning levels; their predictive capacity was mainly negligible, and even contrary to prediction in a number of instances. This was certainly taken as further corroboration of the poor validity of Selman's task, as already discussed.

Correlates of the Referential task again suggested a social reactance factor among the 7 year olds in terms of the girls displaying shyness in the original testing situation. This was indicated firstly by two significant negative correlations with Unforthcomingness, which implied that girls who had performed poorly

in the Referential task originally were more likely to be observed as high in that syndrome. These girls similarly displayed significant positive correlations in some instances with the over-reactive syndromes, which might be taken as indicative of their low level of assertiveness. Certainly that would be a consistent and appropriate interpretation, albeit speculative.

The 7 year old boys, incidentally, displayed negligible or the predicted negative correlations, the strongest of these being the relationship between Referential social orientation and Inconsequence ($r_s = -.53$; $p = .020$).

Among the 9 year olds a different pattern appeared to apply to the Referential ratings. Among the girls the correlations with Inconsequence were particularly strong, while their equivalents among the boys were negligible or the inverse of the former. Thus the Referential task appeared to be a reasonably good predictor of behaviours typified by the Inconsequence syndrome for girls, but not at all for the boys. Relationships with the other syndromes hinted at a similar pattern, but nearly all coefficients were weak, so the effect was insubstantial.

Finally the correlations between the PPVT and the BSAG syndromes were all in the predicted direction, but none attained significance, and there were no patterns across the age and sex sub-groupings.

In review the correlations of the social cognition tasks with the BSAG over the two year period were generally weak and obviously subtle in character. The particular experimental hypothesis regarding Inconsequence similarly proved to be simplistic, although the

relationship received specific confirmation with respect to Referential ratings among the 9 year old girls.

(c) Correlations with Academic achievement

The teachers' ratings of Academic achievement were again of interest because of their imputed capacity to inform about the children's adjustment to school in more than just achievement levels. The predictive correlates of the social cognition tasks are shown in Table 9.29. The coefficients ranged from negligible to quite significant levels, and highly specific processes were again evident.

TABLE 9.29. Correlations (r_s) between Academic achievement ratings and the social cognition indices, within age and sex subgroupings. Significant probability values are shown beneath.

	Academic achievement			
	7 YEAR OLDS		9 YEAR OLDS	
	Girls (N=17)	Boys (N=15)	Girls (N=19)	Boys (N=15)
Borke	.10	.60	.18	.45
	-	.010	-	.046
Flavell	-.06	.09	.12	.33
	-	-	-	-
Selman	.28	-.02	.25	.08
	-	-	-	-
Referential turn taking	.06	.51	.49	.05
	-	.025	.016	-
Referential teaching behaviour	.07	.33	.26	.09
	-	-	-	-
Referential verbal behaviour	.03	.43	.24	.09
	-	-	-	-
Referential social orient	.32	.55	.26	.01
	-	.017	-	-
PPVT	.41	.25	.42	.53
	-	-	.039	.022

Borke's task revealed a striking sex difference in terms of the significant correlates with Academic achievement among the boys at both age levels, while corresponding correlates for the girls were low. This seemed to be supportive of earlier findings in this and the preceding experiment that Borke's task was an especially good predictor of a diverse range of behaviours among the boys. Possible reasons for this will be elaborated subsequently.

Flavell's task continued to produce negligible correlations, which was in accord with other findings, and does not warrant further discussion.

Selman's task correlated weakly with Academic achievement among all age and sex sub-groupings. This was not especially different from the findings of Experiment VII, when a significant correlation had been apparent only within one of the age and sex sub-groupings.

The correlates of the Referential ratings were of particular interest insofar as they further suggested a sex difference in the sense that the pattern of correlations with Academic achievement was consistently stronger for the 7 year old boys than the girls. But among the 9 year olds there was a suggestion that this pattern had been reversed. The effect was most striking for Referential turn taking.

A similar kind of pattern was apparent in the way the Referential task predicted the specific ratings of Reading and Mathematics. But this was much weaker, and did not warrant separate presentation. In general then the correlations with Academic achievement were corroborative, without in any sense being

conclusively so, of the interpretation made earlier in this chapter regarding a developmental shift in the boys' orientation to schoolwork.

Finally it may be noted that the PPVT continued to be a relatively strong predictor of Academic achievement over the two years, the effect being more noticeable among the older children.

(d) Correlations with Personal perception

These correlations have been included to provide a full summary of the major variates. However it was not anticipated that the results would be of particular interest, since one could hardly expect significant correlates of this kind over a two year period. In practice that proved to be the case, as can be seen in Table 9.30;

TABLE 9.30 Correlations (r_s) between teachers' Personal perception ratings and the social cognition indices, within age and sex subgroupings. Significant probability values are shown beneath.

	7 year olds		9 year olds	
	girls	boys	girls	boys
Borke	.04	.05	.05	.44
	-	-	-	-
Flavell	-.07	-.06	-.17	-.20
	-	-	-	-
Selman	.06	.09	.34	.10
Referential turn taking	-.01	.20	.32	.02
	-	-	-	-
Referential teaching	-.05	-.12	.34	.23
	-	-	-	-
Referential verbal	-.19	-.05	.22	.23
	-	-	-	-
Referential social orient	.03	.17	.27	-.12
	-	-	-	-
PPVT	.13	.11	.63	.19
	-	-	.002	-

correlations were generally negligible. The striking exception to this was the one highly significant correlation between the PPVT index and Personal perception among the 9 year old girls. This appeared to suggest that verbal skills were a singularly important determinant of teachers' perceptions of these older girls. That will be seen to be of interest in the wider context of the teachers' expectations, a point which will be discussed subsequently.

(e) Correlations with the sociometric indices

The differential correlations of the social cognition tasks with children's subsequent Popularity and Mutual preferences are shown in Table 9.31. Among the younger children the prediction was obviously negligible, at times even inverse in character. Among the older children however there were indications of several significant correlations, both positive and negative, which implicated a number of direct and indirect interactions. In general the correlations were positive for the girls and negative for the boys, which seemed to be corroborative of the correlations with the teachers' observations insofar as they implied consistency and continuity of processes among the older girls, but a conflict of adult-oriented and peer-oriented behaviours among the older boys.

This effect was most pronounced for the Referential ratings, and was surprisingly strong for Flavell's task in the light of its prior pattern of weak prediction. Selman's task maintained the pattern, albeit not significantly, while Borke's task revealed negligivle correlates throughout. The latter finding suggested that the previously noted predictive efficacy of Borke's task, for the boys, did not apply to their peer relationships. This would

TABLE 9.31. Correlations (r_s) between the sociometric indices (Popularity and Mutual preferences) and the social cognition indices within age and sex subgroupings. Significant probability values are shown beneath.

	7 year olds		9 year olds	
	girls	boys	girls	boys
Popularity				
Borke	-.24 -	.31 -	.02 -	.17 -
Flavell	-.31 -	-.28 -	.06 -	-.78 .001
Selman	.17 -	-.21 -	.27 -	-.36 -
Referential turn taking	.13 -	.24 -	.56 .007	-.47 .039
Referential teaching	.10 -	-.09 -	.52 .012	-.41 -
Referential verbal	.11 -	-.02 -	.44 .030	-.20 -
Referential social orient	.03 -	.18 -	.45 .028	-.03 -
PPVT	.17 -	-.07 -	.66 .002	-.02 -
Mutual preferences				
Borke	-.01 -	.42 -	-.03 -	.03 -
Flavell	-.22 -	-.29 -	.09 -	-.42 -
Selman	.07 -	-.29 -	.29 -	-.19 -
Referential turn taking	-.21 -	.20 -	.34 -	-.61 .008
Referential teaching	-.14 -	-.18 -	.38 -	-.54 .018
Referential verbal	-.16 -	-.06 -	.35 -	-.42 -
Referential social orient	-.22 -	.15 -	.35 -	-.27 -
PPVT	.23 -	.00 -	.73 .001	.26 -

seem to constitute an important qualification on an aforementioned finding concerning the predictive efficacy of Borke's task for the boys but not for the girls with respect to the teachers' ratings.

The strength of the association between the Referential ratings and the two sociometric indices in the case of the older girls proved to be a more complex issue however. For it was then apparent that the Referential skills were themselves subject to the wider influence of verbal skills in their correlations with the sociometric indices. Partial correlations controlling for the PPVT were found to reduce all coefficients to a nonsignificant level in the case of the older girls, but to have a negligible impact on correlations for the older boys.

This apparent dominance of verbal skills over the skills measured by the social cognition tasks was corroborated by the use of forward regression. The PPVT was thus found to be the sole significant predictor for Popularity ($R = .68$, $F(4,14) = 14.75$, $p = .001$) and for Mutual preferences ($R = .77$, $F(4,14) = 24.99$, $p = .000$) in the specific case of the 9 year old girls.

These findings implied that girls' social cognition skills became subsidiary over time to the larger influence of receptive language skills. This pattern was evident for both the sociometric indices and the teachers' Personal perception of the 9 year old girls, which suggested that there was a considerable consensus between teachers and these older girls in their implicit valuing of the importance of verbal skills. More generally however, this longitudinal finding obviously undermined the construct validity

of the Referential task as an index of particular role taking skills.

9.3.10 Summary of major findings

It is evident that this analysis of the data has led to multi-faceted findings with implications going far beyond the original design. The following summary will attempt to integrate these and draw out a synthesis of the major themes. For purposes of continuity the same general sequence of headings has been employed.

(a) Characteristics of the longitudinal indices of social behaviour

Only minor developmental patterns were apparent for certain social competency ratings and none at all for the BSAG syndromes. These findings were consistent with the generally recognized characteristics of rating methodology (Cairns & Green, 1979), and also with the established normative character of the BSAG instrument itself. The structure of items within the social competency scale itself remained fairly consistent with the findings of Experiment VII in terms of the delineation of one major factor of general participation, the separate and special operation of Turn taking, and the changing role of Sharing, which appeared variously to straddle these two elements.

The characteristics in particular of Contributing to activities corroborated the earlier finding that this was a stable and fairly basic dimension of children's observable behaviour, and was used in that spirit by the teachers in organizing their perceptions of the children. The one exception was the lack of stability among girls from age 5 to 7, suggesting a special change

in the character of their contribution during the first two years of schooling.

The longitudinal data further confirmed that Helping was a significantly more dominant and stable characteristic of girls' behaviour than of boys'. This was of course consistent with the literature reviewed in Chapter four. It did not mean however that girls continued to display more Helping behaviours, in any absolute sense, as they grew older. It just meant that they displayed such behaviours more visibly and frequently than did the boys. Helping actually appeared to load less on the major factor for older children generally, and displayed no indication of age changes in mean ratings. It would be facile however to say that it was stable or even declining in significance within children's behavioural repertoires. Subtleties not discernible within the present methodology were evidently at work.

The special character of Turn taking was further accentuated in that the ratings displayed an absolute decline for both boys and girls from age 7 to 9. This reflected changes that made it quite distinct in operation from the other items. In particular it remained a fairly stable dimension for the girls, but underwent considerable change in what it represented for the boys, with consequent effects on its reduced visibility to the teachers as observers.

Differences between boys' and girls ratings of social competence generally were not significant. This was attributed in part to the Primary school context and to the changing definitions of sex role stereotypes that took place in the transition from

Grade II to Grade III. However there was, in particular, a pattern of significant changes from 7 to 9 years among the boys only. This occurred in certain ratings that were suggestive of a broadening of their participation in the peer group.

For all of these findings it remained uncertain as to what extent they represented real differences in the manifest behaviours, whether they represented subtle changes in the meanings of these behaviours for the children themselves, or whether these kinds of differences altered in turn the way the teachers perceived what the children were doing. These subtleties remained intangible within the present design.

The BSAG syndromes were strikingly similar in structure and incidence within gender groups to findings of a larger normative study in Canada (McDermott, 1980a). They also suggested an association between maladjustment and home background (father's SES), particularly for the syndrome of Inconsequence. This finding emerged despite qualification about the validity and reliability of the SES index employed. In general it certainly suggested that the BSAG was measuring stable and robust characteristics of the children's behaviour.

Correlations between the social competence ratings and the BSAG syndromes suggested an unexpected pattern of sex differences. One proposed explanation for this was that the BSAG items were variously oriented to the child's adjustment with his peers on one hand, and to the child's capacity to relate to his teacher on the other. The confounding of these two separate relationship domains was thought to be contributory to the irregularity of the above-mentioned correlations.

It would appear that this distinction might well be important to the present findings, which suggested a developing hiatus between teachers' and peers' implicit definitions of what represented socially adaptive behaviour in the classroom context. However the point remains speculative within the present design. It certainly does suggest though the need for closer scrutiny of the content and construct validity of the BSAG instrument itself.

The correlates of Academic achievement were of particular interest in accentuating important changes in boys' orientation towards school from age 7 to 9. Correlations with the BSAG suggested that the teachers were most aware of maladjustment behaviour and its association with school performance among the younger boys. This pattern did not persist at all with the 9 year old boys, for whom a quite different kind of developmental effect seemed to operate.

Although older boys caught up to the girls in levels of attainment they appeared to revalue their attitudes to school and the form of their normal participation, as rated by the social competence items and as distinct from the information provided by the BSAG correlates. They became far more peer-oriented, it would seem, in contrast to the continuing desire of the girls to participate in school activities and generally please the teacher. Perhaps for that reason girls also appeared to choose friends in a way that was increasingly consistent with the teachers' ratings of Academic achievement. One could only note indirectly that this coincided with the transition from Junior Primary to Primary school organization. They appeared to be closely inter-dependent, although

any suggestion of causality would be speculative in the present design.

The correlates of teachers' Personal perception supported this contention strikingly in the sense that different teachers' personal ratings of the girls at age 7 and again at age 9 were highly correlated, while comparable coefficients for boys and younger children were relatively much weaker. Over this age range at least girls obviously adhered much more closely to teachers' continuing expectations of 'goodness' in their classroom behaviour.

The latter point was corroborated insofar as correlations of Personal perceptions with the social competence ratings supported the notion that teachers approved certain sex-role stereotyped modes of pro-social behaviour among the older girls. Similarly, correlations with the sociometric indices suggested closer association for the older girls, as already mentioned, and decreasing concordance with the older boys' preferences. It would appear to be the case then that teachers' expectations were changing, just as were the children's own orientations towards school, towards peers, and towards their implicit sense of what constituted socially adaptive behaviour in the classroom context.

Boys, it would appear, had to learn to display socially competent behaviour in an increasingly complex and probably conflicting arena of expectations of pro-social behaviour versus the sex-role stereotypes of aggressiveness, dominance, assertiveness and so on. The boys perhaps needed to a give a more skilled social performance than did the girls in this sense at least. For the girls appeared to be subject more to the

consistency and conformity of a stable and widely held stereotype that continued through the grade levels studied. This helped demonstrate, for example, why turn taking was displayed in a more stable and visible manner among the girls, while being displayed less often by more of the popular boys.

These apparent kinds of pressures upon the boys in particular were illustrated further in the finding that sociometric popularity showed striking stability from age 7 to 9 for the boys. This suggested that the same boys tended to be popular at different ages, despite changes in their peer group norms. However the low coefficients for the girls implied that there was considerable volatility in their preferences and friendships, despite apparent stability in criteria employed; different children appeared to be popular at different ages. Gender based peer groups thus appeared to operate according to very distinct mechanisms of friendship selection and maintenance, and to exercise differential forms of socializing influence.

The correlations between the sociometric indices and the teachers' ratings of both social competence and indicators of maladjustment also tended to reinforce the pattern of sex differences alluded to above. There was again greater correspondence between teachers' judgements and children's sociometric preferences in the case of the older girls. Even the original (1976) classification of adjustment by the Junior Primary teachers still discriminated the older girls' popularity at a highly significant level, while failing to discriminate at all for other age and sex sub-groupings. The effect was thus very persistent.

Possible insight into the mechanisms that were involved was provided by the finding that particular BSAG syndromes appeared to be disparaged, or even rejected in a sense, by the girls' same sex peers, as indicated by sociometric preferences. In particular the 9 year old girls appeared to disparage the over-reactive mode of maladjustment, especially Inconsequence. One highly plausible interpretation of this finding was that the older girls reacted against such behaviours in their peers. The older girls, it would seem, valued thoughtfulness, consideration of others, anticipation of consequences and so on; all the qualities that were in fact antithetical to Inconsequence.

This had to be set beside the surprising and quite striking finding that the 9 year old boys appeared quite indifferent in their sociometric preferences to any indication of behavioural maladjustment, as defined by the BSAG, whether it be over-reactive or under-reactive. Their criteria for peer-preferences obviously lay elsewhere, although the present design did not allow analysis of such subtleties. There were, for instance, too few children who were seriously maladjusted in any of the syndromes to be able to find if the boys still regarded such children in the same apparently nonchalant manner. One would suspect not, but this could not be established here.

If the differences in pattern which are observed here are indeed veridical their implications for the development of further differences in the way boys and girls behave are incalculable. This has vital implications for any further examination of the way social cognition skills appear to predict children's social adjustment.

Such findings made it apparent that an important process of re-orientation was occurring for the children over the two year period, in interaction with the teachers' own changing expectations. This raised questions about the adequacy of the original one-way model, in terms of the static definitions of dependent and independent variables. Perhaps it was not even appropriate, in an ecological or methodological sense, to expect the social cognition indices to display predictive validity in this manner. For this may have been to underestimate the significance of the social learning that was occurring, together with the rapid interactive developments in social cognition as such.

The effect of intervening variables of this kind had been partially anticipated at the beginning of this research. But one was unprepared for the striking character of the findings, and the way they helped broaden still further the appreciation of social reactance phenomena at work. This did not necessarily render the results invalid; but certainly they needed to be interpreted cautiously and within a wider framework.

(b) <u>The prediction of teachers' ratings of behaviour by earlier social cognition tasks</u>

At this stage it may be appropriate to look at how each social cognition task actually correlated with the longitudinal indices. The latter have just been divided in terms of whether they reflected teachers' judgements or the judgements of the children's peers.

First of all little needs be said about Flavell's task of conceptual role taking. The task continued to be a minimal correlate of all of the indices of social behaviour, presumably because it had not satisfactorily discriminated the present age range of children to begin with.

Selman's task also displayed weak or even inverse relationships with all of the longitudinal teachers' observations. This was taken to reflect further the inappropriateness of the index in the present context. The findings thus seriously undermined any claims as to the structural depth or generalizability of Selman's model. Interview behaviour based on Selman's approach obviously bore little relationship to social behaviour as here defined.

Borke's task, however, was found to be a surprisingly strong correlate of the longitudinal indices provided by the teachers, and in that sense might be regarded as a substantial predictor over the two years. The relationship was quite specific however; the significant correlations with four of the social competence ratings occurred only for the 9 year old boys, while correlations with the BSAG syndromes, most particularly Unforthcomingness, were strongest for the 7 year old boys. The pattern for the 9 year olds was similar to this but weaker. Borke's task was also the main correlate of Academic achievement in boys of both age levels, but negligibly so for girls.

Incidentally, Borke's task also correlated inversely with Unforthcomingness among the 7 year old girls, which was apparently corroborative of the interpretation from Experiment VII that the younger girls had displayed undue shyness and timidity in the original testing situation.

These general results were quite striking in view of the aforementioned social factors acting against this kind of longitudinal prediction. But why was Borke's task apparently able to predict teachers' ratings of boys' behaviours but not the boys' own sociometric preferences? The strength and specificity of these findings was all the more interesting in view of the apparent crudity and simplicity of the original instrumentation, although its very simplicity of presentation appeared, in retrospect, to be one of its strengths. These themes will be discussed subsequently.

The Referential ratings were found to correlate significantly with social competence ratings of the 7 year old boys, but negatively in the case of the 7 year old girls. The latter was again supportive of the interpretation that these particular girls had displayed unduly restrained behaviour in the original testing. In a similar manner it was evident that the correlates of the Referential ratings with the BSAG syndromes were strongest in the case of 7 year old girls' Unforthcomingness.

This interpretation was also consistent with the separate finding that teachers' ratings of Contributing to activities in 1976 showed particularly low correlations with those of 1978, presumably because of an increase in confidence as the girls grew older. The evidence was thus consistent regarding the interpretation of a social reactance effect operating in the younger girls' original behaviour in a contrived situation.

Among the 9 year olds a different kind of pattern seemed to emerge with respect to the Referential ratings. Among the older girls they correlated positively with the social competence ratings,

albeit not at a significant level, in most instances. However among the older boys the correlations were negligible or even slightly negative. This contrasted with the significant findings for the younger boys, and led again to an interpretation that the boys were changing the guidelines as to how they interacted with one another over this period.

The correlations between Referential ratings and Academic achievement tended to support this interpretation. The significant or near-significant coefficients found for 7 year old boys contrasted with negligible coefficients among the 9 year old boys. Conversely the coefficients for the girls tended to increase slightly with age. The apparent change of emphasis among the boys, it might also be noted, was most pronounced for Referential turn taking. The notion of an underlying shift in boys' social orientation was thus again consistent with the data.

In contrast to this the Referential ratings correlated negligibly with the BSAG syndromes among the 9 year old boys, yet displayed a strong relationship with 9 year old girls' Inconsequence. That is, girls who showed good Referential teaching skills subsequently gave least indication of the Inconsequence behaviours. This fitted aforementioned findings that the older girls appeared to place more emphasis on pro-social skills than did the boys. Later maladjustment among girls might thus be predicted in part by Referential teaching skills in this sense, but not at all among the boys.

The preceding correlations between Referential skills and Inconsequence among the 9 year old girls were the only direct

evidence in support of the experimental hypothesis regarding that syndrome. That obviously operated only in a negative sense, for 7 out of the 9 children classified as 'Mild' to 'Severe' in their Inconsequence were, in practice, boys. Furthermore among these latter children it was evident that their social cognition skills in 1976 had been as good as, if not better than, those of the other children. Thus there was no validity at all in the hypothesis that such children lacked social cognition skills; the issue was far more complex.

Having dealt with the predictive correlates of the social cognition tasks a final comment is warranted about the predictive validity of the PPVT index. It was found to be a significant correlate of a number of social competence ratings, and Academic achievement, but correlated negligibly with the BSAG syndromes. There was, however, no consistent pattern in these coefficients, so its role appeared to be a secondary one. The one revealing correlate of the PPVT index was with the teachers' Personal perception, in the specific instance of the 9 year old girls. This appeared to be primarily a reflection of the teachers' own implicit criteria for judging these particular children.

(c) The prediction of sociometric choice status by earlier social cognition tasks

The social cognition tasks were found to be negligible or even slightly negative correlates of the two sociometric indices at the level of 7 year olds. They clearly had no relevance whatsoever to the mechanisms of peer interaction at this age.

A more complex pattern emerged among the 9 year olds. Referential teaching skills were consistent significant predictors of sociometric choice among the girls, but this predictive power was shown to be subsidiary to verbal skills as measured by the PPVT. The PPVT in fact appeared to be the major longitudinal predictor of both peer popularity and teachers' Personal perception, as noted above. This suggested that verbal skills were implicitly regarded as important for older girls by teachers and peers alike, in a manner superordinate to the other social cognition skills considered herein.

The corresponding correlations between social cognition skills and sociometric choice among the 9 year old boys implied a quite different kind of process at work. The negative coefficients of the Referential task in particular implied subsequent disparagement of these skills by the male peer group, in a manner uninfluenced by the operation of verbal skills. This pattern was variously repeated in the coefficients for Flavell's and Selman's tasks. However negligible coefficients were found throughout for Borke's task, suggesting that it did not have any connection at all with this imputed peer disparagement. The latter was noteworthy given the aforementioned predictive power of Borke's task regarding the other social measures of the 9 year old boys.

9.4 DISCUSSION

The longitudinal perspective proved to be worthwhile in a number of ways, although its contribution did not take the form of providing clear answers to the initial research questions. The outcome was, instead, the raising of further questions and

the delineation of new variates of possible relevance to the developmental and methodological issues.

The social cognition tasks were certainly shown to predict some of the variance of children's manifest behaviour; this prediction accounted for as much as 42% of the variance in some instances. But in perspective one would be hard-pressed to support the ecological validity of these findings, in that they demonstrated both explicitly and implicitly the importance of numerous other task-related and interactive variables. These were shown to vary in turn as a function of many developmental and individual variability parameters, not the least of which was gender. The construct and discriminant validity characteristics of the tasks was thus a central issue.

Waterman et al. (1981, p. 144) recently reported that it was simplistic to expect to find clear relationships between social maladjustment and deficiencies in social cognition skills in other than very severe cases of emotional disturbance. They found in practice that

> relatively superior affective perspective taking was significantly correlated with relatively higher levels of antisocial behaviour. (loc cit, p. 144).

The present findings were thus corroborative of this gradually emerging appreciation (Kurdek, 1978a; Light, 1979, 1980; Waterman et al., 1981) that there is in no sense a monotonic relationship between demonstrated social cognition skills and manifest positive social behaviour or peer popularity. Far more complex subtleties of general socialization, individual variability, and task-related

responses are evidently involved.

The most immediate contribution of the present findings was to emphasise the fact that definitions of social competence or social cognition cannot be made in some kind of clinical or educational vacuum. The role of the peer group, most particularly as it pertained to differential expectations for boys and girls, was shown to provide a powerful and over-riding social context for the present sample. This variously influenced the children's relationships with each other, their behaviour in class and their relationship with their teachers, and also how they reacted in a contrived task situation for measuring social cognition skills as such.

The subtleties of sex differences were everywhere paramount. Boys, it was suggested, were influenced by the male peer group norms with respect to assertiveness, non-conformity to teachers' expectations, and a kind of acquired insensitivity or even disparagement regarding the apparent application of social cognition skills in certain situations. That boys do possess such skills and that they can use them to good effect is not really at issue. But how and why they use them as they do would seem to depend on important mechanisms that are only gradually being recognised and appreciated.

Girls, it was suggested, displayed a continuing conformity to teachers' expectations in both a social and academic sense, despite the widening of their social horizons in the Primary school setting. In particular it was proposed that the influence of the peer group, together with the expectations of teachers in the

school context, led to an increasing positive valuing of behaviour that demonstrated the increasing use of social cognition skills in areas of interpersonal functioning. Such areas included the anticipation of the consequences of one's own or others' actions, communicating effectively, showing a pro-social disposition towards others, and general adherence to the implicit rules of social interaction.

The manifest behaviour and specific task performances of the boys and girls were thus consistent with the concept of a difference in style of responsiveness rather than absolute differences in competence (Hoffman, 1977a, p. 209; Burstein et al., 1980). This impression may easily be integrated with another contemporary theme that girls rely more on their feelings than do boys, who adopt a more intellectualized kind of problem solving strategy in a given situation (Hoffman, 1977a).

It remains to be seen whether this latter distinction is to be more parsimoniously explained in terms of boys being socialised to be less comfortable with affectively oriented content (Hoffman & Levine, 1976). Certainly it has been demonstrated that adults initiate conversations with boys which pertain to play activities and exploratory manipulations, while initiating conversations with girls that pertain more to "domestic" issues (Wells, 1979b, p. 385). The present findings were, in a sense, corroborative of these patterns, but emphasised the particular role of the peer group, together with the expectations of teachers, in contributing to differences in style at this age level.

The correlations between social cognition tasks and behavioural indices of various kinds served a number of useful purposes, notwithstanding the appreciation of the complexity of the social milieu in each instance. Selman's model and the derivatives of his instrumentation have been shown to be simplistic and ill-equipped to provide the explanatory power attributed to them in both a normative-developmental and individual-diagnostic sense. One must not generalize beyond the present age range; but certainly the present results were convincing enough to warrant a serious reappraisal of both the structural model and the interview methodology on which it is based.

Borke's methodology, or rather the derivative format employed herein, was shown to be a strikingly effective predictor of teachers' ratings of social competence and Academic achievement over a two year period in the particular case of older boys. Its predictive effectiveness was focussed however, with little such effect being apparent for the BSAG syndromes of maladjustment as rated, nor for the indices of sociometric choice. This raised a number of questions, but the data itself provided few direct answers.

One possibility was that its predictive efficacy was related to the directness and simplicity of the instrument itself. But that would not appear to explain the highly differentiated character of its covariance, either in terms of the sample sub-groups or the selectivity of the variates involved. Nevertheless the instrument, in its simple format, was an effective predictor.

It was suggested at the beginning that the task was measuring stereotype accuracy, conceptualized here as a rather rudimentary but important part of the developing hierarchy of social cognition skills. This was unable to be determined one way or the other in the present design. What the pattern of correlations did suggest was that the developmental significance of the task was greater among 7 year old than 5 year old boys. One implication of this was that the skills measured by Borke's task were important in a developmental sense much later for the boys than they appeared to be for the girls.

Yet that interpretation did not fit readily with the evidence that boys differed in the style of application of their social cognition skills rather than in the sense of being slower to develop them or to be less able to apply them when desired. Boys were obviously not lacking in the skills, and the prediction by such rudimentary skills as appeared to be measured by Borke's task did not seem congruous with these wider findings.

A final element was the differentiated character of the covariance itself. The significant correlations of Borke's task with certain of the teachers' ratings were not balanced by corresponding correlation with the sociometric indices. The latter coefficients were negligible, and served only to show that Borke's task was the only social cognition task not measuring whatever element it was that the boys appeared to disparage in their peers within the other social cognition tasks. But that still gave no indication of what it did represent. Clearly its predictive validity was associated with behaviours able to be

observed by teachers. But these were not discriminated, as far as could be determined, by the peer group itself.

At present further speculation would seem to be unwarranted. There undoubtedly was a predictive effect, one that was robust and highly focussed in character. There was, furthermore, no reason to suspect that its operation represented sampling error or methodological artifact. But beyond that the result remains indeterminate.

Little else need be said about the other tasks of conceptual role taking (Flavell et al., 1968) and Referential teaching. They both served a useful purpose in the context of the multi-variate design, but were variously rendered equivocal by unanticipated features of their construct validity as applied to the present sample.

The net effect has been to accentuate the limited utility of any general attempt to predict aspects of children's manifest behaviour, whatever its precise definition, by means of the children's performance on certain social cognition tasks. For the present age level at least this would seem to be extending the present operational definitions of social cognition skills beyond their reasonable and meaningful limits.

CHAPTER TEN

CONCLUSIONS AND IMPLICATIONS

10.1 CONCLUSIONS

The original objectives of this project were to prepare a range of social cognition tasks in which children's performances might be related to measures of their manifest social behaviour. An initial expectation was that the basis of a developmental hierarchy might be established, in terms of particular social cognition skills having differential correlations with specific social behaviours at different ages. Beyond that the framework was open-ended. Research to date, and the prevailing methodology suggested that little more could be formulated in advance.

The initial focus was on children aged 5 to 7 in the context of the Junior Primary school. This period and context were expected to encompass major cognitive maturational changes, and also the child's induction into the reality of a larger peer group. The latter comment in no way implies a devaluation of the importance of peer relationships in the pre-school years, but is intended to emphasize the special and cumulative significance of the child's adjustment to school as a key socialization context.

The approach further recognized the need to match instrumentation as closely as possible to the competencies of the particular children being studied, in acknowledgement of the fact that other factors would not stay constant over time. A series of pilot studies were conducted to examine the selected instrumentation closely and evaluate how the local children

responded to the tasks. A trial and error approach was needed to match task requirements as closely as possible to their language conventions, information processing capacities, and social motivation.

Four tasks were selected, representing different aspects of social cognition skill as presently classified. These were, firstly, a conceptual role taking tasks (Flavell et al., 1968), measuring a child's capacity to distinguish another person's separate understanding of events; an affective role taking task (Borke, 1971, 1972, 1973a, 1973b), measuring the child's ability to identify some basic visual stereotypes of emotion; a social reasoning task (Selman, 1974, 1976a), leading to a classification of the sophistication of a child's verbal explanations of simulated social events; and fourthly a dyadic referential communication task, measuring in this case a child's ability to teach a novel game to a peer and play it cooperatively with him.

Selman's work was initially regarded as being of particular significance because of its influential structural framework, which provided a sequential model of development wherein all facets of a child's conceptions about people and relationships might ultimately be classified. The widespread acceptance of this approach, and others similar to it (e.g. Spivack et al., 1976), made it worthy of particular attention.

The tasks of Flavell and Borke were found to be useable in their original format, with modification to the visual stimuli and the selection of items respectively. Selman's original materials however proved too complex for local 5 and 7 year olds.

Consequently a simpler stimulus presentation of a short cartoon sequence with story accompaniment was substituted and evaluated. The technique still retained the basic interview approach. The fourth task, that concerned with referential communication, was a departure from the conventional experimental approach in that it focussed on how well the child could teach and then play a game with another same-sex peer. A less structured situation in the form of a straw and bottletop game was devised in order to achieve a more natural flow of dyadic interaction. This was found to be appropriately assessed in the present design by a set of four rating scales. Additionally each child was assessed for receptive language skills, using instrumentation derived from the Peabody Picture Vocabulary Test (PPVT).

These tasks were administered individually to a sample of 82 children from suburban Adelaide. The children were almost equally divided by sex, two adjacent age levels ($\overline{X}$ = 5.7 and 7.1 years), and the class teachers' nomination of whether they seemed to be well or poorly adjusted in their peer relationships. Their teachers then rated them on a six item scale of social competence. This scale had similarly been evaluated locally in pilot studies. The teachers' ratings of academic achievement and their personal response to each child were also elicited, in order to widen the framework of reference for considering what it might be that the teachers were actually responding to. Biases of some form were expected. Finally a sociometric test using the peer nomination technique was administered to each class from which children had been selected for study.

Correlation coefficients were then employed in the one-way prediction of the rated social competencies and other behaviours by the social cognition tasks and the PPVT index. These same correlations were used to examine the concurrent validity of the social cognition tasks themselves, and beyond that their construct validity for the age group studied. No prior assumptions were formulated about the validity of the structuralist model of role taking development put forward by Selman. It was expected however that the pattern of relationships would prove to be more subtle in character than sometimes represented. No attempt was made, incidentally, to investigate the reciprocal or interactionist aspects of latent trait cognitive skills and the children's ongoing social experience. Such an investigation would require methodological sophistication still rarely found, and certainly beyond the scope of the present investigation.

The results suggested that the social cognition tasks explained as much as 34% of the variance of the manifest social behaviour indices within the terms of the one-way model. This approximated available research findings, to the extent that a comparison could be made. But the pattern of correlation within the experimental sub-groupings implicated major individual variability factors, and suggested that few if any developmental generalizations could be made. This accentuated the diversity of other important social variables that had yet to be conceptualised and dealt with adequately in relation to the operation of the one-way model presently employed.

The cross-sectional study suggested that a more intensive longitudinal examination of the behavioural correlates of the social cognition tasks would be timely and useful. In consequence the same children were again observed after two years, 66 of the original sample of 82 still being accessible. Firstly the children's social competence and other parameters were again rated on the same scales by their new teachers. Secondly their sociometric status within these new classes was assessed in a more differentiated manner than before. Thirdly the children were rated by their teachers on protocols of the Bristol Social Adjustment Guides (Stott, 1974).

The latter were included in order to provide greater discrimination of individual variability in social maladjustment when examining the predictive validity of the social cognition data over the two year period. Use of the BSAG was necessarily post-hoc in character, while the correlations of the other longitudinal indices could be compared with their equivalents two years previously. To that extent the study gave a wider perspective,not only on the range of behavioural correlates of the social cognition tasks,but also on possible changes in the repertoire and meaning of children's social behaviour over the intervening period.

The major characteristics and correlates for each of the social cognition tasks will first be summarised within the constraints of the one-way model approach.

Flavell's conceptual role taking task was found to be too difficult for many 5 and 7 year olds, even in the format modified

for local children. Its poor developmental discrimination of this age level was reflected in weak behavioural correlations in almost every instance. No conclusions were thus warranted about its wider construct validity for these children, while its appropriateness for older children remained uncertain.

Borke's empathy test of affective role taking was found to be a consistent correlate of teachers' ratings of certain social competencies and of Academic achievement among the boys, particularly the older ones. This implied some special kind of predictive validity, but the finding was not matched by corresponding covariance with the sociometric indices nor with the BSAG syndromes of maladjustment. Various explanatory factors were considered, but all appeared to be inadequate in the wider context of the data. The final interpretation was thus rendered equivocal and open-ended.

Selman's social reasoning task discriminated significantly between 5 and 7 year olds; but more importantly the large scale pilot study and the major study emphasized the considerable variability of social reasoning levels within a given age level. Selman's levels of social reasoning were also found to provide minimal structural differentiation of the other measures of social cognition used herein. To that extent the data gave no credence to Selman's claims for the structural integrity and core role of his levels of reasoning. The local children also appeared to progress through these levels, in a normative sense, far more gradually than previously found in the American research. This difference appeared to reflect important sampling or cultural

differences in talkativeness and confidence in expressing ideas to a strange adult.

Equally critical were the findings pertaining to the weak correlations between Selman's social reasoning levels and all measures of social behaviour, both concurrent and longitudinal. One might justifiably conclude that this kind of interview performance bore little relationship to the subjects' skills in getting on with other children. For this age level at least, Selman's claims for the centrality of his structural model and its contingent methodology might well be examined critically. The task may have been measuring an important aspect of social cognition skill; but it related minimally to strengths or deficiencies in children's manifest social adjustment. One was thus led to question the clinical or educational diagnostic applications of Selman's structural model, at least as they applied to children below about 8 years of age. Caution was thus warranted with respect to the imputed homogeneity within levels, the validity of the linear sequence model and its cross-cultural generality, and perhaps the integrity of social reasoning skills themselves as basic latent trait cognitive functions.

Selman's developmental descriptive approach may well be justified as a starting point for normative research, in the sense originally proposed by Flavell et al. (1968). But it would seem unduly optimistic to continue to accept the model and its applications as literally as has occurred within some contemporary developmental research. It would seem to be appropriate to question in particular the ecological validity of the interview

situation, with its heavy reliance on young children's limited verbalising. A key component in the present research seemed to be how well each child could manage an adult-initiated encounter, involving unfamiliar and possibly uncomfortable content.

Such an emphasis need not, by the way, invalidate the concept of social reasoning skills, nor need it challenge the utility of interviewing children to learn about their social understanding. It would imply however that what was being measured would relate primarily to the child's relative progress towards an array of adult-oriented cognitive processes. The development of these skills may well be part of a wider process by which children's thinking becomes disembedded from their immediate experience, a process which is obviously facilitated most commonly in the school setting (Donaldson, 1978). This emphasis would also seem cognate with the long recognised general distinction between child-child and child-adult relationships (Piaget, 1932; Sullivan, 1955; Wright, 1980). Certainly it would seem to be evident that one cannot employ performance indices in child-adult dialogue to predict much of consequence about the child's behaviour or pattern of adjustment within a larger peer group context.

The Referential communication task also discriminated sharply between 5 and 7 year olds and correlated significantly with various behavioural indices. The pattern of these correlations implicated a number of other distinct social reactance phenomena. In particular the spirit of the game took over too well for the younger boys, who became so preoccupied with the competitiveness of the situation that they forgot their basic cooperative

teaching goal. At the same time a pattern of apparent reticence and shyness seemed to be evident among the younger girls sampled.

Sex differences were even more striking in the ways in which the Referential skills continued to correlate significantly over the two years with peer popularity, Academic achivement and the teachers' Personal perception ratings in the particular case of the 9 year old girls. This implied that such skills were important determinants of these girls' abilities to respond to the expectations of both teachers and their peer group. However these correlations were then substantially reduced in the longitudinal study by partialling out the effects of receptive language skills (PPVT), which suggested that the role taking component of the task might in practice be subordinate to verbal skills. No such effects were apparent for the older boys, whose results suggested rather an implicit devaluing of these skills within the peer group context.

These apparent contrasts between boys and girls must be viewed in the context of wider social changes. For the data consistently emphasized the continuity of girls' adjustment to school, relationships with teachers, the criteria for peer acceptance, and indeed the commonality of teachers' and peers' perceptions.

Conversely boys appeared to participate less in teacher-oriented activities, especially from age 7 to 9, even though their relative academic achievement level was maintained. They appeared to be increasingly influenced by the norms of the peer group, which implicitly seemed to require nominal independence from the

teachers' expectations. This effect was more evident among the well adjusted children. They could, in a sense, afford such independence more than the children originally classed as poorly adjusted. Such a distinction was evident to some extent among the girls, it should be noted, but it was far more pronounced among the boys.

An important facet of this sex difference was the way 9 year old girls appeared to devalue the display of over-reactive behaviours among their peers, particularly those pertaining to the syndrome of Inconsequence (Stott, 1974). The older girls thus seemed to recognize, and possibly emphasize, the significance of problem-solving skills and the anticipation of the consequences of one's actions in everyday behaviour. For them at least role taking skills were arguably a social necessity.

Conversely the boys appeared to be relatively indifferent to the occurrence of such maladjusted behaviours as defined, at least within normal limits, and excess hostility or thoughtlessness did not seem to detract from their peer acceptance. This interpretation perhaps needs some qualification, since there was uncertainty about how much the BSAG instrument was itself adult-oriented as distinct from peer-oriented. This might well have provided a partially inappropriate definition of what constituted maladjustment as far as the children were concerned. It also needs qualification insofar as the present data did not permit differentiation of the individual subtleties of the degree of this maladjustment as defined by the BSAG. The present findings were complementary to those of Silvern (cited in Waterman

et al., 1981, p. 135) in suggesting that the everyday applications of social cognition skills are mediated differentially by boys and girls as a function of their peer group norms.

There is, then, a need to examine the relationship between social cognition skills and manifest social behaviour in terms of the particular social context and the intrinsic social reactance processes operating. The relationship, as reflected in the data, was evidently not a monotonic one. The present data offered corroboration in the domain of children's behaviour in normal settings that one needed to be very cautious about attributing deficiencies in social cognition skill. This extended the findings to that effect of Waterman et al. (1981) in relation to children diagnosed as emotionally disturbed.

This changing influence of the peer group would in fact seem to be central in explaining many recent inconsistencies in data (Burka & Glenwick, 1978; Ianotti, 1978; Barnett et al., 1979; Paulauskas & Campbell, 1979; Waterman et al., 1981). In particular it would appear to give some perspective to the findings of developmental differences which:

> suggested weaker positive relationships in later versus earlier elementary school (Deutsch, 1974; Rothenberg, 1970; Rubin, 1972).
> (Waterman et al., 1981, p. 145)

What appear to be emerging in the first instance then are subtle differential developmental patterns in the style and social context of the tendency to apply social cognition skills by boys and girls. It is certainly not a simple difference between the

sexes in levels of skill. These patterns vary considerably as a function of each child's adaptive capacity to use such skills (Barnett et al., 1979), and the particular social context in which the child finds himself or herself.

Harre and Secord (1972) suggested that we acquire a typical style in the way we present ourselves to others. This style may even include learning self-presentation techniques which rely minimally on any kind of social cognition skill. This process may well be facilitated by the influence of the male peer group; the present findings have certainly supported such a stance. Yet although boys do appear to learn to be more socially insensitive in one sense they also learn to participate in playground games that emphasize cunning and tricking one's opponent far more than is found for girls, as emerged recently in an observational study of Brisbane school children (Lindsay & Palmer, 1981).

It would thus appear that there are more fundamental mechanisms at work than have so far been recognized. Until these apparent contradictions in the selectivity and motivational antecedents of children's use of social cognition skills are resolved little real progress can be made. These issues, it would seem, have been alluded to but not yet addressed empirically.

The contribution of the present work to the solution of these problems has not been substantive. It has, however, helped to define and establish what the terms of reference may be. It has shown in particular that the social learning mechanisms of socialization via peers and teachers are fully operational in the earliest years of school, and that especially marked changes

may occur for boys in particular from age 7 to 9. In the current project they corresponded with the transition from Junior Primary (Infant) schooling to Primary schooling, although that could not be taken as indicative of any causality on the basis of the present design.

Further investigation of these kinds of phenomena is obviously warranted. But this will depend in part on indices of social cognition that have been shown to have idiosyncratic and at times questionable validity. In this respect major problems have been identified in applying instruments with a descriptive-developmental orientation to the measurement of individual differences. This emphasizes the need to re-examine such tasks far more carefully. In particular social reactance effects of various kinds may prove to be as important as the latent trait cognitive skills being sought. Certainly the present selection of tasks offered little encouragement in this respect.

10.2 IMPLICATIONS

The limited concurrent and predictive validity of the present selection of social cognition measures has served to accentuate some of the more promising directions for further research in this area. Further instrumentation certainly needs to be carefully evaluated within multi-modal designs that attempt to capture more of the character of the individual child's pattern of adjustment and responsivity. Tasks based on adult-child interaction may well continue to be influential, and need to be acknowledged as a unique source of information about children's reasoning and

explaining skills. But they do have inherent constraints that need to be recognized in the initial design. The problems of achieving adequate psychometric properties in such tasks have been underscored in the decision to include a measure of social reasoning within the British Ability Scales (Elliott, Murray & Pearson, 1978). This sub-test was found in practice not to meet the required standards of test-retest reliability or concurrent validity with other sub-tests.

There would seem to be particular value in further attempts to prepare new social cognition tasks that have greater ecological significance for the children themselves. But their very naturalism creates other uncertainties in relation to reactance phenomena (Brenner, 1981). These must again be regarded as central to the construct validity of any experimental encounter.

One particular facet of further research possibilities would seem to be a more effective assessment of children's linguistic and intellectual abilities, for these are clearly implicated in important ways. However the partialling out of their effects, as sometimes recommended, must be seen as but an exploratory and discriminatory strategy, not as a global way of reducing error variance. The choice of such instruments must also go beyond the range of conventional written tests, in order to tap both the verbal and non-verbal skills employed by children in different settings. Secondly this range might need to be extended to include both receptive and expressive language skills. Receptive language in particular needs be assessed in terms of comprehension of sentences and larger units of meaning rather than just vocabulary

as was the case in this research with the PPVT. Recent remedial instrumentation such as the Sentence Comprehension Test (Wheldall, Mittler & Hobsbaum, 1979) or the ACLC (Foster, Giddan & Stark, 1973) would seem a more promising approach.

The expressive language of children is less readily tapped in an ecologically valid manner. One might still need to employ a conventional vocabulary task such as the Vocabulary sub-scale from the WISC-R (Wechsler, 1974), although it would be more appropriate to transcribe a tape of each child's spontaneous language in context, and score that in terms of the length and complexity of utterance units (Westwood, 1975, p. 35). Further work in this area would also need to augment teachers' ratings with standardized indices of such variates as reading attainment.

At a more general level of consideration one might note that longitudinal studies are also needed to show the changes and interactions of elements over time within particular children, thereby going beyond the simple one-way model employed in the present research. Such studies might begin to examine the consequences, for example, of the transition from home to school, or from one level of schooling to the next. Certainly the present findings have hinted at important changes in children's adjustment, and related dispositions to employ their social cognitive skills, as they progress through the South Australian educational system. These changes appear to have important implications for clinical and educational diagnosis, as well as for in-service training of teachers.

But cross-sectional research should remain the first priority, because it will permit a more immediate and accessible profile of what seems to be occurring. More such information is needed, one would argue, before large-scale efforts are devoted to long-term studies. Such information may also need to be local; one should not assume cross-cultural generality between different societies or even for children from different environments within a society. For example, it remains unclear whether the sex differences implied in the foregoing research will be comparable for children from higher SES parts of Adelaide or for corresponding kinds of children from the United Kingdom or North America.

Such cross-sectional validation of social cognition phenomena in children will of course necessitate a wide variety of qualitative and quantitative techniques for the measurement of various aspects of social and personal behaviour. The most vital of these would appear to be sociometric techniques, with the possibility of a broader range of specific indices employing both nomination and peer rating techniques. The discriminatory and predictive power of such measures has been shown to be considerable. They are able to focus incisively on many of the key expectations and social contexts which determine the child's social learning about what self and others are like, what they are likely to do, and how one utilizes that developing knowledge in actual behaviour settings.

Observations by adults will obviously remain crucial too, and work with school-age children in particular must continue to rely on qualitative ratings by teachers, and possibly parents.

The alternative of quantitative measures will usually necessitate the intrusion and labor-intense organization of trained observers. In some instances the latter can obviously provide more detailed and comprehensive data. But at present there would seem to be a stronger case for the utility of qualitative data provided by adults who know the children intimately. Despite problems of reliability it would seem that the familiar adult is better equipped to characterise behaviour in larger and more meaningful units, which would appear to be the more appropriate level of analysis at present (Cairns & Green, 1979).

The issue of bias and expectation in teachers' ratings does warrant concern, but needs be seen as an integral part of the wider problem, rather than as just a source of experimental error in the measurement techniques. The foregoing data suggested that teachers' observational processes need to be explored in parallel with the actual observations that they make of their children. The present study yielded no panacea for controlling for such effects, but it suggested important avenues for further work. These pertained most obviously to the role of teachers' differential expectations of boys and girls, and the interaction of these with teachers' implicit models of what children were like and what behaviours were important at different ages.

This change of attitude appeared to be especially pronounced in comparing Junior Primary with Primary teachers, and appeared to correspond with a reappraisal by teachers of their tolerance and approval of 'informal' behaviour in the children. By Grade III teachers seemed to regard such exuberance and playfulness as no

longer natural or desirable, and possibly regarded it as a challenge to their legitimate authority. This is, of course, a speculative and very cursory description of what appears to be a complex interactive transition for teachers and children alike. But it certainly appears to be central to many of the phenomena alluded to in this research, and would appear to warrant systematic investigation.

The inclusion of the BSAG instrument in this research led to a questioning of its content validity in relation to an analysis of whether items were teacher-oriented or peer-oriented. This would also seem to be worthy of closer scrutiny in view of its continued adoption. The data has, in particular, alluded to special characteristics of Inconsequence, in relation to which it has been suggested that children scoring high on this syndrome are not at all lacking in social cognition skills. It remains to be seen whether the present findings point the way to a reappraisal of the construct validity of that particular aspect of the BSAG. The matter may be a reflection of the distinction between teacher-oriented and child-oriented items; but perhaps it goes even deeper than that. Perhaps the recent classification of the scale by McDermott (1980b) will prove to be cognate in this respect. Certainly the BSAG is in need of further validation.

A corollary to this would be the need to retain a major emphasis on behaviour of so-called normal children in normal social contexts. Some of the recent clinically oriented research (e.g. Waterman et al., 1981) has been invaluable in redefining the nature of the issues. But one senses that clinical cases can only

be given proper perspective if the realities of more routine peer interactions in the childhood years are better understood.

In particular research needs to look at the way ordinary children approach various social situations, and elect to respond to them in ways that reflect their differential strategies for interacting and which employ their individual social cognition skills. School-age children are not very skilled at explaining their own behaviour, least of all to an inquisitive experimenter, yet finding ways of penetrating the child's meta-cognitive processes would seem to be an urgent priority. This would also seem, incidentally, to be the major if not the only way presently available to try to adopt a more 'ethogenic' approach (Harre, 1979) to the psychological realities of the child's schemata for action.

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APPENDIX 6.A : Individual item inspection : Borke's original test material.

Part I: the "general situations" test	Comment
(a) items for which 'happy' was the correct response	
1. 'Show me how _____ would feel if her mother was going to take her some place she liked to go'	Satisfactory
11. 'Show me how _____ would feel if she got a new toy as a gift'	Satisfactory
(b) items for which 'sad' was the correct response	
6. 'Show me how _____ would feel if she fell and hurt herself'	Both 'afraid' and 'angry' would appear to be acceptable, based on individual differences in temperament.
8. 'Show me how _____ would feel if she couldn't go out to play because she was sick and had to stay in bed'	Borke's Chinese children were evenly divided in their responses of 'sad' and 'angry'. This again appears to be a function of temperamental differences - culturally prescribed or otherwise.
10. 'Show me how _____ would feel if someone she liked very much had to go away'	As for item 6
(c) items for which 'afraid' was the correct answer	
5. 'Show me how _____ would feel if she dreamed that a tiger was chasing her'	Numerous children interpreted this to be a 'fun' situation - and responded 'happy'.
9. 'Show me how _____ would feel if she were alone in the dark'	Satisfactory
(d) items for which 'angry' was the correct answer	
4. 'Show me how _____ would feel if her mother forced her to eat something she didn't like'	Both 'afraid' and 'angry' would appear to be acceptable, based on individual differences in temperament.
7. 'Show me how _____ would feel if her sister or her brother took her toys away from her'	Satisfactory

APPENDIX 6.A (cont.)

(e) items for which 'sad' and 'angry' were equally acceptable	
2. 'Show me how _____ would feel if she wanted to do something and her mother said "no"'	Borke found that Chinese children predominantly replied 'angry', while American children were equally divided between 'sad' and 'angry'.
3. 'Show me how _____ would feel if her mother promised she could go to a movie and then didn't take her'	As for item 2.
Part II: the "peer interpersonal situations" test	**Comment**
(a) items for which 'happy' was the correct response	
1. 'Show me how _____ would feel if you gave her some ice-cream'	Satisfactory
12. 'Show me how _____ would feel is you invited her to come and play with you'	Satisfactory
(b) items for which 'sad' was the correct response	
2. 'Show me how _____ would feel if she wanted to play with you and you couldn't play because it was too late'	Borke's Chinese children were again inclined towards 'angry'. But the same tendency might be anticipated also because of temperamental factors.
4. 'Show me how _____ would feel if you pushed her down and she got hurt'	'Angry' would again seem to be a legitimate alternative.
6. 'Show me how _____ would feel if you left her and went to play with someone else'	As for item 4
11. 'Show me how _____ would feel if you wouldn't let her play with you'	As for item 2
(c) items for which 'afraid' was the correct answer	
5. 'Show me how _____ would feel if you pretended to be a ghost and ran after her in the dark'	The ambivalence of the situation led several children, quite legitimately, to interpret this as a game and respond 'happy'.

APPENDIX 6.A (cont.)

	Comment
(c) (cont.)	
8. 'Show me how _____ would feel if you told her a ghost story'	As for item 5
(d) items for which 'angry' was the correct response	
7. 'Show me how _____ would feel if she just finished building a tower of blocks and you knocked it down'	Temperamental differences would make both 'angry' and 'afraid' responses meaningful. A different but still legitimate interpretation might also make 'sad' a valid response.
10. 'Show me how _____ would feel if you said something bad about her father or mother'	As for item 7
(e) items for which 'sad' and 'angry' were equally acceptable	
3. 'Show me how _____ would feel if you broke her favourite toy'	Borke found a definite temperamental factor operating : the children were evenly divided between the two alternatives.
9. 'Show me how _____ would feel if you tore her best drawing into little pieces'	As for item 3

APPENDIX 6.B : New test format.

NAME _____

1.	How would he feel if you gave him an ice-cream?	
2.	How would he feel if he was going to go for a holiday?	
3.	How would he feel if he saw a snake?	
4.	How would he feel if he was missing a friend who had gone away?	
5.	How would he feel if his mum didn't come home on time?	
6.	How would he feel if somebody had just stolen his bike?	
7.	How would fe feel if he was sent to bed early?	
8.	How would he feel if he couldn't go out to play because he was sick, and had to stay in bed?	
9.	How would he feel if everyone in the class was getting their photograph taken?	
10.	How would he feel if some other children didn't want to be friends with him?	
11.	How would he feel if his brother or sister wouldn't give back his toys?	
12.	How would he feel if he was asleep and had a bad dream?	
13.	How would he feel if you asked him to come and play with you?	
14.	How would he feel if he were alone in the dark?	
15.	How would he feel if he was playing, and no one did what they were supposed to?	
16.	How would fe feel if his pet dog had just died?	

APPENDIX 6.B (cont.)

Sample format showing the infant print as presented to the 5/7 year olds. Only the first five items for each sex have been included.

1. How would she feel if you gave her an icecream?
2. How would she feel if she was going to go for a holiday?
3. How would she feel if she saw a snake?
4. How would she feel if she was missing a friend who had gone away?
5. How would she feel if her mum didn't come home on time?

1. How would he feel if you gave him an ice-cream?
2. How would he feel if he was going to go for a holiday?
3. How would he feel if he saw a snake?
4. How would he feel if he was missing a friend who had gone away?
5. How would he feel if his mum didn't come home on time?

APPENDIX 6.C : Original line drawings of facial expressions of emotions (Borke, 1971, 1972, 1973a, 1973b). Separate sets were presented to boys and girls.

How would he feel ?



happy



sad



angry



afraid

How would he feel ?



afraid



angry



sad



happy

How would she feel ?



happy



sad



angry



afraid

How would she feel ?



afraid



angry



sad

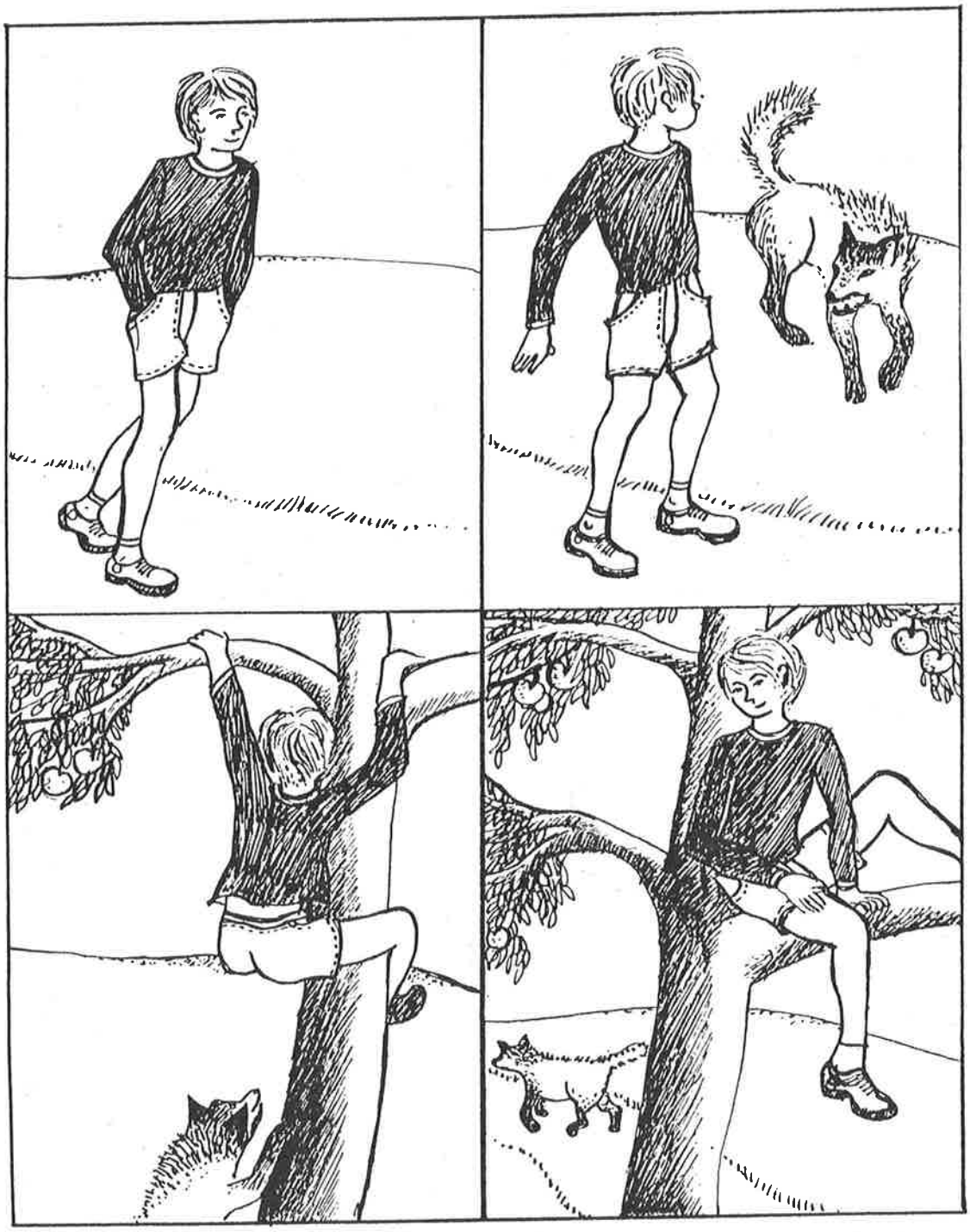


happy

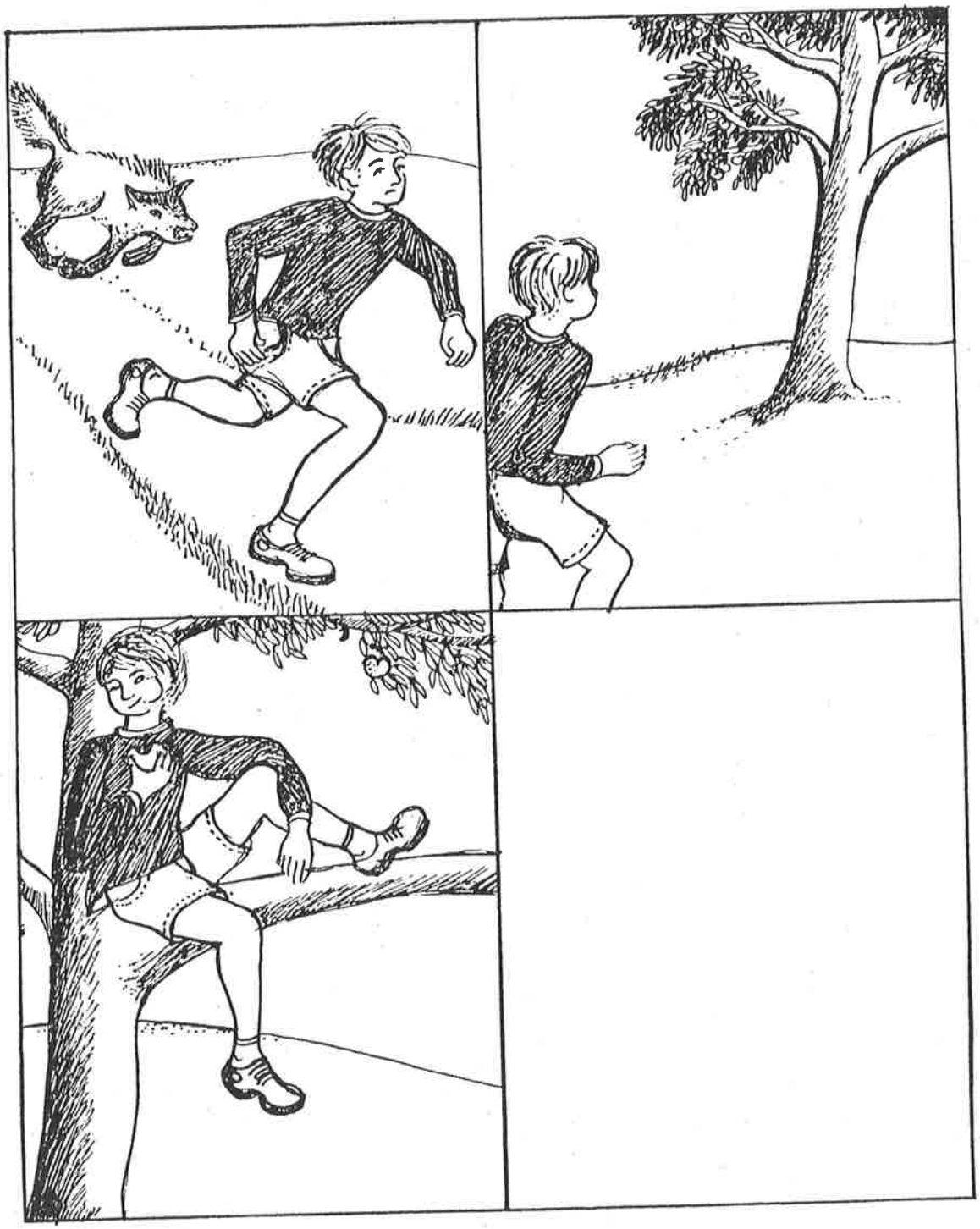
APPENDIX 6.D : Flavell's original graphics - Black and white reproduction of a coloured original in Schell, R.E., editor, Developmental Psychology Today (2nd edition), New York: CRM, 1975, p. 280.



APPENDIX 6.E : Graphic adaptation of a cartoon test of conceptual role taking skills (Flavell et al., 1968).



APPENDIX 6.E (cont.)



APPENDIX 6.F : Guidelines for scoring of perspective taking reproduced from Selman's manual "First Things: How would you feel" (1974 , p6-7).

Level One: Egocentric perspective taking

The child has difficulty distinguishing between his view and that of others. He reasons that his point of view is the true perspective, not because he is right and others are wrong, but because he is unaware that others may have a different perspective. He may say in response to the puppy dilemma, "Tom should give Mike a puppy. I like puppies. Puppies are fun". He does not consider the possibility that Mike may not want a puppy.

Level Two: Informational perspective taking

The child sees himself and other people as having possibly different interpretations of the same social situation, depending upon how much information each has. However, he cannot put himself in another's place because he does not realize that another person can think about what he is thinking. A child at this level may respond to the puppy story like this, "Mike said he doesn't want a puppy. Tom likes puppies, but he shouldn't get one for Mike."

Level Three: Self-reflective perspective taking

The child becomes aware that people think or feel differently from one another, not only because they have different information, but also because they have different values. The child can put himself in other people's shoes, and, in doing this, he can see himself through their eyes. He understands that one person can think about another's views. A child at this level may answer, "If I were Mike, I'd want a puppy. Maybe Mike just doesn't know how he would feel if he had a new dog."

Level Four: Mutual perspective taking

The child realizes that both he and other people are thinking about each other's views at the same time. The child can view his own interactions with people as if he were a bystander. A child at the level of mutual perspective taking may say, "Well, if Tom gets Mike a puppy and Mike doesn't like it, Tom still knows Mike will understand that he was only trying to make him happy." At this level the child understands that people can be simultaneously and mutually aware of their own and others' motivations.

APPENDIX 6.G : Modified stimulus presentation of story with picture accompaniment, based upon Selman's original materials (Selman, Byrne and Kohlberg, 1974).

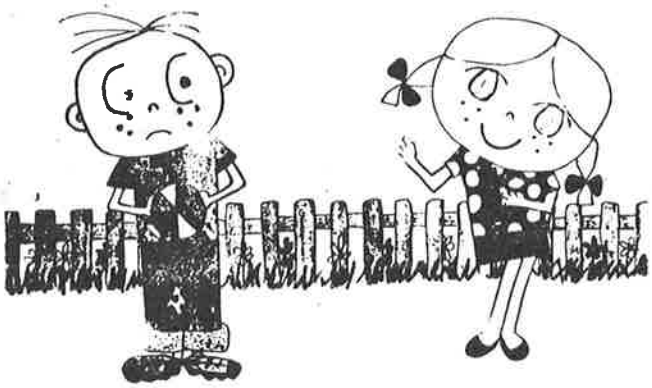
1. This is Lucy.





2. This is John.
John and Lucy are very good friends.

3. They often play together.



APPENDIX 6.G : (cont.)

4. One day Lucy sees that John is sad, and he tells her that he has lost his dog. Lucy asks him why he doesn't get a new one. But John says that a new dog wouldn't be the same. He never wants to see another dog.



5. Lucy remembers that it will soon be John's birthday, and wonders what to buy him - a truck? a plane? a football?



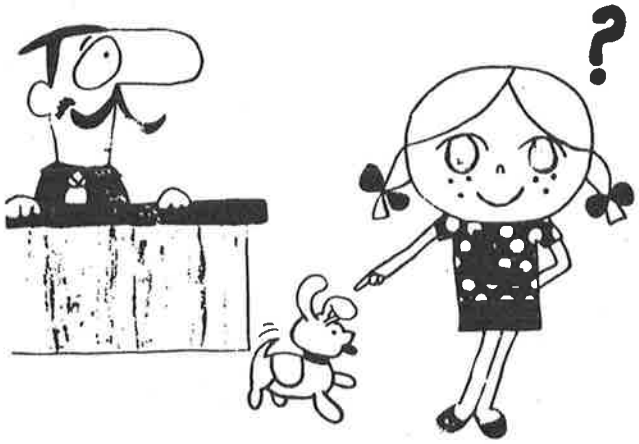


6. While she is looking around the shops, she notices a sign in the Pet Shop window, which says - "Puppy for Sale."

APPENDIX 6.G : (cont.)

7. Lucy wonders whether to buy a puppy for John's birthday. She asks the shopkeeper how much the dog costs.

"Two Dollars" The Man Says, "And its the very last one."





8. Lucy thinks for a while, then she says - I know what I'll do.

APPENDIX 6.H : Categories of the four behaviour parameters rated in the straw and bottletop game pertaining to Referential communication (Experiment IV B and VII).

Item 1. Turn taking behaviour

Degree of spontaneous adherence to the norm of turn taking.

Score	Behaviour Specification
4.	Turn taking is implicit in all games played by the children. No attempt is made to deviate from the rule at any time. The subject may reinforce the need for turn taking to the second child.
3.	Turn taking is implicit in most games, but is abandoned as the activity proceeds and possibly intensifies after a few games.
2.	Turn taking might be implied initially ("You go first", etc.) but is not then implemented. Alternatively it is enforced spasmodically and/or inconsistently during the activity.
1.	No turn taking is evident from the outset. Subject plays without apparent reference to partner's activity.

Item 2. Teaching behaviour

Quality of the speaker's attempts to convey the rules of the game, using both verbal and non-verbal modes of communication. Based on Experiment IV A.

Score	Behaviour Specification
4.	Subject gives a detailed, relatively complete communication of the task elements. Further feedback is provided as it is necessary.
3.	Subject gives a fairly general indication of the task, with some features omitted. These are then worked out by the second child by himself, or added as corrections by subject when the game demands them.
2.	Subject tries to indicate task only in vague fashion, does not provide any coherent guidelines. Any successful competition more to the efforts of the second child than the subject.
1.	Subject shows complete inability or unwillingness to communicate to the second child. No visible efforts made to modify the other child's behaviour. Any games that follow are solely due to initiative of second child.

APPENDIX 6.H (cont.)

Item 3. Verbal behaviour

Speaker's use of language in initial teaching and in subsequent monitoring of the listener's performance.

Score	Behaviour Specification
4.	Subject explains task in explicit detail, then gives effective feedback as required.
3.	Subject explains task in some detail, but with several points omitted. These might be determined by second child using other cues. May be some further verbal feedback.
2.	Subject offers only one or two brief directions, expecting the other child to carry on. Possibly adds later comments or brief commands.
1.	Subject doesn't use language at all.

Item 4. Social orientation

Speaker's degree of recognition of the interactive demands of the task and the difficulties faced by the listener in gaining familiarity with the task.

Score	Behaviour Specification
4.	Subject is most concerned to teach rules effectively and induct second child fully by means of feedback, encouragement, general socialising etc.
3.	Subject shows some concern for teaching role, but sometimes forgets own part amidst enthusiasm to win.
2.	Subject makes only initial gesture of playing with the other child, yet continues to show some interest in the other's progress.
1.	Subject is apparently oblivious to the other child. Other's presence is purely "symbolic" to the terms of the activity.

APPENDIX 7.A : Experiment V : Subscale of 20 items drawn from the CPSCS.

1. IDENTIFICATION OF SELF

1. Can state first name only.
2. Can state full name.
3. Can state full name and age as of last birthday.
4. Can state name, age, and address.

2. USING NAMES OF OTHERS

1. Uses no proper names in interacting with those around him.
2. Uses the names of no more than five children or adults.
3. Uses the names of from five to ten children.
4. Uses the names of virtually all children and adults.

6. CONTINUING IN ACTIVITIES

1. He wanders from activity to activity with no sustained participation.
2. He continues in his own activity but is easily diverted when he notices activitiey of others.
3. He continues in his own activity and leaves it only when he is interrupted by others.
4. He continues in his own activity in spite of interruptions.

7. PERFORMING TASKS

1. He usually has to be asked two or three times before he will begin a task.
2. He usually begins task the first time he is asked but dawdles and has to be reminded.
3. He begins task the first time he is asked but is slow in completing task.
4. He begins task first time he is asked and is prompt in completing task.

8. FOLLOWING VERBAL INSTRUCTIONS

He can follow verbal instructions -

1. When they are accompanied by demonstration.
2. Without a demonstration, if one specific instruction is involved.
3. Without a demonstration, when it involves two specific instructions.
4. Without a demonstration, when it involves three or more instructions.

9. FOLLOWING NEW INSTRUCTIONS

1. He carries out one familiar instruction.
2. He carries out one new instruction the first time it is given.
3. He follows new instructions given one at a time, as well as familiar ones.
4. He follows several new instructions given at a time, as well as familiar ones.

10. REMEMBERING INSTRUCTIONS

1. He nearly always needs to have instructions or demonstration repeated before he can perform the activity on his own.
2. He frequently requires repetition, a reminder, or affirmation that he is proceeding correctly.
3. He occasionally needs repetition of instruction for part of the activity before completing the activity.
4. He performs the activity without requiring repetition of instructions.

12. COMMUNICATING WANTS

1. He seldom verbalizes his wants; acts out by pointing, pulling, crying, etc.
2. He sometimes verbalizes but usually combines actions with words.
3. He usually verbalizes but sometimes acts out his wants.
4. He nearly always verbalizes his wants.

15. SHARING

1. He does not share equipment or toys.
2. He shares but only after adult intervention.
3. He occasionally shares willingly with other children.
4. He frequently shares willingly with other children.

16. HELPING OTHERS

When another child is having difficulty (such as using equipment, dressing) -

1. He never helps the other child.
2. He helps another child only when they are playing together.
3. He sometimes stops his own play to help another child.
4. He frequently stops his own play to help another child.

APPENDIX 7.A (cont.)

17. PLAYING WITH OTHERS

1. He usually plays by himself.
2. He plays with others but limits play to one or two children.
3. He occasionally plays with a larger group (three or more children).
4. He usually plays with a larger group (three or more children).

18. INITIATING INVOLVEMENT

When other children are involved in an activity which permits the inclusion of additional children -

1. He seldom initiates getting involved in the activity.
2. He sometimes initiates getting involved in the activity.
3. He frequently initiates getting involved in the activity.
4. He nearly always initiates getting involved in the activity.

19. INITIATING GROUP ACTIVITIES

1. He nearly always initiates activities which are solely for his own play.
2. He initiates his own activities and allows one child to join him.
3. He sometimes initiates activities which include two or more children.
4. He frequently initiates activities which are of a group nature.

20. GIVING DIRECTION TO PLAY

When playing with others -

1. He typically follows the lead of others.
2. He sometimes makes suggestions for the direction of the play.
3. He frequently makes suggestions for the direction of the play.
4. He nearly always makes suggestions for the direction of the play.

21. TAKING TURNS

1. He frequently interrupts or pushes others to get ahead of them in an activity taking turns.
2. He attempts to take turn ahead of time but does not push or quarrel in order to do so.
3. He waits for turn, but teases or pushes those ahead of him.
4. He waits for turn or waits to be called on.

23. DEPENDENCE UPON ADULTS

He will continue in an activity on his own without having an adult participate with him or encourage him -

1. Hardly ever.
2. Sometimes.
3. Frequently.
4. Nearly always.

24. ACCEPTING LIMITS

When an adult sets limits on the child's activity (play space, use of material, type of activity) he accepts the limits -

1. Hardly ever.
2. Sometimes.
3. Frequently.
4. Nearly always.

25. EFFECTING TRANSITIONS

In changing from one activity to another -

1. He requires personal contact by adult i.e. holding hands, leading).
2. He will not move toward new activity until the physical arrangements have been completed.
3. He moves toward new activity when the teacher announces the activity.
4. He moves toward new activity without physical or verbal cues.

26. CHANGES IN ROUTINE

The child accepts changes in routine (daily schedule, room arrangements, adults) without resistance or becoming upset -

1. Hardly ever.
2. Sometimes.
3. Frequently.
4. Nearly always.

30. SEEKING HELP

When he is involved in an activity in which he needs help -

1. He leaves the activity without seeking help.
2. He continues in the activity but only if help is offered.
3. He persists in the activity and finally seeks help.
4. He seeks help from others after making a brief attempt.

APPENDIX 7.B : A rationale for the statistical analyses.

The nature of the data in this and the other experiments warrants a separate explanation of the decisions made regarding the choice of analyses. A comprehensive rationale at this point may avoid the need to make repeated justification or explanations on each subsequent occasion, and offer a common point for cross-reference.

7B.1. Parametric versus non-parametric statistics

The bulk of the data was obviously in the form of ordinal ranks of one kind or another, and the diversely skewed nature of the resultant distributions meant that no assumption was warranted with respect to the parametric requirement of normal distribution. There was, furthermore, little to be gained by efforts to transform such distributions by means of Z scores or the like. Any transformation would only have masked the evident subtleties within and between variables.

The adoption of distribution free statistics was thus essential (Thorndike, 1978, p.9). This was exacerbated in turn by the relatively small samples and further sub-groupings that were obviously necessary in order to tackle the variables of age, sex, adjustment and so forth. Further elaboration on the longstanding debate about the use of parametric versus non-parametric techniques has not been considered warranted here, other than to note that it is a longstanding one (Nie, Hull, Jenkins, Steinbrenner and Brent,1975, p.6; Thorndike, 1978, p.74).

7B.2. Selection of Non-parametric statistics

Certain procedures were preferred over other alternatives in situations where the choice was not based on agreed statistical considerations. In particular Spearman's rank order correlation (Siegel, 1956, p.202) was employed consistently for bivariate linear analysis because of its software accessibility on the SPSS system (Nie et al., 1975). In the circumstances no attempt was made to go beyond the assumption of linearity in the various bivariate relationships examined. This kind of subtlety was not justified by the form of the data. In any event a deviation from linearity would have tended to produce a smaller relationship than actually existed (Thorndike, 1978, p.14). Such conservatism of analysis was considered appropriate in this exploratory context.

Differences between two independent samples were tested by means of the Mann-Whitney U test (Siegel, 1956, p.116) because of its slight advantage in power efficiency with the present sample sizes (loc cit, p.136). Incidentally it might be noted that the power efficiency of the Mann-Whitney relative to the t-test is close to 95% even for moderate sized samples (loc cit, p.120). Other non-parametric procedures employed were unique in their suitability for a given analysis, and would not appear to warrant more detailed justification here.

7B.3. Multivariate analysis

The problem with non-parametric procedures is that they have limited applicability to more complex data analysis as it has recently evolved with the availability of complex data handling facilities in computer software. They have still not been extended beyond simple

APPENDIX 7.B (cont.)

analyses of variance (Siegel, 1956, p.166) or rank order tests (Jonckheere, 1953). One is thus precluded from using factor analysis, regression, partial correlations, multiple analysis of variance and the like because other parametric assumptions are consistently broken, or else they are not equipped to handle rank order correlation matrices as base data in the first place (Thorndike, 1978, p.76).

Yet this is itself contentious, and appears to vary with the particular procedure. Thorndike (1978, p.13) has noted for example,

> that even extreme deviations from normality do not have much effect on the results of a factor analysis.

In the present research, explanatory analyses also indicated that Spearman's rank order and Pearson's product moment correlation coefficients were almost identical in most instances, whilst multiple regression solutions consistently approximated the major bivariate coefficients, so actual differences appeared minimal. It might well seem that one should take each project on its own merits.

The strategy adopted here has been to apply multi-variate techniques when it was appropriate and helpful to do so, and then juxtapose or otherwise provide the qualification of non-parametric analyses. In this way inadequacies or errors in their findings might be revealed and evaluated; but in any event the multi-variate findings have only been used in an exploratory context.

The only major problem encountered herein in the adoption of multi-variate techniques was raised with respect to the effect of significant negative covariance within matrices to be analysed by means of forward regression procedures. Regression was completely unable to deal with this problem, and the only alternative was to scan the relevant matrices for possible patterns of significant covariance.

A further problem raised recently with respect to the use of regression has been that of validity shrinkage (Cattin, 1980; Thorndike, 1978, Koretz, 1979). It has been found that estimates of percentage variance may be inflated in small samples, and that relationships may not generalise adequately to other groups. The main response to this has been a formula to calculate the degree of shrinkage (Thorndike, 1978, p.163). It was unnecessary to apply this to the present data in the sense that its exploratory character was made explicit from the outset. But in practice its application made little tangible difference to the character of the results and the kinds of implications drawn.

A final comment is warranted on the use of factor analytic procedures. Both principle components analyses (P1 procedure in Nie et al., 1975) and classical or regular factor analysis (P2 procedure in Nie et al., 1975) were employed, usually with varimax rotation. Preference for one or the other was dictated by the criterion of whether or not a clear factorial structure was anticipated from the outset (Child, 1970). In most cases it was, making (regular) factor analysis more suitable.

Selection of factors was based throughout on Kaiser's (1960) criterion of an eigenvalue greater than one.

APPENDIX 7.C Comparison of revised scale items with their CPSCS equivalents.

Revised Scale Items	CPSCS equivalents
Item 1 Using Others' names 1. Does not use names at all. 2. Uses names of only one or two children. 3. Uses names of several other children (3 to 6). 4. Uses names of at least half of the children contacted. 5. Uses names of all children with whom he comes in regular contact.	(2) Using Names of Others 1. Uses no proper names in interacting with those around him. 2. Uses the names of no more than five children or adults. 3. Uses the names of from five to ten children. 4. Uses the names of virtually all children and adults.
Item 2 Range of Acquaintances 1. Typically involved in his own activity, uninterested in others. 2. Usually involved in his own activity, but with passing interest in adjacent children. 3. Involved in joint activity but only with one other child at a time. 4. Usually in joint activity with two or three other children. 5. Frequently in joint activity involving several children.	(17) Playing With Others 1. He usually plays by himself. 2. He plays with others but limits play to one or two children. 3. He occasionally plays with a larger group (three or more children). 4. He usually plays with a larger group (three or more children).
Item 3 Helping another child When another child is having difficulty in some activity, or with some task - 1. He ignores and never offers help. 2. Occasionally helps, provided they are involved in the same activity. 3. Usually helps the other child, provided they are involved in a joint activity. 4. Occasionally stops own activity to help another child, even if in a separate activity. 5. Frequently helps other children who are involved in separate activities.	(16) Helping Others When another child is having difficulty (such as using equipment, dressing)- 1. He never helps the other child. 2. He helps another child only when they are playing together. 3. He sometimes stops his own play to help another child. 4. He frequently stops his own play to help another child.
Item 4 Turn taking 1. Always wants priority - shows no concern for taking turns at all - actively struggles to get his way. 2. Usually doesn't wait for turn - frequently quarrels and pushes in order to get priority. 3. Usually doesn't wait for turn - but rarely quarrels or pushes to get own way. 4. Usually waits for turn - although may quarrel over priority. 5. Always waits willingly for his turn.	(21) Taking Turns 1. He frequently interrupts or pushes them in an activity taking turns. 2. He attempts to take turn ahead of time but does not push or quarrel in order to do so. 3. He waits for turn, but teases or pushes those ahead of him. 4. He waits for turn or waits to be called on.

APPENDIX 7.C (cont.)

Revised Scale Items	CPSCS equivalents
Item 5 Sharing 1. Never shares toys or equipment. 2. Shares only after an adult intervention. 3. Occasionally shares willingly with others. 4. Usually shares willingly with others. 5. Always shares willingly with others.	(15) Sharing 1. He does not share equipment or toys. 2. He shares but only after adult intervention. 3. He occasionally shares willingly with other children. 4. He frequently shares willingly with other children.
Item 6 Giving direction to activity when playing, working with others. 1. More preoccupied with his own activities. 2. Typically follows the lead of other children. 3. Occasionally makes suggestions regarding the activity. 4. Often makes suggestions regarding the activity. 5. Constantly making suggestions regarding the activity.	(20) Giving Direction To Play When playing with others - 1. He typically follows the lead of others. 2. He sometimes makes suggestions for the direction of the play. 3. He frequently makes suggestions for the direction of the play. 4. He nearly always makes suggestions for the direction of the play.
Item 7 Initiating involvement when other children are involved in an activity that permits the inclusion of extra children. 1. He never tries to get involved. 2. He seldom gets involved. 3. He sometimes get involved. 4. He often gets involved. 5. He always gets involved.	(18) Initiating Involvement When other children are involved in an activity which permits the inclusion of additional children - 1. He seldom initiates getting involved in the activity. 2. He sometimes initiates getting involved in the activity. 3. He frequently initiates getting involved in the activity. 4. He nearly always initiates getting involved in the activity.
Item 8 Interacting with others 1. Engrossed in his own activity - interacts with others only when it is necessary. 2. Occasionally participates in group activities - in a cautious, passive manner. 3. Usually participates in group activities, still with some uncertainty at times. 4. Usually participates in group activities, generally confident. 5. Always centrally and actively involved in group activities.	(19) Initiating Group Activities 1. He nearly always intiates activities which are solely for his own play. 2. He initiates his own activities and allows one child to join him. 3. He sometimes initiates activities which include two or more children. 4. He frequently initiates activities which are of a group nature.

APPENDIX 7.D Distribution of ratings for each item in terms of the three age groupings (expressed as percentages).

Item	Age	RATINGS 1	2	3	4	5	$\bar{x}$	SD
1, Using other children's names	5	2.4	8.5	18.3	22.0	48.8	4.06	.12
	6	.9	7.9	14.0	23.7	53.5	4.21	.10
	7		2.9	10.3	13.2	73.5	4.57	.10
2, Range of acquaintances	5	1.2	30.5	7.3	29.3	31.7	3.60	.14
	6	3.5	16.7	17.5	34.2	28.1	3.67	.11
	7		11.8	11.8	33.8	42.6	4.07	.12
3, Helping another child	5	9.8	29.3	30.5	22.0	8.5	2.90	.12
	6	6.1	33.3	21.9	18.4	20.2	3.13	.12
	7	4.4	17.6	33.8	20.6	23.5	3.41	.14
4, Turn-taking	5	4.9	12.2	9.8	35.4	37.8	3.89	.13
	6	3.5	17.5	9.6	35.1	34.2	3.79	.11
	7	1.5	14.7	4.4	50.0	29.4	3.91	.13
5, Sharing	5		11.0	26.8	46.3	15.9	3.67	.10
	6	.9	2.6	29.8	43.9	22.8	3.85	.08
	7		4.4	20.6	48.5	26.5	3.97	.01
6, Giving direction to activity	5	15.9	20.7	28.0	23.2	12.2	2.95	.14
	6	7.9	26.3	18.4	30.7	16.7	3.22	.12
	7	2.9	14.7	23.5	38.2	20.6	3.59	.13
7, Initiating involvement	5	2.4	18.3	36.6	31.7	11.0	3.30	.11
	6	2.6	17.5	30.7	38.6	10.5	3.37	.09
	7		7.4	30.9	48.5	13.2	3.68	.01
8, Interacting with others	5	7.3	17.1	22.0	39.0	14.6	3.37	.13
	6	5.3	15.8	22.8	43.9	12.3	3.42	.10
	7		8.8	17.6	57.4	16.2	3.81	.10

APPENDIX 7.E The final scale of six items for the observation of social behaviour, following rationalization and further rewording in experiment VI.

Modified item wording	Comments
I. USING OTHERS' NAMES	
1. Does not use names at all, or does so on a very limited basis. 2. Regularly uses names of less than three children. 3. Regularly uses names of more than three children. 4. Regularly uses names of at least half of the children contacted. 5. Regularly uses names of all children contacted.	Used in its extended five category form; minor clarification of wording.
II. RANGE OF ACQUAINTANCES	
1. Is typically involved in his own activity, without interest in others. 2. Has occasional contact with others, but still prefers his own company. 3. Is usually in an activity with just one other child involved. 4. Is usually in joint activity with two or three other children. 5. Is usually involved in an activity with several children (more than three).	Used in its extended five category form; minor clarification of wording.
III. HELPING	
1. Ignores and never helps others. 2. Occasionally helps a child involved in the same activity. 3. Usually helps a child involved in the same activity. 4. Occasionally helps a child engaged in a quite separate activity. 5. Frequently helps other children, regardless of the situation.	Used in its extended five category form; simplification of wording.
IV. CONTRIBUTING TO ACTIVITIES	
1. Would never contribute to an activity involving other children by commenting or initiating etc. 2. Seldom tries to contribute, and does so ineffectually. 3. Tries to contribute occasionally, with mixed success. 4. Often contributes effectively to an activity with others. 5. Always effectively contributes to any activity in which involved.	A new title to cover the behaviours previously tapped in items 6, 7 and 8. The underlying theme of the three items has been represented in a newly worded item, rather than continuing with item 6 in its original form. The extended five category form has been retained.

APPENDIX 7.E (cont.)

Modified item wording	Comments
V. TURN TAKING	
1. Completely unmindful of others. 2. Occasionally shows regard for others in taking turns, but often argumentative. 3. Usually waits for turn, but gets drawn into arguments over rights. 4. Always shows willingness to take his turn in an activity.	Used in its original four category form, for reasons previously indicated. The two lower categories were reworded in a simpler and more positive manner.
VI. SHARING	
1. Never considers sharing what he has with others, unless forced to do so. 2. Occasionally shares with others, when it suits him to do so. 3. Usually shares willingly with others, depending on the situation. 4. Always seems to be willing to share spontaneously with another child.	Used in its original four category form, for reasons previously indicated. The reference to adult intervention was deleted, and some qualification was added to two other categories.

APPENDIX 8.A The modified scoring form of the PPVT (form A) as used in Experiment VII. Specific items that were changed have been asterisked (Dunn, 1965).

Plate No.	Word	Correct Response	Plate No.	Word	Correct Response
1	car	(4)	51	submarine	(4)
2	cow	(3)	52	thermos	(4)
3	baby	(1)	53	projector	(3)
4	girl	(2)	54	group	(4)
5	ball	(1)	55	tackling	(3)
6	block	(3)	56	transportation	(1)
7	clown	(2)	*57	bench	(1)
8	key	(1)	58	ceremony	(2)
* 9	tin	(4)	59	pod	(3)
*10	hen	(2)	60	bronco	(4)
11	blowing	(4)	61	directing	(3)
12	fan	(2)	62	funnel	(4)
13	digging	(1)	63	delight	(2)
14	skirt	(1)	64	lecturer	(3)
*15	jumping	(2)	65	communication	(2)
16	drum	(1)	66	archer	(4)
17	leaf	(3)	67	stadium	(1)
18	tying	(4)	68	excavate	(1)
19	fence	(1)	69	assaulting	(4)
*20	ladder	(3)	70	stunt	(1)
21	bee	(4)	71	meringue	(1)
22	bush	(3)	72	appliance	(3)
23	pouring	(1)	73	chemist	(4)
24	sewing	(1)	74	arctic	(3)
*25	hot-dog	(1)	75	destruction	(4)
26	teacher	(2)	76	porter	(3)
27	building	(3)	77	coast	(2)
28	arrow	(3)	78	hoisting	(4)
29	kangaroo	(2)	79	wailing	(1)
30	accident	(3)	80	coil	(2)
31	nest	(3)	81	kayak	(3)
*32	ambulance	(2)	82	sentry	(2)
33	envelope	(1)	83	furrow	(4)
34	picking	(2)	84	beam	(1)
35	badge	(1)	85	fragment	(3)
36	goggles	(3)	86	hovering	(2)
37	peacock	(2)	87	bereavement	(3)
38	queen	(3)	88	crag	(4)
39	coach	(4)	89	tantrum	(2)
40	whip	(1)	90	submerge	(1)
41	net	(4)	91	descend	(3)
42	freckles	(4)	92	hassock	(2)
43	eagle	(3)	93	canine	(1)
44	twist	(2)	94	probing	(1)
45	shining	(4)	95	angling	(1)
46	dial	(2)	96	appraising	(3)
47	yawning	(2)	97	confining	(4)
48	tumble	(2)	98	precipitation	(4)
49	signal	(1)	99	gable	(1)
50	capsule	(1)	100	amphibian	(1)

APPENDIX 8.B The rating scale of observed social behaviour as employed in Experiment VII.

I. USING OTHERS' NAMES

1. Does not use names at all, or does so on a very limited basis.
2. Regularly uses names of less than three children.
3. Regularly uses names of more than three children.
4. Regularly uses names of at least half of the children contacted.
5. Regularly uses names of all children contacted.

II. RANGE OF ACQUAINTANCES

1. Is typically involved in his own activity, without interest in others.
2. Has occasional contact with others, but still prefers his own company.
3. Is usually in an activity with just one other child involved.
4. Is usually in joint activity with two or three other children.
5. Is usually involved in an activity with several children (more than three).

III. HELPING

1. Ignores and never helps others.
2. Occasionally helps a child involved in the same activity.
3. Usually helps a child involved in the same activity.
4. Occasionally helps a child engaged in a quite separate activity.
5. Frequently helps other children, regardless of the situation.

IV. CONTRIBUTING TO ACTIVITIES

1. Would never contribute to an activity involving other children by commenting or initiating etc.
2. Seldom tries to contribute, and does so ineffectually.
3. Tries to contribute occasionally, with mixed success.
4. Often contributes effectively to an activity with others.
5. Always effectively contributes to any activity in which involved.

V. TURN TAKING

1. Completely unmindful of others.
2. Occasionally shows regard for others in taking turns, but often argumentative.
3. Usually waits for turn, but get drawn into arguments over rights.
4. Always shows willingness to take his turn in an activity.

VI. SHARING

1. Never considers sharing what he has with others, unless forced to do so.
2. Occasionally shares with others, when it suits him to do so.
3. Usually shares willingly with others depending on the situation.
4. Always seems to be willing to share spontaneously with another child.

APPENDIX 8.C Forward regression of the social cognition tasks and the PPVT as predictors of social competence ratings, within age and sex subgroupings. Only significant predictors contributing at least 10% further variance have been included. Their corresponding and/or conflicting values of r_s are also provided.

Social competence dimensions (criterion)	age x sex subgroups	Predictors (simple covariance)	R	(R^2)	F	p	r_s	p
Using others' names	5 years, girls df=(8,13)	Flavell				NS	.40	.033
	5 years, boys df=(8,13)	Ref. social orient.	.55	.30	8.47	.009	.52	.007
	7 years, girls df=(8,11)	PPVT	.62	.39	11.38	.003	.65	.001
		Ref. teaching				NS	.50	.013
	7 years, boys df=(8,9)	Ref. verbal	.49	.24	4.95	.041	.41	.047
Range of acquaintances	5 years, girls	Ref. verbal				NS	.37	.047
	5 years, boys					NS		NS
	7 years, girls	Ref. teaching	.59	.35	9.68	.006	.53	.009
	7 years, boys	Borke	.53	.28	6.32	.023	.47	.025
		Ref. Verbal	.62	.39	4.70	.026	.49	.019
Helping	5 years, girls					NS		NS
	5 years, boys	Ref. Social orient.	.59	.34	10.48	.004	.59	.002
		Selman				NS	.49	.011
	7 years, girls	Borke				NS	.39	.043
	7 years, boys					NS		NS

APPENDIX 8.C (cont.)

Contributing to activity	5 years, girls					NS		NS
	5 years, boys	Ref. social orient.	.48	.23	5.97	.024	.45	.019
	7 years, girls	Ref. turn taking	.66	.43	13.74	.002	.58	.004
		PPVT	.77	.60	12.63	.000	.66	.001
	7 years, boys	PPVT	.47	.22	4.57	.048	.46	.027
Turn taking	5 years, girls	Selman				NS	.39	.036
		Ref. teaching				NS	-.42	.026
		Ref. verbal				NS	-.38	.039
	5 years, boys	Borke				NS	.38	.042
	7 years, girls					NS		NS
	7 years, boys	Borke	.55	.30	6.79	.019	.56	.008
		Flavell				NS	-.45	.031
Sharing	5 years, girls					NS		NS
	5 years, boys	Borke	.43	.19	4.70	.042	.39	.035
		Selman	.60	.36	5.29	.015	.41	.029
	7 years, girls	Borke	.42	.18	3.89	NS	.44	.027
		PPVT	.58	.34	4.38	.029	.40	.042
	7 years, boys	Borke	.60	.36	9.01	.008	.54	.010
		PPVT	.66	.44	5.89	.013	.45	.030

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SOCIAL COGNITIVE PROCESSES IN YOUNG CHILDREN: SOME PERSPECTIVES ON METHODOLOGY, AND SUGGESTIONS FOR FURTHER RESEARCH.

An appendix to the Ph D thesis:
'Social cognition skills and their behavioural correlates in school age children' (March 1982)

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ABSTRACT

The techniques presently being employed for the measurement of social cognitive processes in children were shown to be often ill-equipped to deal with the complexities of those processes in action. Ways were considered in which existing methodologies might be improved or otherwise utilised. It was further suggested that parents' observations of their own children represented an untapped and potentially valuable source of data. It was proposed that such techniques needed to be employed in a more multi-dimensional approach to the ecology of the child's social cognitive processing, one that acknowledged the influence of situations, personal impulse, and preferences with respect to more idiosyncratic considerations.

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1. INTRODUCTION

The pioneering studies of Flavell have frequently been cited as a kind of bench-mark for systematic research into the development of social-cognitive processes as they are presently conceptualised (Flavell, Botkin, Fry, Wright and Jarvis, 1968). From that beginning one might now look back on some fifteen years of intense interest in this area by developmental psychologists, encompassing variously the cognitive, social and language domains. Their predominant concern has been, and continues to be, a developmental-descriptive one, as originally enunciated by Flavell.

The instrumentation employed in the present research needs to be seen as part of this general orientation. More particularly it should be noted that the techniques in question were conceived and first used during the initial five years of this period. It is possible, furthermore, to typify such techniques as representing a fairly homogeneous kind of research methodology in terms of the kinds of behavioural data they provided, and the fairly loose theoretical frameworks with which they were associated.

It now seems to be clear that this kind of methodology will generally not be able to provide anything more than a global descriptive account of social cognitive processes. This was a major theme of the preceding thesis, and in turn with other recent work that has attempted to understand the subtleties of individual differences in the way social cognitive processes operate. The latter have already been reviewed in chapter five. The question then arises as to whether a different kind of research methodology has been forthcoming, or is starting to appear. Has it been possible to refine further the units or models of behavioural

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analysis? Has such research responded more effectively to the body of theoretical and empirical understanding that has accumulated, particularly in relation to issues of discriminant, predictive and construct validity?

About five years ago a number of reviewers of social cognitive processes variously recognized the nature of the challenge still to be met (Chandler, 1977; Deutsch and Madle, 1975; Flavell, 1977; Hoffman, 1977, Kurdek, 1978; Shantz, 1975; Shatz, 1977). No-one seemed to suggest, however, that any particular break-through had then been achieved or was within sight.

More recently, there has been a considerable widening of researchers' appreciation of the complexity of the phenomena at issue. In Britain this literature has most recently been edited by Cox (1980). In America an ambitious symposium of work in related areas has been edited in Flavell and Ross (1981), while Chapman (1982) has attempted a timely interpretation of recent German and other European research into social cognitive processes.

One might then ask whether there are indications from this that recent methodology has been able to progress beyond normative-descriptive emphasis of earlier research. We seem to be learning more and more details of what and how children understand at different ages. But in this there may be an inbuilt danger of trivialising the subject. An analogy might even be drawn with some of the excessive replications and extensions of Piaget's earlier techniques for measuring children's conservation of physical invariants. Who wants to know?

The present paper has attempted to offer certain perspectives on possible methodological initiatives that are complementary to, or extensions of,

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the issues raised in Cox (1980), Flavell and Ross (1981), or Chapman (1982). The paper has referred to them in part, but has in no sense taken as its brief the need to review them or attempt to draw conclusions. That would be both naive and presumptuous in the present context.

Comments are specifically limited to children from about age four to eight years. This is a period of major developmental transition , as is widely recognized (Mussen, Conger and Kagan, 1979; White, 1970). Yet it might also be characterised as relatively coherent in terms of the problems of behavioural and cognitive 'access' that it presents to the researcher, in comparison with those for older children. A larger synthesis of developmental processes is certainly needed, but the present comments would aspire to be just contributory to that achievement.

2. RECENT THEORETICAL CONSIDERATIONS

Before any review of methodological implications can be attempted it is necessary to take a further look at the changing theoretical status of social cognitive processes per se. Many of these ideas have already been reviewed or alluded to in the prior thesis, but one must additionally refer to material published since then which has helped to focus and direct thinking still further.

The most central point would appear to be the consensus that the child's social cognitive processing in any given context must be viewed as a highly selective and personalised application of what the child actually comprehends to his/her own sense of behavioural priorities. It may thus be considered futile to try to measure a child's understanding of any social phenomenon in isolation. The child's implicit sense of self and the way that this relates to the phenomenon in its context, and the

child's preferred behavioural strategies for recognizing, classifying and operating upon it, must also be considered.

The point was made in this thesis (loc cit, p. 24) and by Chapman (1982, p. 300) that these ideas were recognized long ago by Mead (1932). Youniss (1980) similarly pointed out the appreciation of interpersonal dynamics noted in the early writings of Sullivan (1953) and Piaget (1932). Curiously this appreciation has remained largely overlooked in later operational definitions of behaviour by developmental researchers. The relationship between self and other has sometimes been acknowledged, but not then incorporated in the instrumentation itself. A clear example of this has been Selman's research on social reasoning (Selman, 1974, 1976a, 1976b; Selman and Jaquette, 1977).

There are now encouraging signs of an increasing recognition of the importance of such matters to any adequate treatment of social cognitive processes. This was a feature of many of the presentations at the Social Science Research Council conferences, as subsequently edited by Flavell and Ross (1981). They concluded that:

> The portrait of the adult human as an information-processing computer ... cannot easily be reconciled with an ongoing phenomenological experience that is apt to be highly affective and evaluative. (loc cit, p. 314),

and further referred to Zajonc's (1980) argument that:

> The contemporary cognitive emphasis in psychology has failed to recognize both the pervasiveness and the immediateness of our positive or negative responses to stimuli. In encountering many types of stimuli (such as sounds, shapes, or even the human face) affective or evaluative responses seem to precede, rather than follow from, more "cognitive" processes such as feature analysis, interpretations, or even recognition. (loc cit., p. 314).

A parallel kind of emphasis has apparently been growing in German and other European research (Chapman, 1982), albeit largely unknown to their

American counterparts. Their notion of Handlungstheorie (action theory) might be taken as the clearest label yet available for this changing orientation.

So far, however, there has been little progress in translating an appreciation of the complex operation of social cognitive processes into viable theory. At present the only model that has attempted to recognize and delineate some of these interactional and feedback mechanisms appears to have been that of Ford (1982, p. 325). His open systems approach to social cognition has shown some promise in multiple regression analyses for predicting various aspects of social competence. However, this research has been dependent on paper-and-pencil measures used with adolescents (loc cit., p. 336); its wider efficacy and generality to younger subjects remains unknown.

At a more global level one could interpret the burgeoning interest in meta-cognition and cognitive monitoring as itself contributing in part to the 'action theory' framework for defining social cognitive processes (Flavell, 1981b; Kurdek and Burt, 1981; Mischel, 1981). However this must still be regarded as little more than an intuitive sense of the way such phenomena might ultimately be integrated into a larger explanatory model (Flavell, 1981a). In any event the major developmental acquisitions in this area are still generally assumed to occur "toward the middle-childhood and adolescence end of ontogenesis" (Flavell, 1981a, p. 283). Their role in children aged four to eight has hardly been acknowledged.

It is evident then that the earlier notion of social cognitive processes as a set of stable and definable skills has been shown to be quite inadequate. It is similarly evident that the kind of correlational

methodology typified by the present thesis must be viewed as no more than exploratory in character. A major implication of 'action theory' must be the recognition that indices of the child's social cognitive processing in a contrived task situation cannot expect to predict effectively the way the child will behave in other social contexts (Chapman, 1982, p. 296). Clearly the operating rules are simply not the same. It would thus be dangerous to infer anything more than a highly global and generalised kind of causality.

At the same time it has not been possible to progress beyond a global set of parameters as to how research should proceed, and the kinds of personal and behavioural complexities that it must embrace. Flavell and Ross (1981) have emphasised the vital importance of a dialogue between 'developmentalist' and 'nondevelopmentalist' in achieving such progress. But again that is a statement of goodwill and expectation rather than of accomplishment.

The question of methodology is of course central to this whole debate about what social cognitive processes are and how they should be approached. Yet the empirical base on which much of the current theorising depends is in practice, in terms of the kinds of techniques employed, a rather narrow one. These will now be considered.

3. A CLASSIFICATION OF PRESENT METHODOLOGY

The survey of research techniques in chapter three of this thesis distinguished between 'direct' tasks, training procedures, and 'indirect' techniques. Each of these will first be reviewed on its own terms. Next an attempt will be made to place them in a wider methodological perspective that acknowledges the theoretical issues raised in the

preceding section.

3.1 'Direct' tasks

These involved the experimenter in some form of directed interaction under controlled conditions with a particular child, or in certain instances a dyad. This was the typical approach of most of the extant research. The tasks in this thesis were classified in terms of the explicit demands they appeared to make of the child, whether it be for cognitive processing via prediction, description, projection, simulation or referential communication. All shared a reliance on verbal orientation and direction by the experimenter, and most similarly required the child to respond verbally. Exceptions were the tasks where non-verbal response was possible, such as pointing to a preferred stimulus or moving to a selected spot. But these were employed mainly with very young children, whose verbal skills were considered inadequate for conveying their presumed level of understanding.

This kind of research was similarly characterised by Damon (1981), who commented too on its reliance upon:

> problem-solving tasks, interview questions, story telling, dilemmas, and other verbally administered procedures (loc cit., p. 154).

He similarly noted the point made earlier in this thesis that:

> Generally those following this approach have attempted to describe the major qualitative changes associated with age in children's social understanding, often employing stage (or similarly sequential models) of development as the means to express these qualitative changes (loc cit., p. 155).

The underlying problem with this methodology, and the consequent question of its utility with four to eight year olds, has been the growing

recognition of the extent of social reactance effects (Brenner, 1981) in the child-adult interaction. Developmental researchers have been as guilty as any in their preoccupation with the phenomena under scrutiny while overlooking the effect that they themselves were having by selecting the child, asking questions, or in some way defining a special kind of encounter.

Systematic investigation of these social reactance effects in an experimental encounter has been limited, despite the increasing numbers of researchers who have emphasised or at least acknowledged their role. The major source of evidence has been based on linguistic analysis of how children actually communicate in a task situation, where specific cognitive demands are made of them. The available research on this topic was reviewed in the thesis (page 87-89), while the findings of the present research certainly confirmed the impression that direct questioning of children aged four to eight evokes a high rate of monosyllabic or otherwise restrained responses.

This has been confirmed quantitavely in a recent report by Tizard, Hughes, Pinkerton and Carmichael (1982). They showed that in naturally occurring interaction 37% of teachers' cognitive demands (why, what, when, etc. questions) were not answered at all by four year olds, and that less than 50% were answered adequately (loc cit., page 113). It was also noted that this was not a function of the difficulty of the questions themselves. It might be expected that a higher response rate would be achieved with school-age children. However, interview effects remain uncertain, despite skilled questioning. One further but unknown consideration is that of sampling; which may reflect cultural/social variations. Australian children were evidently far less forthcoming than the American children interviewed by Selman (1976c). Similarly there was a consistent suggestion in the present research of important sex differences in the way that

children participated in school-related activities and related to adults (loc cit. page 312).

These kinds of effects allude to a broader and still ill-defined range of reactance phenomena that could reduce the discriminant and predictive validity of this kind of data. Associated variables such as the child's perception of the task and motivation to participate, his/her understanding of the rules of discourse, and actual competence in receptive/expressive language have hardly been tapped. One strategy proposed for dealing with linguistic abilities has been to partial out their effects statistically, as noted in the thesis (loc cit., page 281). This will prove less adequate in wider perspective; for it can only fragment the complexity of the child's communicative behaviour.

There is some suggestion that predictive validity of measures of social cognitive processing increases with age (Ford, 1982; O'Connor and Cuevas, 1982). If this is the case then the preceding comments may well apply only to the specified range in a manner determined by various developmental parameters. However, it should be noted that the differences between tasks are just as great as the differences between age levels in terms of the variance of social behaviour that they are meant to predict. Considerable caution is thus warranted in further investigations. In general it is evident that the 'direct' task approach to social cognitive processes is fraught with difficulties which have not thus far been addressed effectively. The predictive and discriminant validity of such procedures accordingly remains inadequate. That is not to condemn such techniques out of hand, but simply to re-emphasise that they can only purport to provide certain kinds of answers (Youniss, 1980, page 57).

3.2 Training techniques

Research on methods for directly training children to employ their social cognitive processes more effectively, or alternatively for monitoring the indirect influence of certain kinds of peer interation, must be considered a vital component of the present research activity. However such procedures must be finally evaluated by using the available methodology for specifying inter and intra-individual differences in social cognitive processing. As pointed out in this thesis (loc. cit., page 117) and by Damon (1981, page 166), these studies have so far been limited by their dependence on 'direct' tasks to monitor the changes taking place. They do however provide a paradigm for further methodological initiatives which will be considered in the next section.

3.3 'Indirect' techniques

These seek to identify and observe social cognitive processes non-obtrusively, usually in a spontaneously occurring natural setting. For Damon (1981) this kind of approach represented the one other methodological thrust that has been apparent in recent research. Inferences are typically drawn about children's level of understanding from their verbal and sometimes non-verbal interaction with other children.

> In general, those following this approach have attempted to confirm the existence of social cognitive skills at one or another age during early childhood, and to relate these skills to the nature of social interchanges at this age (loc cit., page 155).

This observational methodology has been successful in showing that young children can display much greater sophistication of social cognitive competence in naturally occurring peer interaction than in contrived task situations (Gottman and Parkhurst, 1980). Such research has so far concentrated on normative developmental issues rather than questions of

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discriminant or predictive validity (Damon, 1981, page 155).

Research of a comparable nature has been conducted infrequently on school age children. The social interaction patterns in classroom, schoolyard or home have apparently been regarded as far less accessible or amenable to a comparable kind of analysis. The nearest equivalent has been the use of rating scales and contrived situations for measuring prosocial responding (Mussen and Eisenberg-berg, 1977), as reviewed in the thesis (loc. cit., page 131). The findings from these studies have been of limited value in defining even normative-developmental patterns. The recurring theme has been the situational specificity of such behaviours, which echo the issues discussed earlier in this paper.

The only apparent attempt to use 'indirect' techniques to measure the richness of children's social cognitive processes in the context of normal social interaction with peers has been that of Damon (1977, 1979). His methodology is worth examining more closely; for it appears singular in its attempts to create a context of natural interaction between a group of children in a contrived yet realistic setting. He then recorded that interaction on videotape for later analysis on various dimensions of observable communicative and perspective taking behaviour. In addition he asked individual children to comment on their own behaviour on the videotapes and to exercise meta-cognitive recollection of why and how events occurred.

Such procedures would seem to represent a methodological paradigm of the kinds of techniques that may well be necessary to get nearer to the nature of social cognitive processes 'in action' as recognized in the preceding theoretical review. However they are still highly innovative in relation to the prevailing emphasis on traditional methodologies (Chapman, 1982;

Cox, 1980; Flavell and Ross, 1981).

At present this would seem to be an important indicator of one direction in which future research might usefully proceed. Not only does it attempt to measure social cognitive processes in their appropriate context using non-obtrusive techniques, but it also seeks to relate such data to the children's own meta-cognitive understanding and recollection of what they were doing.

Evaluating meta-cognitive understanding of this kind would seem to be an especially effective way to employ the 'direct' interviewing technique, insofar as it employs a social stimulus that is immediately real, interesting and firmly embedded in the child's own experiential background. However it does not necessarily overcome the potential problems of language comprehension and expression. Similarly the problems of social reactance to the contrived setting, particularly the experience of looking at oneself via video, are still present. Nonetheless it is potentially more incisive and valid in what it purports to measure then many other 'direct' tasks, especially when integrated with the 'indirect' observational data.

4. FURTHER INITIATIVES IN RESEARCH METHODOLOGY

What kinds of systematic research might follow after these approaches? Three possibilities might be put forward. The first is to make more effective use of 'direct' techniques; for despite all else it remains a truism that the easiest way to find out something from somebody is to ask them. The second is to consider other sources of knowledge about children's social cognitive processes. In this regard it seems highly appropriate to consider the unique source of intimate knowledge about children and their behaviour held by their own parents. This has so

often been overlooked or disparaged by experimentalists. The third possibility is to consider using data based on children's relations with each other. Each of these will be considered.

4.1 'Direct' techniques

Regardless of other criticism, asking the child directly about personal thoughts, feelings and actions in relation to past, present or future events remains still the most common methodology. In many cases we simply know of no other way to find out. Any methodological change in this respect has been in the kinds of things that the child has been questioned about. Contrived situations and hypothetical simulations have given way, in part, to interest in more immediate and personal events in the child's experience of real life. There is implicit acknowledgement in this that the child's social cognitive processes are naturally embedded in events, persons and relations that are real to him/her, and that measurement should take this as a natural and logical starting point.

This kind of emphasis has been wedded most recently to the widespread interest in meta-cognitive processes that presently pervades both developmental and cognitive psychology (Flavell, 1981b; Kurdek and Burt, 1981). Studies pursuing this line have examined the child's characterising of ongoing interactive activities (Nelson, 1981), personal friendships (Berndt, 1981a), social judgements (Higgins, 1981; Ross, 1981), referential communication difficulties (Robinson and Robinson, 1980), and varieties of intrapsychic experience (Flavell, 1981a; Jurkovic and Selman, 1980).

Such research is evidently defining many developmental-normative processes with a subtlety and a level of ecological validity not achieved previously.

However it still does not appear possible to use such instrumentation with any clinical precision. The problems discussed in the thesis in this regard still remain (loc. cit., page 70), as evidenced particularly by the 'Social Reasoning' scale within the British Ability Scales (Elliot, Murray, and Pearson, 1978), which remains as a highly visible indicator of the failure of attempts to measure social cognitive processes with psychometric precision.

One is accordingly skeptical of continuing North American attempts, as seen in the work of Selman (Selman 1976a, 1976b; Selman and Jaquette, 1976; Jurkovic and Selman, 1980) and Spivak (Spivak Platt and Shure, 1976; Spivak and Shure, 1974), to wed a structural model to interview methodology, and to claim that useful clinical differentiation can be attained. The findings of the present research might be taken as the most recent evidence of the serious inadequacies in concurrent and predictive validity of such instrumentation, at least as they pertain to children below about eight years of age. Further research based on these assumptions seems hardly justified.

In conclusion, there seems no immediate prospect of any new developments pertaining to the application of 'direct' techniques. Such procedures will continue to enhance our appreciation of the subtleties of developmental processes but no really important new insights can be expected. Their major utility may well be in multi-dimensional studies of the kind suggested by Damon (1977), where their role is a contributory or interactive one rather than as a self-contained source of new understanding.

4.2 Parents as observers

As already reviewed in this thesis (loc. cit., page 165-171), styles of

parenting have been shown to have a substantial influence on individual differences in children's social cognitive processing. Quite clearly parents engage in complex patterns of interaction with their offspring at all ages and do so in ways that appear to vary considerably in both a quantitative and qualitative sense. 'Bringing up' a child can be a challenging, tiring, and maturing process for any adult; a task not to be underestimated in its complexity. One component of this process will be the extent to which parents understand and interpret the underlying social cognitive processes employed by their children in various situations. This understanding will be influenced in part by their expectations of the development of thinking processes in their children, and will be partly idiosyncratic, in terms of the particular relationships which have been developed between parent and child.

These sources of information about how and why children behave have hardly been tapped in any systematic sense. Parents themselves have been studied but mainly as antecedent variables whose behaviour is assumed to be predictive, in a longitudinal sense, of children's later adjustment patterns (Shields, 1981). The role of parents as immediate observers and commentators on their children has been recognized in studies of infants (Emde, 1980); but no such recognition has been afforded to parents of older children.

One reason would appear to be the prevailing emphasis on bias and subjectivity experienced by participant observers (Cairns and Green, 1979; Vernon, 1964). However this generalization now needs to be considered in a more analytic and relativistic sense. Asking parents to provide information about their children needs be seen more particularly as a question of what kinds of information are to be sought, how the parent is asked to construe and record it, and how it is to be scored

empirically. That is, the most dominant issues may well be technical ones, in terms of the subtleties of the guidelines provided, coding systems, sampling procedures and so forth. The intimate knowledge is present, it may be argued; it is primarily a question of tapping it appropriately.

Recent research has accentuated the rather unique character of the intersubjectivity that commonly exists between parent and child and the mutual expectation of social cognitive sophistication that is not commonly exhibited, nor elicited, in other settings. For example, Tizard et al (1982) recently demonstrated the much lower 'refusal rate' (26%) of responding by pre-schoolers to the cognitive demands of their mothers (loc. cit., page 111) compared with a refusal rate of 37% with their teachers. In particular:

> There were significant differences in the kind of explanation asked for . . . At home, much the most frequent demand of this kind was to ask the child to justify her motives or intentions. (e.g. Why are you doing that?) (loc cit., page 110).

The extent of these differences can be gauged from relative frequencies: 51% of working class mothers' demands were for explanations of this kind, compared with 17% of such demands by the children's teachers.

No such data exists for school age children. One would intuitively suspect a decline in absolute quantity of interaction as a function of age, especially with the interactive influence of siblings (White, Kaban, and Attanucci, 1979), the increasing role of the peer group (Youniss, 1980), and the general development of independence and sense of privacy. One would still be justified, however, in assuming that parents have a unique kind of access to the child's social cognitive processing in an interpersonal setting variously oriented to its display.

In this sense the related evidence that social behaviour in the home setting does not predict very effectively the child's competence with peers or teachers' perceptions of social competence (Coleman, Wolkind and Ashley, 1977; Kohn, 1977) need not be considered contradictory. The underlying theme of this paper has been the situational specificity of the child's use of social cognitive processing. The criterion of concurrent validity of observations is thus rendered simplistic in this context. Different sources of data drawn from different action settings must be viewed as representing a complex social profile of the way the child responds to and in turn defines his/her social environment. Thus correlational or factor analytic procedures can be expected to provide only limited kinds of answers. Parental observations might thus be viewed as a key component of the multi-dimensional study of the ecology of the child's social cognitive processing.

Parents might be asked to participate in such research in a number of ways. Enlisting their cooperation would not appear to be particularly difficult; the main issues would be how and what events and inferences they should sample and how the data should be recorded. One way might be to ask parents to maintain an ethnographic kind of field note-book, perhaps following some form of training in what sorts of things to look for and how to record them conveniently. Another, or parallel approach, might be to provide structured checklists of types of behaviour and the kinds of social cognitive processes that appeared to underlie them. Sets of descriptions might also be provided, possibly established from parents' own accounts of their children's actions. These might be better set out in a non-evaluative manner, as in the Bristol Social Adjustment Guides (Stott, 1974), rather than in conventional ordinal rating scales.

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Such indirect techniques for data collection might further be supplemented by training parents to ask their children directly to explain what happened in particular social encounters. The child's version of attributed motives, feelings, situational constraints etc., might even be usefully compared with the parent's own retrospective construing of events. Portable tape recorders could be used in a manner that might well generate high levels of interest and participation. Various social reactance phenomena could be anticipated (Brenner, 1981), but the immediacy and socially embedded nature of the situation would seem to ensure a level of reliability and construct validity not often achieved by other methodologies.

4.3 Interactions with peers

The role of peers in fostering social development and in providing an interactional context for the exercise of social cognitive processes has long been recognized in a theoretical sense (Youniss, 1980). Only in recent years, however, has there been a corresponding attempt to come to terms with the complexities of social competence (Asher and Hymel, in press) and specific peer relationships (Asher and Gottman, 1981; Berndt, 1981b; Gottman and Parkhurst, 1980). Such research is still gathering momentum.

The study of social cognitive phenomena has certainly encompassed children's understanding of their peer relationships and their descriptions of one another (La Gaipa, 1981; Selman, 1981; Stein and Goldman, 1981; Youniss, 1980) It will be evident however from preceding comments that this 'direct' approach to children's understanding can only purport to provide a limited kind of perspective on normative-developmental processes. Nonetheless, it may well have a new kind of role to play in further multi-dimensional

research, wherein the child's meta-cognitive commentary on his/her own perceptions of a social situation may provide an invaluable extra dimension. But what are these other dimensions?

More generally, it is evident that social cognitive processes will need to be studied in a wider action-oriented framework of interpersonal relationships, behavioural sequences, person or behavioural choice situations, and so forth. The area is a vast one, and the amount of available descriptive research is still very limited (Gottman and Parkhurst, 1980, page 198). It is not proposed to try to review the new procedures that are making their appearance beside the traditional methodologies of sociometry, rating scales, checklists, and so forth. It will be sufficient for the moment to note that a variety of such techniques might well be utilised to shed new light on how the child thinks about his/her social environment, relates to it, and seeks to operate upon it. There seems to be widespread contemporary agreement on this general point (Damon, 1981; Gottman and Parkhurst, 1980; La Gaipa, 1981; Strayer, 1980), but not on the specific issue of how best to proceed.

Broadly speaking one can at least predict that future research will need to be multi-dimensional in character and that different kinds of data will need to be put together to clarify what appears to be occurring. At a 'macro' level there would seem to be value in studying the child in different ecological settings, juxtaposing data from parents, teachers, peers and probably the child himself. At a 'micro' level there would seem to be value in combining different forms of sociometric data (Asher and Hymel, in press) with self-report data and analysis of sequential interactions of peers in open or closed settings (e.g. Damon, 1977, 1979, 1981). The only other lesson from the present research is the need to measure behaviour in situations that are real for the child. Social

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cognitive processes must as far as possible be embedded in events, interactions or decisions in which the child is personally involved, and as close to "real life" experiences as possible.

The final comment is about the considerations and judgements being made by the child about the way social cognitive processing actually does interact with ongoing social behaviour. In all of the foregoing comments there is an implicit assumption that the child is basically an "intuitive scientist" (Ross, 1981) in the way he processes information and decides how to behave in a given context. Ross (1981) has vividly illustrated the kinds of attributional errors typically displayed by adults, particularly in distinguishing situational from trait factors. This must at least alert the researcher to the difficulties to be faced in attempting to unravel the pertinent elements and sequences that may be salient for a child in a particular setting. The point has been well put by Shweder (1980, page 269):

> I have argued that social cognition is not primarily scientific in intent, and that to the extent that it is scientific in intent, the organization of social knowledge is mundane, context-dependent, and concrete, and has little in common with the abstract, law-like formulations of the physicist or chemist. One implication of this view is that ordinary people satisfy their need for prediction and control by simply knowing a lot about how relevant people have behaved in the past in relevant situation.

5. CONCLUSION

The study of the development of children's social cognitive processes continues to attract considerable attention even though much of the early optimism about what might be uncovered by a cognitivist model has faded. Research continues to focus on the descriptive phase, of providing a normative-developmental profile. Efforts to achieve psychometric precision in the discrimination of individual differences have been found

wanting. The usual clinical procedure of a one-to-one encounter and the eliciting of verbal responses has by itself been found to be quite inadequate.

The range of present methodologies has achieved a salience and subtlety not present earlier, although there appear to be intrinsic limitations as to how much useful normative data can be obtained. The use of parents as observers of their own children might well be an untapped source of important data, provided the guidelines and recording techniques are made sufficiently effective.

Yet one does not come away from acquaintance with this research with a sense of optimism or direction. Fifteen years of systematic work has at least dismantled the unfortunate stereotype of the egocentric child as conveyed by Piaget's pioneering observations in the twenties (Piaget, 1959); but social cognitive phenomena as empirical constructs continue to be most elusive. They are in no sense the lowest common denominator of the way a child reacts to a social encounter, and we are no closer in terms of predictive or discriminant validity to an adequate representation of what they really signify.

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