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THE  
EFFECT OF DAY-CARE  
ON EMPATHY

A thesis presented in partial fulfilment  
of the requirements for the degree of M.A.  
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ABSTRACT

The study incorporated three areas of concern. Literature and research findings related to day-care focussed on the social-emotional effects of attendance. It was found that fears regarding harmful consequences of mother-child separation and multiple caretakers were not substantiated. Although many findings were equivocal, there was considerable evidence indicating beneficial outcomes of day-care. In particular, prosocial behaviours were found to be improved. An important variable in day-care is interaction with peers. The nature of peer influence on children's social development was, however, largely theoretical. It was concluded that peer experiences should facilitate the loss of egocentrism and coincident increase in empathy in preschool children.

Emphasis was placed on the recent change in viewpoint that the preschool child is not necessarily egocentric but capable of responding empathically. Empathy in children was found to be influenced by socialisation experiences and prosocial behaviours were linked, at least theoretically, to empathy. "Cognitive" empathy was within the capabilities of young children and defined as understanding what another person is feeling.

The aim of the study, therefore, was to investigate cognitive empathy of children attending day-care.

Borke's (1971) Interpersonal Perception Test was used to measure empathy in sixty day-care children (30 male and 30 female) between three and four-and-a-half years of age. Social and interpersonal skills were assessed by a Social Behaviour Rating Scale and the PPVT served as a measure of verbal intelligence. Factors included in the design were length of stay in day-care (NEW, OLD, XOLD), age (3yr.old, 4yr old), sex and a retest after twelve weeks of day-care attendance. Results were analysed in terms of a 5 x 2 (Treatments x Sex) design with length of stay in day-care and age defining treatment classifications.

The results indicated that children who had attended day-care for some time were more empathic than children who had not had this experience. Empathy was found to increase with age but there were no differences between male and female children. The extent to which children were empathic was found to be related to their prosocial behaviours and interpersonal skills. Although increases in empathy over the test-retest interval were slight, NEW children showed a greater development in empathy than OLD children. The results also showed that empathy varied with the emotion being identified and there were differences between item - correctness and response - correctness.

The study supported the idea that day-care can be a growth-enriching experience and can promote the development of empathy. It is implied that early interaction with peers is the factor largely responsible for improved social development.

Finally it was suggested that child-rearing and formal education have great potential for facilitating prosocial behaviours and empathy by offering socialised activities and experiences. Given the implications of this for behaviour modification, especially aggression and violence, it seems particularly important that direct attention be given to facilitating mature levels of empathy and social development

## INTRODUCTION

Until recently very little was known about the child's understanding of his social world, particularly in comparison with the amount known in terms of the child, and 'nonsocial' competence. However, in the last ten years, there has been a great deal of interest and research on the social development of children and prosocial aspects of their behaviour.

The topic of this thesis is how the child's social understanding, in particular, empathy - the understanding of others' emotions, thoughts or viewpoints - can be influenced by the experience of day-care.

The idea that day-care can enrich development is only just beginning to gain acceptance, and has had to overcome earlier fears regarding mother-child separation, multiple caretakers etc. That day-care may have a beneficial effect, in terms of child development is the first premise of this study, with the focus on early peer interactions as evidenced in day-care.

It is this element, in which children have to learn to function in a group and adapt to the varying demands of group life, that is to be associated with empathy of preschool children, and at the same time, with certain prosocial behaviours.

The rationale, therefore, is that an early experience of such a nature as day-care will have some effect on social growth.

The underlying logic has three components. It is too presumptuous to state categorically that attendance in day-care enhances social development, and hence the pros and cons of day-care effects must be dealt with.

If day-care is to encourage social growth then some aspect or combination of aspects, must be contributing towards this outcome. It is also logical to expect that extensive peer contact

and interaction will be an important contributing factor.

For the young child to function effectively and successively in a day-care group, he must learn certain adaptive social skills and behaviours. Thus, it is possible to envisage a spiralling effect of increased peer interaction with increased social development, and vice versa.

Moreover, it is social development of a particular kind that will probably be most evident, that which enables successful functioning in a group of peers - it is therefore likely, that behaviour will be most facilitated in prosocial areas and, in particular, the area of understanding another's viewpoint and feelings, empathy.

Hence the relationship between the three theoretical emphases has been drawn, and will be discussed in these terms.

## DAY-CARE ATTENDANCE AND SOCIAL-EMOTIONAL DEVELOPMENT

The importance of the preschool period for development cannot be overemphasised and the notion that experiences and conditions during the first 5 or 6 years of life can greatly influence how a child grows up is widely accepted (Caldwell 1967, 1973; Sigel, Starr et al 1973). Thus, since experience and environment can affect a child's development, attendance in day-care can be an important source of influence.

Day-care, however, is a relatively recent innovation in child-rearing and there is much controversy within the literature regarding the nature of the effects of day-care. Concomitantly there have been few definite findings. This kind of situation has given rise to the serious need for further study on all aspects of day-care attendance.

The controversy concerning day-care has been centred on the significance of mother-child separation and the presence of multiple caretakers. The idea that the separation of mother and child, especially during the preschool years, is seriously detrimental to the child's welfare was given great weight in 1951 in a review of studies on institutionalised children, prepared by John Bowlby.

Bowlby concluded that children living in group care institutions suffered from severe "maternal deprivation", causing the cognitive deficits and emotional difficulties observed in such children. The emphasis on the importance of the single mother figure stood out in Bowlby's review, and many assumed day-care to have similar effects as institutional care, since both involved mother-child separation.

However, this assumption was scarcely appropriate, for children in the institutions studied suffered from many things besides the lack of a single mother figure. They had very little contact with fathers or father figures (or any other adults), few toys, little contact with other children and were, in general, "stimulus deprived" as well as "mother deprived". (Bee, 1974). Whereas quite



the reverse can be true in day-care centres.

Nevertheless, the view that day-care attendance was harmful for the child's emotional well-being seemed to remain, based on the idea that "maternal deprivation" is synonymous with "maternal separation".

It was also feared that the presence of several concurrent mother figures in early life would result in a diffusion of the mother image and later inability to establish meaningful relationships. Insecure maternal attachment plus severe anxiety and distress from repeated daily separations was expected in a day-care situation (Ainsworth & Bell, 1970; Ainsworth, Bell & Stayton 1971; Robertson & Robertson, 1967, 1971; Tizard & Tizard 1971).

However, as with the effects of separation, the theory concerning the effects of multiple mothering developed in the context of institutional care and was associated with impersonal or rejecting maternal care. Consequently, these theories need revision before they are applied to day-care as it exists today.

The view that day-care separation has effects similar in form to those of "institution-type" separation has been debated at length in the literature. Swift (1964) states that there is much evidence to support the position that the child in day-care retains the essential relationship and identification with his parents despite the long day away from home (Heinecke, 1956; Rutter, 1972).

Therefore, concern over the effects of day-care arose mainly from maternal deprivation literature in which separation was equated with deprivation. Secondly, this literature was looking at institutional care in which children often suffered much more than the loss of a single mother figure. It is now clear that the effects of separation are not always as severely adverse as earlier studies implied (Witner 1962), and, in fact, the case for harmful effects of day-care has tended to be overstated.

The present purpose is to show that day-care separation is not automatically detrimental to the emotional stability and growth of children.

More recently with increasing numbers of women in the work force (it is estimated that there are between 30,000 and 40,000 working women with preschool children in N.Z., S.R.O.W., 1975) and consequent increasing demand for day-care, a major revision of child-rearing concepts has been necessary.

Unfortunately, in any day-care study there are a number of confounding variables. Initially, there is the problem of the self recruiting nature of the sample of subjects, and that certain "day-care attendance" effects may well result from particular home attitudes among the parents of day-care children. At the same time, children who settle down well at day-care probably stay on longer than children who don't settle in well. Consequently, children who have attended day-care for a long time and so are specially suited for research studies, could well represent a non-typical group.

In the following review, it should also be remembered that a large proportion of day-care research has come from the U.S.A. and many of these studies have been carried out in very intensively educational centres with extremely competent staff. Thus, it may not be reasonable to generalise such results to day-care as a whole.

Effects of day-care attendance may also be influenced by variables such as the amount of time spent in the centre, the age at which the child begins day-care and the type and quality of care provided.

These are some of the constraints in the area of day-care research and must be recognised when interpreting studies.

A further limitation is the availability of techniques for evaluating the social and emotional functioning of preschool

children. Such a task is being made even more complex by the wide diversity of behaviour included under the rubric of "social and emotional development".

Having briefly outlined some of the experimental difficulties in this area, the review of day-care studies follows.

In terms of the effects of day-care attendance on attachment and emotional stability, studies that are available tend not to confirm the earlier fears of social maladjustments, personality disorders, loss and attachment as previously discussed (Braun & Caldwell, 1970; Caldwell & Smith 1970; Caldwell, Wright, Honig & Tannenbaum 1970). This position has been supported in a study by Schwarz, Strickland & Krolick (1973) using 20 children who had been attending day-care from infancy, and children entering day-care initially at 3 and 4 years of age. Ratings of affect, tension and social interaction obtained on the first day and fifth week in a new facility contradicted the notion that infant day-care leads to emotional insecurity. The early day-care group exhibited a more positive affective response on arrival in the new day-care setting and tended to remain happier than the matched group of children who had started day-care later.

In addition to recent day-care research from the U.S.A., there is considerable evidence from European studies, particularly from those countries in which group child-rearing is the rule rather than the exception.

Studies on the kibbutzim of Israel, in which all children are placed in extra-family institutions at a very early age, have found few deleterious effects of rearing on social attachments, personality development, interpersonal relationships and mother-attachment etc (Gewirtz 1965; Maccoby & Feldman 1972; Rabin 1958; Spiro 1958). Rabin (1965) concluded that the early day-care

situation of the Kibbutzim was not detrimental to the child's emotional development. Similarly, Wolins (1974) compared groups of home-reared and day-care children in Austria, Yugoslavia, Poland and Israel, and the results failed to support the long-held negative view of group-care effects on social-emotional development. No psychosocial deficiencies were evident, rather the group care settings were characterised by successful social integration.

Therefore, while empirical research is still sparse, what does exist points to the possibility of day-care achieving favourable results.

Earlier concern on the effects of multiple mothering has likewise not been substantiated by research (Mead 1954; Yarrow 1962) and factors other than maternal separation may be more crucial in influencing attachment and emotional development. Etaugh (1974) concludes that strength of attachment to the mother is unrelated both to maternal availability and the number of caretakers (Ainsworth 1963; Kotelchuck 1971; Maccoby & Feldman 1972; Schaffer & Emerson 1964), but what does seem important for emotional adjustment is the stability of care given to the child (Moore 1964, 1969).

Thus, given the constraints on research and interpretations, the body of evidence now accumulating is indicating benefits rather than dangers of day-care.

In the past, day-care has been seen merely as a "substitute" service, but it is far more appropriate to see that it has unique values of its own. For instance, the social element of day-care is probably the feature that most distinguishes it from other experiences to which the preschool child is exposed. In a day-care group the child is constantly surrounded by a fairly large number of children of similar age and only one or two adults. The child is also offered activity and self-expression in areas in which the home offers only limited possibilities. Conversely, the child has to learn to adapt it's own individual activities to the collective

activities of the group and must learn to share both space and materials. Such early interaction with peers suggests that personal development and social adjustment will be encouraged through day-care. This premise states the underlying theme of the present study and is discussed at greater length in the following chapter on peers.

Although the social element is clearly a distinctive feature of day-care, it has been largely ignored in day-care research, while expectations that the opportunity to interact with other children will facilitate social development and the acquisition of social skills, have more often been expressed in research into nursery schools (an equivalent to the New Zealand kindergarten).

As well as differing in terms of traditional research emphases, day-care centres and nursery schools are different on a number of counts, for example, their aims and consequent programmes, length of daily attendance, the part of population that children are drawn from (SES, family background) etc. However, one thing they do have in common is a highly social situation and for this reason nursery school research is relevant.

Sjolund (1973) has reviewed studies concerning the effect of nursery school on social and emotional growth and concluded that the majority (80% of all those to be found) demonstrate a positive effect in one or more social-emotional fields. As with day-care research, some of these studies have certain methodological faults, for example, no control groups, unmatched groups of subjects, or a retrospective design that says nothing about the effects while children were actually attending nursery school.

Given this qualification on the studies, those aspects of social development that have been found to be improved after attending nursery school were largely of a "prosocial" nature. That is, studies (with adequate controls and matched groups) have reported increases in the amount of social activity and participation of children (Jersild & Fite 1937, 1939), improved peer and social

adjustment (Hattwick 1936), increased ability to get on with others (Peterson 1938; Vitz 1961), decreased dependence on adults (Heathers 1955; Peterson 1938) and, in general, greater social adjustment and social skills.

Since nursery schools and day-care centres have a common social factor it is reasonable to expect similar trends as these, in terms of the effects of day-care attendance. More recent day-care research has considered the social aspect and has found this to be so. Caldwell (1973) reported that day-care was found to be associated with the acquisition of adaptive social skills as well as with healthy emotional development. Caldwell & Richmond (1968) in studying children at the Children's Centre, Syracuse report that many of the children showed they "cared for" one another, more frequently than one usually finds in groups of children of a similar age. There is also some evidence that the day-care children had a sense of togetherness and community feeling.

Therefore, extrapolating from nursery school studies and using findings from day-care research, it is clear that day-care is likely to promote social development of preschool children and, moreover, it is prosocial behaviours that are most encouraged.

Although the controversy and debate over the effects of day-care has not been resolved, this review has shown that increasing evidence is giving day-care a more favourable image. It is also clear that problems and constraints in such studies prevent definite statements of outcomes from being made.

Nevertheless, it has been shown that day-care attendance can result in positive growth and development in emotional and social areas.

THE INFLUENCE OF PEERS ON SOCIAL-EMOTIONAL DEVELOPMENT

From the previous section, it was found that social development can be encouraged by preschool experience and it is the purpose of this section to investigate to what degree this is the result of the presence of peers.

The issue here, becomes one of determining the roles of maturation and experience. For the present purpose the concept of maturation will refer to those changes which "primarily represent an unfolding of the nature .... of the organism that are at least relatively independent of special environmental circumstances, training or experience" (Liebert, Poulos & Strauss, 1974, p.79). It is held that, with increasing age, peer interaction changes both quantitatively and qualitatively. For example, Parten (1932) reported that the amount of social participation increased with chronological age and that "as they grow older, nursery school children engage more frequently in associative and cooperative activities with age-mates, and less frequently in solitary play, onlooker behaviour and isolated play" (1932, p.264).

Such changes are maintained by many to be largely the result of maturation, per se. From this viewpoint, it can be hypothesised that with maturation there is a concomitant growth in cognitive skills that may well enable the development of appropriate social skills. Thus, one could argue that factors 'internal' to the child and his own individual make-up contribute in large part, to the process of change in peer interactions and social growth. Along such lines, Piaget (1932, 1970) has proposed a general theory of social development in which both maturation and experience play a role in the transition from lower to higher levels of social development - maturation is important primarily as it effects the child's cognitive capacities, while social experience serves as a catalytic agent advancing or retarding the operation of a built-in timed mechanism. In this formulation, there are cognitive limitations underlying the young child's type of interaction with peers, one of these being the state of egocentrism. It follows



naturally that a major prerequisite for growth in peer relations and general social behaviour is a change in aspects of cognition. Moreover, there will be a certain period in development, where the child is incapable of cooperation and mutual interactions with age-mates due to cognitive limitations.

The way in which these cognitive structures are induced to change is therefore important. Age and maturation seem to be the all important variables, for by virtue of growing older, the child shifts from interaction primarily with adults to increasing interaction with peers. In order to make sense of these new experiences and integrate them with prior views, changes in cognitive 'schema' are posited to occur, so forming the basis for subsequent development in social spheres. Hence, this cognitive shift interacts with, and is in part the product of, new modes of social experience and peer relations.

From this, a number of questions arise concerning the effects of day-care experience on the development of peer relations in pre-school children. From Piaget's formulation of social development, this age group is characterised by egocentrism, that is, they lack appropriate cognitive "mechanisms" for the growth of cooperative and mutual interactions. But will the experience of being in close proximity to a large number of age-mates facilitate a cognitive shift such that appropriate structures will emerge sooner? Or will this cognitive limitation be such that the child in day-care is unaware of his peers, signifying that the day-care environment has no meaning for him in terms of peer relations? That is, what is often supposed to be an instance of 'forced' peer contact may not be so at all, since for the egocentric child, peer contacts are not 'contacts' at all.

There is, however, a lack of integrated findings on the effects of peer interactions which is possibly due to the difficulty in isolating the variance in children's socialisation that is derived from contact with peers. The world provides virtually no opportunity



to study children's socialisation occurring solely in the peer group, nor does it provide many instances for studying children's development in the absence of peer interaction.

Therefore, comparative psychology can make a meaningful contribution to the study of peer interaction effects, as well as the effects of its absence. For example, Harlow & Harlow (1965) have suggested that the early development of children's relations with age-mates is similar in some respects to the sequence with which the peer affectional system develops in rhesus monkeys - the first stage is a 'reflex' stage, during the first 20-30 days of life in which there is visual orienting to peers and proximity-maintaining behaviours; the second, exploration stage involves brief periods of gross bodily contact; and the third stage is one of interactive play, and at 12 months an 'aggressive' stage appears. Although the determinants of these changes have not been fully explored, certain experiential differences have had interesting developmental consequences. For example, "total isolation (including isolation from mother) for a period of 6 months, as compared to semi-isolation (no contact with other monkeys except for sight or sound), produced an absence of social play with peers for as long as 24 weeks following the termination of the isolation experience" (Hartup 1970a p.365). In addition, the same experimenters showed that the longer infant monkeys are reared by their mother only and deprived opportunity to interact with peers, the more gross are their social inadequacies. Infants peer-deprived for 4 months and then allowed to interact, rapidly developed typical play patterns but were more wary and aggressive than control infants (peer contact from 15 days on). Infants peer deprived for 8 months, were even more wary and hyperaggressive than the 4 months group.

The Harlows concluded that animals who are deprived of the opportunity to form affectional responses to peers during the first year (before the stage of aggressive interaction), fail to acquire the necessary modulating and controlling systems needed later for effective social relations.

Furthermore when infant monkeys were separated from their mothers at birth, and allowed continual exposure to peers only, different aberrations in social development occurred - they seemed to become hyperattached to each other and extremely hostile to stranger infants (Suomi & Harlow, 1975, Chap.6).

Therefore, it would seem that too much exposure to a given class of social partners can have deleterious consequences for social development. But it is, nevertheless, suggested by the Harlows that the primary vehicle for developing 'social' potential lies in the development and maintenance of peer friendships, at least in rhesus monkeys and possibly in man also.

However, there is only limited evidence that such principles as these generally hold in the case of human children. Freud & Dann (1951) described six German-Jewish war orphans, who had been in close contact with each other since infancy in concentration camps. These children's attitudes to adults were bizarre but there was a high degree of mutual attachment, - they cared greatly for each other and not at all for anybody or anything else. Although there were a number of factors confounded in this study, when combined with data from comparative studies, it does appear that contact with peers can contribute significantly to the social development of young children.

The exact nature of the effect on the child's total development, of early peer contact, still remains a matter of conjecture however. Though most agree that the growth of peer relations contributes significantly to the development of social competence in children, few have gone deeper into the 'cause-and-effect' relationships involved. For instance, Appolloni & Cooke (1975) hypothesise that interaction between infants may serve to facilitate behavioural development; McCandless & Hoyt (1961) maintain that peer interaction among preschool-age children is indispensable for normal development as it provides opportunity for the important rehearsal of 'life-roles'; Lewis & Rosenblum (1975) maintain that meaningful peer relationships are necessary for the social development of preschool

children, and assume that if children are given the opportunity to interact with, and form relationships with age-mates, this will facilitate the growth of adequate social repertoires; Jones (1972) hypothesised that play experience with peers may be just as important for human development, as Harlow & Harlow found it to be for the development of adaptive social and sexual behaviour among rhesus monkeys.

Although these hypotheses and assumptions seem justifiable, they lack substantial empirical support (apart from some comparative studies illustrated above). Only a few studies have looked at pre-school experience and the effect of peers on social growth, for by far the majority have considered changes in social development with chronological age. Moreover, most of the pertinent data on peer influences have come from studies of children in nursery schools and day-care centres, and they, in no way, isolate the effect of peers from other socialising influences in the child's experience. Even so, since the presence of a large number of agemates is one of the most distinguishing features of these kinds of experiences, it is probable that changes in social growth may be derived from this factor.

For example, Gehler (1972), demonstrated that children who had preschool experience formed new social relationships more often and more easily than those who did not have this experience. The pre-school group also showed a greater degree of constancy in relationships, a strong tendency for mutual aid and in general, an improved development of social attitudes.

A similar study by Smith & Connolly (1975) looked at patterns of play and general social interaction of preschool children. They found that a number of variables differed in relation to length of nursery school experience, for example, sociability in play, behaviour, rough-and-tumble play, laughing and smiling were found to be correlated with nursery experience more highly than with age. A composite measure of social participation also revealed higher

correlation with nursery experience than with age (partial correlation with nursery experience, age held constant = 0.44; partial correlation with age, nursery school experience held constant = 0.29). Smith & Connolly concluded that these results indicate that nursery school experience can be conducive to improvement in the ability to interact and play with other children.

McGrew(1974), in a study of interpersonal spacing of preschool children, looked at the influence of length of nursery school experience. Although age and nursery experience covaried, the results showed that the older, nursery-experienced children were more social towards peers and younger, nursery-inexperienced children tended to avoid new peers and seek adult solace. Similarly, in terms of grup formation, older experienced children preferred each others' company in close proximity, while young inexperienced children avoided both older children and each other.

In addition, peers can operate to produce some changes in social interaction, for example, Hartup & Coates (1967) showed that peer models can affect the prosocial behaviour of young children. Young nursery school children were exposed to an age-mate who displayed an unusually high level of sharing behaviour, and modeling effects were clearly apparent.

Therefore, this evidence suggests that contact with peers can have an important facilitating effect on the development of interpersonal behaviours in preschool children. For this reason it is expected that, in the present study, the degree of familiarity and length of experience with age-mates in a day-care situation will further the development of social participation and social 'sense'.

However, it should be noted here that other studies have found the quality of social participation highly correlated with chronological age, but unrelated to the extent of preschool experience, for example, Raph, Thomas, Chess & Korn (1968).

Parten & Newhall (1943) also showed that degree of social participation was not accounted for by length of nursery school attendance, but rather determined by age and I.Q. Similarly, Iwanaga (1973) using 3, 4 and 5 year old children found a strong linear relationship between age and the highest attained level of interpersonal play structure.

How then can these changes in interpersonal behaviour with maturation and experience, be drawn together and explained in terms of a developmental sequence? As discussed in the introductory paragraphs, the most explicit theoretical base explaining differences in children's responsiveness to peers has been formulated by Piaget (1932). In this, three major stages are proposed, the first is an egocentric stage lasting until the child is approximately 6 years, during which the child's level of cognitive functioning and lack of extensive interaction with peers produces an indifference to rules and norms and a 'collective-monologue' type of interaction with peers. Most relevant here is the emphasis Piaget places on increasing peer contacts as a determinant in the transition from this presocial egocentric stage to the following non-egocentric ones.

However, this egocentric attitude of the preschool child may well reflect the child's early socialisation with parents, according to Ausubel & Sullivan (1970), - "accustomed to being on the receiving end of a nurturant relationship, to being favoured and given special consideration, they...(young children)....are naturally reluctant to surrender their privileged positions or consider the needs of others. Under atypical conditions however, where children become emotionally dependent on each other instead of adults, egocentricity is less marked, using the example of children reared in the kibbutz." (p.330). This has also been found in Russia and China where observers have commented on the degree of cooperation, helping and social interactions in nursery school children and it has been suggested that "egocentrism" is culture-bound. (Bronfenbrenner, 1970; Luria, 1972).

Therefore, as Piaget also proposes, relevant experience with peers is a necessary growth factor in this sequence from egocentrism to true social interaction with age-mates. But also, it seems able to influence the rate of development through this sequence, speeding up changes in cognitive structures and in social skills

Therefore, it appears that maturation is an important factor in the growth of interpersonal skills, but it also seems reasonable to expect that differences in amount of peer socialisation will be associated with variations in children's social development. Hence, the experience of extensive peer interaction as found in day-care can logically be expected to encourage social development and prosocial behaviours. It will also enable the child to move away from an attitude of egocentricity, to develop in terms of empathy.

## EMPATHY IN CHILDREN

The previous section suggested that the presence of peers and interaction with them, can encourage the social growth of young children. One particular aspect of social development, related closely to peer interactions, is the ability to understand another's point of view or feelings, that is, empathy.

The study of empathy in children has recently become a focal point of interest and research, reflecting a broader contemporary orientation towards the child's social development. The past two decades have seen an increasing number of empirical studies of empathy, its assessment, development and functions (Aronfreed, 1968; Borke, 1971; Chandler et al 1973; Feshbach 1973; Feshbach & Feshbach 1969; Feshbach & Roe 1968), and its possible role as an important mediator of certain positive social behaviour, such as helping, sharing, altruism and moral conduct (Hoffman 1970; Staub 1971, 1972).

The general agreement as to the significance of empathy, however, contrasts with the various meanings given the construct and the diverse phenomena to which the label empathy has been ascribed. For example, empathy has been used interchangeably with such terms as sympathy, kindness, compassion, projection, intuition, role-taking, affective perspective taking etc. Although defined in a number of ways, empathy has primarily been characterised as either a cognitive response to another's affective state (i.e. understanding what another person is feeling), or an affective response (i.e. having the same emotion as the other person), or both. Moreover, differences in definition have resulted in variations in the way the term has been operationalised, the measurement of empathy depending on each researcher's particular emphasis.

Thus the area has been beset with both conceptual and methodological inconsistencies which have only been complicated



by the procedural problems present in any exploration of the abilities of young children. With this kind of situation, comparing the results from various studies is difficult and may not be meaningful, and since construct validity is lacking, the measures may not be assessing the same construct. In fact, the extent to which empathy measures actually assess empathy, as opposed to other constructs, is a question that remains largely unanswered (Deutsch & Madle, 1975).

The two major kinds of instruments for measuring empathy in children closely reflect the dichotomy of 'cognitive' and 'affective' definitions of empathy. The child is usually presented with a brief story depicting a situation accompanied by a picture (for example, Borke, 1971, 1973) or a series of slides (for example, Feshbach & Roe, 1968). The situations are simple and depict the emotions of happiness, sadness, anger, and fear. In one instance, the child is asked, "How does the child in the story feel?", and the correct answer is coded as 'empathy' by Borke (1971) and as 'social understanding' by Feshbach (Feshbach & Feshbach, 1969; Feshbach & Roe, 1968). In the other instance, the child is asked, "How do you feel?" and the correct answer is labelled as 'empathy' by Feshbach. Therefore, operationally, empathy is a cognitive response for Borke, and an affective response for Feshbach.

From this division, arises the question of how these two are related. For example, if empathy is defined as understanding another's feelings, is this mediated by emotional factors such as imitating another's emotional cues, role-taking, identification, or projection? Or is empathy, defined as a shared emotional experience, mediated by understanding? In an attempt to integrate these approaches, Feshbach & Kuchenbecker (1974) proposed a three-component model of empathy involving both cognitive and affective dimensions. Two of the elements are cognitive - the ability to discriminate and label affective states in others, and the ability to assume the perspective and role of another person, and the third element is one of emotional capacity and responsiveness. In this scheme all three elements are necessary for an empathic response to occur, and all are equally subject to development and modification through learning and experience. This model does,



however, have shortcomings, for example, the direction or sequence of the affective and cognitive reactions is not specified and therefore their relationship is not clear.

However, the relation between understanding how another feels and actually experiencing that same emotion has been empirically studied. For instance, Feshbach & Roe (1968), using subjects aged 5-7 years, asked both questions, "How do you feel?" and "How does the story-child feel?". They found that more children reported the depicted emotion in answering the second question than the first, and it was suggested that "empathy as a vicarious affective response may be contingent upon the comprehension of a social event, while social understanding may be independent of an affective response" (Feshbach & Roe, 1968, p.133).

This hypothesis that 'cognitive' empathy is a necessary but not sufficient condition for 'affective' empathy was given some support in another study using Borke's test (Mood, Johnson & Shantz, 1974). Using children between the ages of 3 and 5 years Mood et al found that, of the total responses across emotions, 57% were correct identifications of the story-child's feelings, but only 30% of these also felt the same way as the story-child. Thus, whether a child correctly identifies how another child feels or not, there is a tendency not to feel the same way himself.

Mood et al concluded that with a preschool sample affective empathy is much less frequent than cognitive empathy. On the other hand, Feshbach (1973) concludes that while the cognitive dimension is important, it is the affective component that gives empathy its unique property. The significance of this depends largely on how one chooses to define the criteria for an empathic response and illustrates the problems in this field when comparing the results of various studies.

Despite such difficulties, several important findings have been made. The major achievement has been a change in viewpoint. The view of the preschool child as profoundly egocentric (Piaget, 1967) was perpetuated by a number of studies showing that up to about 7 years of age, children were non-empathic and that with increasing age after this point, social sensitivity increased and egocentrism decreased (Burns & Cavey, 1957; Flapan, 1968; Gates, 1923; Gollin, 1958; Walton, 1936). However, this has given way to a rather different view. From the findings of several other studies, the preschooler has emerged as much more competent in the social sphere. It is now believed that children can respond empathically before the age of 7, and certain studies have even questioned the importance of egocentrism in relation to young children's social activities (DeVilliers & DeVilliers, 1975; Garvey & Hogan, 1973).

Many of the studies forcing a change in view were concerned with empathy as "understanding how the other is feeling", largely based on Borke's Interpersonal Perception Test (1971), which consists of 23 stories each accompanied by a picture and requiring only a nonverbal response, selecting a face. Borke (1971) found that children as young as three years showed an awareness of other people's feelings and could identify above a chance level those situations that evoke different kinds of affective responses. Social sensitivity was found to increase with age, consistent with Piaget's observations, and ability to react empathically varied with the emotion being identified - happy situations were identified with high reliability by 3 year olds, but situations involving unpleasant feelings of sadness, anger and fear, were recognised with increasing accuracy in the 4-7 year old range. (Borke, 1971, 1973). It may be that the child's empathy develops at different rates for some emotions than for others (Guiora, 1967).

In addition, the empathic responses to the emotions of sadness or anger showed the least consistent trends and may reflect individual differences in responding to frustration - "while some individuals react to the frustrating agent and feel

angry, others respond to the deprivation resulting from the frustration and feel sad" (Borke, 1971 p.269).

Mood et al (1974) confirmed these findings that young children are capable of correctly identifying the affective states of others (cognitive empathy), although as noted previously, affective empathy occurred much less frequently. Similarly, Kurdek (1975) showed that children as young as five were able to respond empathically and that this increased with age.

Thus these studies suggest that accurate empathy concerning simple emotions is achieved by preschool children.

Empathic ability in such children nevertheless seems to vary with the complexity of cues presented. Deutsch (1974) presented episodes in which affective expression was incongruous with the situation in some instances and congruous in others. Children (aged 2,11 - 5,1) scored significantly higher on the congruous than on the incongruous episodes, suggesting that "when the level of affective discrimination becomes more difficult....young children have difficulty" (p738). However results on the congruous episodes in this study support the finding that awareness of positive and/or negative affective responses is well established by three years of age.

In summary, then, given tasks within their capabilities young children are capable of understanding how another is feeling and this cognitive empathic ability can vary with the complexity of the cues in the situation.

Empathy in children has also been shown to vary with differing degrees of similarity (in terms of age, sex and race), between the child and the observed person. Boys are more empathic when judging story-boys and girls when judging story-girls, than when making cross-sex judgements (Feshbach & Roe, 1968; Deutsch, 1975;

Klein, 1970). Supportive evidence for this comes from a study by Rothenberg (1970) in which dissimilarity between targets and observer was maximised. It was found that older children were significantly more accurate in perceiving the adults' feelings than younger children, and that  $8\frac{1}{2}$  year olds had difficulty accurately identifying emotions that, in the previous studies, preschoolers had identified correctly. This suggests that the use of dissimilar targets and situations for child-judgers decreased the accuracy of empathic responses.

Therefore, accurate empathy in preschool children occurs when the situation the other person is in, is familiar to the child and/or the other person is substantially similar to the child. "Accurate understanding of these same emotions is not usually attained until middle or late childhood when the situations and people judged have low similarity and low familiarity to the child . (Shantz, 1975, p281). These data tend to support the notion that accuracy in judging other's emotions under conditions of similarity and familiarity may be no more than self-description (Bronfenbrenner, Harding & Gallwey, 1958; Chandler & Greenspan, 1972; Flavell, 1968). However this will be discussed more fully later, along with other criticisms on empathy research.

Sex differences in empathy is another variable that has been studied in children, but findings have been inconclusive. Some studies have found females to be more empathic than males with this effect being more evident between the years of 4 and 7. (Fay, 1970; Feshbach & Feshbach, 1969; Roe, 1976). Other studies, however, have found no differences due to sex. (Borke, 1971; Rothenberg, 1970).

Another variable possibly influencing empathy and it's development is child-training practices. Unfortunately very few studies have investigated the correlates of empathy and different socialisation experiences. One study has specifically examined the relationships of child-rearing factors to children's empathy,

aggression and related positive and negative social behaviours (N. Feshbach, 1975b). Looking at the antecedents of empathy, only one significant parental dimension was found for boys - a parental emphasis on competition was associated with low empathy in their sons. Empathy, in girls, however, appeared to be related to maternal behaviours reflecting a positive and non-restrictive relationship with their daughters; empathy in girls was negatively correlated with maternal conflict and rejection and with maternal punitiveness and overcontrol, while it was positively associated with maternal tolerance and permissiveness. Information regarding socialisation effects on the development of empathy also comes from cross-cultural studies. Borke (1973) found that recognition of emotions was influenced to a considerable extent by the interaction of social class and cultural factors. There was increased awareness of fearful situations by very young Chinese middle-class children that may reflect the over-protective tendencies of their parents. Also the ability of Chinese middle-class and lower-class children between the ages of 3 and 4 to recognise sad situations more correctly than their American counterparts possibly reflects the Chinese emphasis on feeling "shameful" or "losing face".

In a recent study, Roe (1976) compared the empathy responses of first grade Greek and American children. Results showed the American sample to be significantly more empathic, the effect being primarily due to the very low empathy scores obtained by the Greek boys. Roe interprets this sex difference as a reflection of the greater indulgence, overprotection and consequent egocentricity of Greek boys as compared to Greek girls.

These findings serve to illustrate the point that empathy can be affected by factors of child-rearing, particularly those factors relating to the experience and expression of feeling. The study of empathy will also be furthered by looking at other social situations, peer interactions and teacher-child interactions, and their role in empathic growth. In fact, it was Piaget (1932) who emphasised the critical role of peer interaction for the development

of empathy and suggested a bi-directional causal relation - peer interaction as a necessary factor for the growth of role-taking skills and vice versa. Piaget maintained that egocentric functioning decreases as a result of the child's confrontation with peers who differ in their wishes, perspective, needs and thoughts. Then, as role-taking abilities and empathy emerge, the child can engage in reciprocal social behaviour. Accordingly, the child who experiences extensive social interaction will be more likely to reduce his egocentrism quickly and will, therefore, be able to respond more empathically.

The implication then, is that children who have been attending day-care for some time should be less egocentric and more empathic than their age-mates who have not had similar extensive peer interactions.

As well as these factors that have been shown to affect empathy in young children, empathy has also been attributed a role in the acquisition and manifestation of certain social behaviours as generosity (Bryan 1972; Fay 1970), altruism (Hoffman 1975), helping others in distress (Staub 1970), and cooperation (Kohlberg 1969; Levine & Hoffman, 1975; Ruderman, 1961). The empirical data relevant to these theoretical propositions, though, have not been extensive and the findings often equivocal. For example, in the case of cooperation and empathy (Ceresnie 1974; Levine & Hoffman 1975) no positive relation was found. Thus the hypothesis of a substantial relationship between empathy and prosocial behaviours has not been strongly supported to date, but neither has it been refuted. It was also expected for empathy to be inversely related to antisocial behaviours, especially aggression and a number of studies have investigated this proposition (Feshbach & Feshbach, 1969; Huckaby 1971; Mehrabian & Epstein, 1972).

Feshbach & Feshbach found that empathy was positively related to aggression in preschool children, a finding that was consistent with an earlier finding by Murphy (1937) that children who were



more sympathetic were more aggressive. This relationship has been attributed to a common factor of activity level.

With older boys aged 6 and 7, however, Feshbach & Feshbach found an inverse relation between empathy and aggression and for girls of both ages, empathy and aggression were unrelated. Similar trends were also found by Mehrabian & Epstein (1972) and Huckaby (1971), indicating, in general, an inverse relation between empathy and aggression for boys older than five years.

To summarise this section, the inconsistencies in definitions and methodologies in empathy research were noted. Despite these, important contributions have been made to the understanding of empathy. Firstly, a major revision on the young child's social competence has been forced due to the findings of studies showing that the preschool child is capable of responding empathically. Secondly, it has been found that this empathic ability can be influenced by factors of cue complexity, similarity of the person and/or situation the child is presented with and by socialisation practices.

The implication for the present study, therefore, is that day-care children should be more empathic.

Thirdly, young children were found to show ability in the area of 'cognitive' empathy more frequently than in 'affective' empathy. In the three-component model of empathy it was suggested that the affective element gives empathy its uniqueness, implying that without sharing the emotion of another, young children are not truly empathic. However, this model itself has shortcomings and may not be a realistic representation of empathy.

Empathy as it relates to prosocial behaviours in young children was also considered and although linked theoretically, there was found to be little empirical substantiation. An inverse relationship was found between empathy and aggression in older boys though.

It is important that the findings of this section be qualified by some discussion of the criticism surrounding empathy research. Several issues embedded within the various definitions, measures and interpretations have received severe criticism.

The definitions of empathy as an understanding of affect or a shared emotional experience, although the most common in the literature, have been criticised by Chandler for being "mistakenly analytic and unnecessarily piecemeal" (1977, p.7.). He suggests that a less fractionated view of empathy should be adopted, of the sort proposed by Piaget (1970) in which empathy is an integral response arising from the interaction of cognitive and affective aspects within the individual. From this perspective, the separation of these two elements is impossible and is, Chandler says, "a myth of conceptual convenience". This question is not easily resolved, but in the present study a definition of 'cognitive' empathy was chosen as a means of providing a more complete picture of the growth of empathy in children.

One major criticism of empathy measures and their interpretation has centred round the issue of projection. As has been noted above, when the situation of the other person and/or the other person is substantially similar to the child, accurate empathy is facilitated. Hence, there is doubt as to what meaningful interpretation can be placed on the findings.

Since the situations used in the Interpersonal Perception Test and the Affective Situations Test (Feshbach & Roe, 1968) and other methods (Deutsch, 1975) are probably quite familiar to young children, the child may identify the correct emotion from his own experience or from remembering others' responses when he was an observer. It is for this reason that Chandler & Greenspan (1972) and Chandler (1974) have been critical of interpretations such as Borke's that empathic skills are involved in responses to these tests. They suggest that more primitive mechanisms, such as



projection or identification may underlie correct performance, and that "projection is the exact opposite of legitimate empathic understanding" (1974, p.3.).

Borke (1972) however, in reply to Chandler & Greenspan, states that, "the use of projection, identification, and stereotyping in no way negates the conclusion that young children realise other people have thoughts and feelings different from their own. It simply indicates that these are the primary mechanisms for understanding the perspective of the others during this stage of development" (p. 108). Borke suggests that empathy is a continuous process which proceeds through a series of hierarchical stages beginning with a general sensitivity to others' emotions and feelings culminating in truly relativistic thinking. Corroborating evidence for this comes from a study by Urberg & Docherty (1976), in which five tasks were used to form a hierarchy of empathy skills (using Borke's task to measure the most basic type of empathy). Results showed that skills needed for the early tasks were logical prerequisites to those needed for later tasks.

Furthermore, it has been suggested (Livesley & Bromley 1973; Shantz 1975), that the young child's attribution of his own thoughts and feelings, that is, his egocentric attitude, may be an important means of understanding others. "Since as humans we are more alike than we are different, the child's assumption of similarity to others is probably often accurate," (Shantz, 1975, p 313) and egocentrism may have an adaptive function, particularly during the early years of life.

On the other hand, it has been shown (Kurdek, 1975) that 5 year old children use projection in empathy tests less than older children (11 year olds). Kurdek, using children aged 5,3 - 11,6 found that empathy increased with age, but so too did projection. When projection was controlled for, empathy scores decreased with age, the younger children receiving similar scores on both the controlled and uncontrolled measures.

Thus there is disagreement on the appropriateness of empathy as a construct to explain performance on many of the empathy tests. One view is that projection may contribute substantially to response accuracy and that this can not be called empathy. Another view is that if mechanisms such as projection provide accurate ways of understanding others, then it is legitimate to label responses as 'empathic', since this represents one stage in empathy development. Finally, it may be that young children do not use projection as frequently as one thinks, or when it is used by young children it is not at all counter-productive.

Several other comments have been made on the procedures commonly in use for the assessment of 'affective' and 'cognitive' empathy. It has been suggested that these procedures generally provide a series of highly congruent contextual, thematic and expressive cues that redundantly prescribe the same affective response (Chandler, 1974), and in so doing fail to test empathy and easily permit a kind of stereotypic accuracy. It is implied that, particularly with children, the measure should demand the most advanced behaviours and that the presence of empathy not be inferred unless all the criteria for empathy are met by the response (Ianotti & College, 1975). However, there has arisen a 'double bind' kind of situation in which the empathy measures have required such language and cognitive competency that the pure mechanics of responding have been beyond the capabilities of young children. Borke (1971) therefore, has made an important distinction between the empathic response in an individual and the ability to communicate that response to others. As a consequence, the test she developed enabled preschool children to demonstrate empathy nonverbally. Hence the argument that empathy measures are oversimplified, is not valid when preschool children are being studied and what is important is that the demonstration of empathy is made as easy as possible for the subjects while still measuring the construct intended.

Specifically, criticisms have been made about those studies in which empathy is assumed to imply a shared emotional experience,

requiring a match between a subject's feeling states and those of the stimulus person (Feshbach, 1973; Hoffman 1976; Ianotti & Meacham 1974; Mood & Johnson 1973), that is, measures of "affective" empathy. Chandler has stated that the repeated inquiry into how subjects feel "creates demand characteristics the effects of which cannot be calculated" and that "even if one can imagine that children's emotions go through the kinds of kaleidoscopic changes which these procedures seem to demand, there is no guarantee that (they) are capable of accurately reporting on these rapid fluctuations in their own subjective experience". (1974, p.5). This suggests that measuring 'affective' empathy in young children could be very misleading as an indicator of empathic ability and that a 'cognitive' measure of empathy is more appropriate.

Hence, from this discussion of procedures for empathy assessment it would seem that a measure such as Borke's (1971) - requiring only a nonverbal response and assessing 'cognitive' empathy - is most reliable and appropriate for use with young children. Some of the more significant criticisms of empathy research have been discussed. The distinction between cognitive and affective empathy, though frequently used, may be unrealistic and unnecessary. Both cognitive and affective measures of empathy have been attacked for their simplicity and their lack of control over projection influencing performance.

In reply to this, it was noted that projection may be adaptive for the young child in understanding others and may represent the beginnings of empathy development. Although this question is not resolved, the bulk of evidence seemed to support this latter viewpoint.

In particular, measures of 'affective' empathy have been criticised for absurd and unrealistic demand characteristics especially when measuring empathy in young children. It appeared, therefore, that "cognitive" measures are the most suitable for use with young children.

## CONCLUSIONS AND PRESENT STUDY

The discussion of these three topics has, in common, shown the need for serious reexamination of principles concerning early child development.

Firstly, the notion that day-care is harmful in terms of development was not substantiated, since many of the fears arose out of institutional care, markedly different in character to day-care today. The concern that the situation of mother-child separation and multiple caretakers would together result in emotional difficulties, loss of attachment, personality and social disorders (Ainsworth & Bell 1970; Bowlby 1971; Robertson & Robertson 1968), may well be inappropriate in terms of day-care.

It is difficult to state unequivocally, the outcomes of studies, since in this area there exist many experimental constraints and confounding variables, not lessened by the difficulty in assessing social-emotional development in children. Bearing this in mind, the evidence that was reviewed found that, by reason of group care, children in day-care will be no more likely to present social and emotional disorders, than home-reared children (Etaugh 1974; Rabin 1965; Wolins 1974). In fact, many studies indicated favourable effects of day-care attendance on social-emotional growth. (Caldwell 1973; Caldwell et al 1970; Sjolund 1973).

Moreover, social development was found to be most encouraged in "prosocial" areas, that is, progress was in terms of social participation, helping and cooperating activities, getting on with others, etc.

Therefore, while the controversy over the exact nature of day-care effects remains to be solved, the accumulating evidence indicates that dangers of institutional care can not necessarily be applied to day-care and that day-care has beneficial features of it's own. Hence, the premise that day-care may enrich development can be meaningfully studied.

To investigate further those features of day-care contributing to a positive effect on development, the influence of peers on social and emotional development has been discussed. That the nature of social interactions change with both maturation and experience and the balance between the two, the cognitive shift vis-a-vis improved social behaviour,

was put forward as particularly relevant to this study.

Although little research has been done on the influence of peers, comparative studies with rhesus monkeys have contributed to the understanding of peer interaction effects in humans. Such investigations found peer interaction in the young to be very important for appropriate and adequate social growth (Harlow & Harlow, 1965; Suomi & Harlow 1975). Although mother-infant separation led to social maladjustments, lack of interaction with peers resulted in maladjustments of a similar strength. Contrary to the idea that the child must not be separated from his mother, such evidence suggests that if the child is not separated, social-emotional development will be hindered.

There was some evidence that these principles are appropriate for human children, and that early contact with peers is necessary and will facilitate the development of interpersonal behaviours and social skills.

Piaget (1967) has suggested that egocentric functioning will decrease as a result of peer interactions during middle childhood while the child younger than 6 years is "egocentric" and non-social. However this idea is possibly culture-bound and it has been suggested that with different social experiences, particularly early peer interactions, development from egocentric to non-egocentric stages can be promoted. (Ausubel & Sullivan 1970; Bronfenbrenner 1970).

The idea proposed therefore, is that, with early and extensive peer interaction as evidenced in day-care, the preschool child will overcome his egocentricity and develop socially. That is, experience will change certain cognitive structures, enabling the loss of egocentricity and the coincident increase in empathy.

Empathy, as a construct, has been variously defined by different writers so causing conceptual and methodological inconsistencies. The major distinction between "cognitive" and "affective" definitions is dealt with, the former being more frequent in children.

Results from several studies have forced a major change in the view of the young child as egocentric and unable to respond empathically. (Borke, 1971; Kurdek, 1975; Mood, Johnson & Shantz, 1974). Empathic ability in preschool children has been demonstrated under conditions of familiarity with a situation, and/or similarity with the person being judged.

Empathy, reflecting the absence of egocentrism, meant that from Piaget's formulation, interaction with peers would be a stimulant in it's development. The more extensive the social interaction, the more likely a child is to lose his egocentrism and respond more empathically. Children's empathy, therefore, can be affected by socialisation and patterns of rearing, an idea supported by empirical evidence (Borke 1973; Feshbach 1975b; Roe 1976).

Empathy in children can also be affected by the emotion that is being identified, for example, Borke (1971) found that the 'happy' emotion was more readily identified than unpleasant emotions of sadness or anger. In addition empathy was related, at least theoretically, to certain prosocial behaviours.

Some studies were concerned with differences in empathy between males and females, but the findings were not conclusive.

Finally an important issue arising out of the discussion on criticisms of empathy research, concerned the way in which empathy should be measured in children. Debate surrounding aspects of test simplicity, stereotypic accuracy, projection, and the affective/cognitive distinction has not been settled. However the use of tests such as Borke's (1971) is justified for this is possibly one of the most applicable measures for testing empathy in preschool children.

The present study, therefore, defining empathy as "understanding how the other is feeling", intends to determine the relationship between these factors, day-care, peers and empathy. Hence, the hypotheses are as follows:

1. Day-care will encourage the development of empathy, that is, children who have been attending day-care for some time are expected to show a higher degree of empathy than children who are just beginning day-care;
2. From a maturation point of view, older children will be more empathic than younger children;
3. The level of development of empathy will be positively related to the level of development of certain prosocial behaviours, for example, sharing, helping, cooperation;
4. There will be no differences in empathy between male and female children;
5. Since experience of day-care is the important factor in this study, empathy in children will be expected to increase over a given period of day-care attendance.



## METHOD

Several aspects of design were examined to develop an appropriate and effective procedure for testing the hypotheses.

Firstly, some aspect of day-care attendance had to be selected. There were two possibilities, full-time attendance could be compared with part-time attendance, or new entrants could be compared with long-stayers. Since the study wanted to highlight any day-care effects, it needed to minimise 'within-group' differences and maximise 'between-group' differences. Hence, it was decided to choose only full-time day-care attenders and compare children just beginning with those who had been attending for some time.

Secondly, although it was clear that day-care centres vary in their programmes and kind of care, this variable was not included, since it is difficult to quantify and since there were inadequate numbers of children for it to be reasonably controlled. Also, on the basis of findings in empathy research, subjects were not matched on I.Q. or mental age. Since it was possible that mental age may contribute significantly to empathy, if subjects were matched on this variable, then any differences from day-care attendance may have been levelled out. However, subjects were measured on I.Q. so that in the analysis of results the contribution of intelligence to empathy could be determined.

## DESIGN

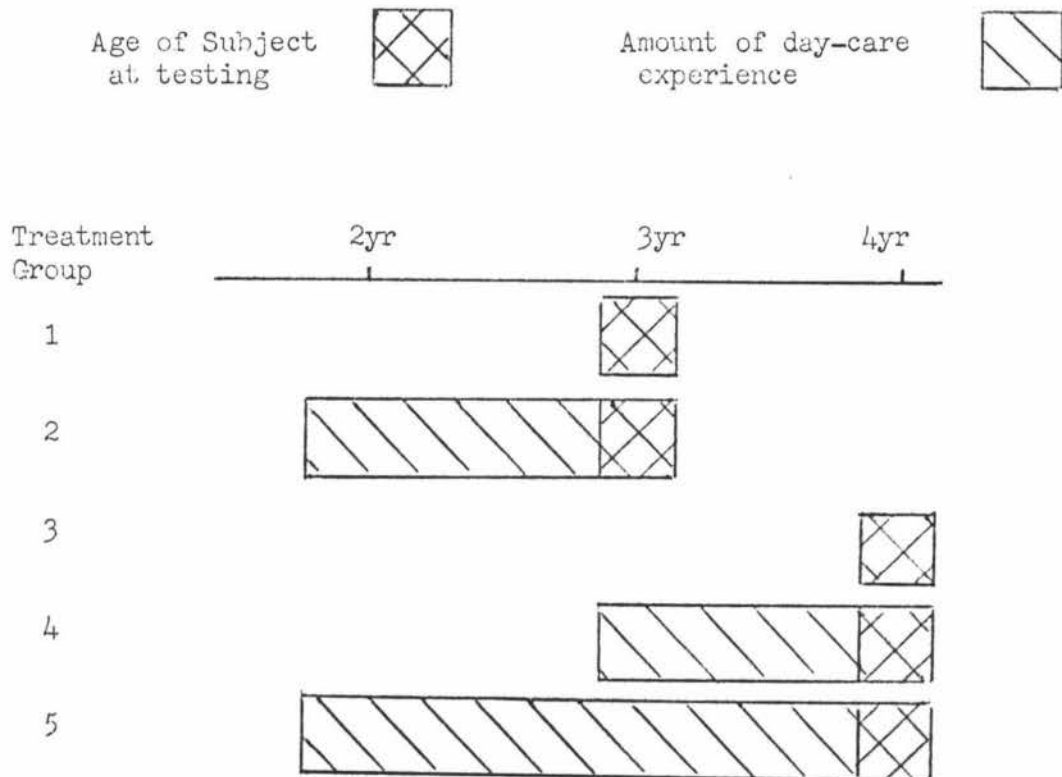
The design was factorial with four factors - length of stay in day-care, age, sex, and a retest session after 12 weeks of day-care attendance. The factors age and sex each had two levels, while length of stay had two levels, balanced for age, and an additional level on only one age level. This was done because of the confounding of length of stay in day-care with the age of starting in Treatments 1 - 4. The design is represented in Table 1 and Fig. 1.



TABLE 1: DESIGN & SUBJECT NUMBERS FOR TEST & RETEST ( ) SESSIONS

		FACTOR A - LENGTH OF STAY		
		NEW	OLD	
FACTOR B -	3 yr	M = 6 (4)	M = 6 (6)	
	AGE	F = 6 (5)	F = 6 (6)	XOLD
		1	2	
	4 yr	M = 6 (5)	M = 6 (6)	M = 6 (5)
		F = 6 (3)	F = 6 (6)	F = 6 (5)
		3	4	5

FIG.1 - GRAPHIC REPRESENTATION OF DESIGN



### Subjects

Participants in the study were 60 children, who fulfilled the several criteria for selection and were drawn from fifteen day-care centres in the Wellington region. (See Appendix A.)

Day-care attendance was required on a full-time basis and this was defined as a minimum of 25 hours per week. Children just beginning day-care (subsequently referred to as NEW subjects) had a maximum length of stay of three weeks; the length of stay of children who had been some time in day-care fell within the 6-12 months range (subsequently referred to as OLD subjects); and the final category were children who had spent longer than 12 months in day-care (subsequently referred to as X OLD subjects).

Furthermore, there were two age categories; in the three year old group, ages fell between two years eleven months (2,11) and three years six months (3,6), and in the four year old group, ages fell between three years eleven months (3,11) and four years six months (4,6).

Tables 2 and 3 show the means and standard deviations for age and length of stay for subjects at the time of testing.

TABLE 2: MEANS & STANDARD DEVIATIONS ( ) OF SUBJECT AGES (in months)

	NEW		OLD		XOLD	
	M	F	M	F	M	F
3 yr	38.8	40	40	38.5		
	(2.4)	(2.57)	(3.1)	(1.05)		
4 yr	51	49	53	50	51	49
	(2.0)	(1.9)	(0.89)	(1.95)	(2.24)	(3.63)

TABLE 3: MEANS & STANDARD DEVIATIONS ( ) OF SUBJECTS' LENGTH OF STAY (in months)

	NEW		OLD		XOLD	
	M	F	M	F	M	F
3 yr	0.33 (0.204)	0.625 (0.137)	9.5 (2.17)	8.67 (2.25)		
4 yr	0.583 (0.204)	0.375 (0.209)	9.67 (2.34)	9.0 (2.61)	24 (6.84)	21.2 (4.41)

The three variables age at testing, length of stay in day-care and age of starting day-care are not independent of one another. That is, age of starting is dependent on length of stay and age at testing, and in a similar way each one is dependent on the other two. Therefore, in a 2 x 2 design of length of stay and age at testing, the third variable is always confounded and hence the addition of a fifth category (Treatment 5). In this way, only one variable is confounded at a time when comparing relevant treatment groups, for example, Treatments 2 and 4 control for length of stay but confound age of starting, and Treatments 2 and 5 control age of starting but confound length of stay.

On the retest, the total sample size dropped from 60 to 51 (i.e. by 15%) largely through the loss of NEW subjects. (See Table 1).

#### Measures

Subjects were measured on three tests, the main one being the Interpersonal Perception Test which provided an empathy score. The Social Behaviour Rating Scale was used to determine what relation there was between empathy as measured by the IPT, and empathy in terms of certain behaviours.

Thirdly, the Peabody Picture Vocabulary Test provided a measure of verbal intelligence so that the extent to which empathy was influenced by intelligence could be determined.

### Interpersonal Perception Test

This test, devised by Borke (1971), consists of 23 stories (accompanied by pictures) depicting circumstances that result in pleasure, sadness, anger or fear, together with four faces depicting the emotions of happy, sad, afraid and angry (one set of 4 male faces and one set of 4 female faces). For each subject the set of same-sex faces is used.

The eleven stories in Part I describe events leading up to the story-character's affective state caused by someone other than the subject, for example, "How does Nancy feel when her mother makes her eat something she doesn't like?"

Part II stories describe events leading up to the character's affective state caused directly by the subject himself, for example, "How does Nancy feel if you give her some ice-cream?" With each story the subject is asked to indicate how the story character felt by pointing to one of the four faces.

Borke (1973) later developed a second set of stories along these same lines, but of which only 16 are scored for empathic responses. This resulted from the finding that some of the original 23 stories were responded to ambivalently by children and some showed cultural differences. Hence only those stories which most children responded to in the same way were scored, as follows:

Part I Stories	1 and 11 Happy
	6 and 10 Sad
	5 and 9 Afraid
	4 and 7 Angry
Part II Stories	1 and 12 Happy
	4 and 6 Sad
	5 and 8 Afraid
	7 and 10 Angry

In the present study only these 16 stories were used and scoring procedure was as follows: any item was scored correct if the child gave happy as a response to a happy situation (subsequently called HAPPY), afraid as a response to a fearful situation (SCARED) and either angry or sad as a response to a frustrating situation

Interpersonal Perception Test cont'd.

(SAD/ANGRY). The collapsing of the 'sad' and 'angry' categories was based on the fact that both these responses appear to be equally acceptable reactions to frustrating situations - "the degree to which a situation might make someone feel sad or angry possibly reflects individual differences in responding to frustration." (Borke, 1971, p.269).

Also, based on evidence that there are no differences between Parts I and II (Borke, 1971, 1973), scores on these two parts were combined to give an empathy score.

Certain modifications were made, however, to the IPT for use in the present study. In order that children were sure what emotion each face characterised, an extensive practice section was devised. The criterion for proceeding with the test items was the correct identification of emotions on the faces. Any errors were explained and the procedure repeated until this was mastered. From the small pilot study carried out, this alteration was found to be both necessary and effective. In addition, the names of the story characters were made suitable for New Zealand subjects and two sets were produced (Mary and John; Susan and Peter) so that the subject's own name was never used in the test.

For each story and picture (see example in Appendix C) the experimenter placed the four faces in front of the subject and the order of the faces differed for each item, the critical face never appearing in the first position. This was done so that the subject would not be correct merely by selecting the first face he came to. A final modification was to the order in which the stories were presented. According to which emotion was characterised, the order of the stories was randomised on a latin square in an attempt to eliminate any sequential effects. The resulting story order was as follows: Part I - Happy, Angry, Sad, Afraid, Sad, Happy, Afraid, Angry; and Part II - Afraid, Sad, Angry, Happy, Angry, Afraid, Happy and Sad. (The final form of the test appears in Appendix B).

### Social Behaviour Rating Scale

This scale was developed with the aim of providing a behavioural measure of empathy and to be used as a corresponding measure to the IPT. Ideas on the behaviour repertoires of young children and possible social behaviours reflecting empathy were gained from several sources. (Becker & Krug, 1964; Digman, 1965; Johnson & Bommarito, 1971; Marshall & McCandless, 1957; White & Watts, 1973). From these, ten items were constructed, each referring to a single variable and each defining a recognisable behaviour pattern. They were sharing, helping, co-operation, type of role play, sympathy, approach to a new child, maintenance of social contact and as an overall summary, general relations with other children. Rating of these items was along a 5-point scale on which '1' represented zero degree of a particular behaviour and '5' represented behaviour maximally typical of the subject, and by totalling ratings on the ten items, each subject received a Social Behaviour score. (See Appendix B).

### Peabody Picture Vocabulary Test

Form B of the PPVT (Dunn, 1965) was used on both test and retest sessions, and although no test-retest reliability is reported in the manual, a study by Moed, Wight & James (1963) reports a test-retest coefficient of 0.88 after one year, with 29 physically disabled children. Validity studies mentioned in the manual indicate that correlations with Stanford-Binet mental ages and WISC I.Q.'s range from .70 to low .80's

The PPVT is a "highly usable test, of moderate reliability and largely unestablished validity" (Lyman, 1965 p.821) but is "probably now the best of it's kind". (Piers, 1965, p.823). The PPVT requires a nonverbal response and for this reason was used here.

### PROCEDURE

The first stage of the study consisted of a small pilot study using children who were not going to participate in the main study and although the sample size was very small (n=6), there were some important outcomes.

Each subject was tested individually and the IPT and PPVT were administered, in that order for half the subjects and the reverse order for the other half of the subjects. However, it was found that by administering both these together each subject's concentration decreased significantly after the first. Also there was found to be no differences in responding to the tests as a result of the order of administration.

From this preliminary study, it was decided that some familiarisation with each child before testing was necessary. As a result, in the study itself, the experimenter spent 5-10 minutes with each subject prior to testing. In this period the experimenter's actions largely depended on the individual child, but generally included such things as helping with activities the child was engaged in, talking to the child, reading stories and often, just being present was enough to allow the subject to lose his shyness.

Then, in a separate room from the rest of the children, the subject was given the IPT. Also from the pilot study, there was then a break of 15-20 minutes before giving the same subject the PPVT, during which time another subject was given the IPT.

If a subject did not want to cooperate, then he was in no way forced to do so and often such children would cooperate after some other children had 'had a turn'.

After all the subjects in the particular day-care centre had been tested, the supervisor was then given a Social Behaviour Rating Scale for each one. In addition to the printed instructions, the experimenter went through this rating scale and explained how it was to be completed, and that it should be completed by the person or persons most familiar with the subject. The supervisor was given 7 to 10 days in which to complete these rating scales, depending on how many there were.

From the records of the day-care centre, information was gained regarding each subject's age of starting day-care and amount of time spent there each week.

After the first testing of all subjects, this same procedure was repeated after 12 weeks of day-care attendance, or approximately three months.

However, as can be seen from Table 1, several subjects were lost over this period, most of them being subjects who had begun day-care for the first time.



## RESULTS

Subjects' responses showed that they readily understood what emotions the four faces characterised and only in a few cases was it necessary to repeat the practice items to achieve this correct identification.

From the testing sessions a number of observations were made, for example the selection of the correct face was frequently accompanied by an appropriate verbal response. Secondly, in answering the second part of each question, "Why do you think Mary (John) would feel.....?", subjects related the emotion to the situation correctly. However, a few subjects explained their selection of an incorrect face with an inappropriate relation between the emotion and situation, for example, one subject chose the HAPPY face in response to the question, "Show me how Mary (John) would feel if she were alone in the dark?", with the explanation "Because she likes the dark." This type of response was infrequent since only fifteen such answers (<2%) were observed over all subjects' responses.

Since the design was not completely factorial, the factors of length of stay and age were regarded as separate treatments and a 5 x 2 (Treatments x Sex) design was used to analyse the results.

It should also be remembered that there does exist a confounding (see p38 Method) between length of stay in day-care, age at testing and age of starting day-care.

Subjects in the study were not matched for I.Q, but on analysis a significant covariance of intelligence scores with empathy scores was found. ( $F(1,49) = 15.78, p < .001$ , Tables 4 and 5).

TABLE 4: COVARIANCE ANALYSIS OF INTELLIGENCE &amp; EMPATHY

SOURCE	X <sup>2</sup>	XY	Y <sup>2</sup>	ADJUSTED VARN	D..F.	MEAN SQUARE
A SEX	104.02	-16.458	2.604	$A_{yy}^1 = 4.735$	1	4.735
B TREATMENTS	1052.94	244.9	130.059	$B_{yy}^1 = 102.556$	4	25.639
A x B	376.39	59.333	18.291	$AB_{yy}^1 = 12.655$	4	3.164
RESIDUAL	9512.84	535.667	123.792	$E_{yy}^1 = 93.629$	49	1.911

TABLE 5: TEST OF SIGNIFICANCE OF COVARIANCE

(Using difference in error terms  $E_{yy}$  &  $E_{yy}^1$ )

SOURCE	D.F.	SUMS OF SQUARES	MEAN SQUARES	F
COVARIANCE	1	30.163	30.163	15.78
$E_{yy}^1$	49	93.629	1.911	$F_{1,50}(.01) = 7.17$
$E_{yy}$	50	123.792		

Furthermore, from the analysis of homogeneity (Table 6), the effect of intelligence is seen to be homogeneous within the five treatments ( $F(9.40) = 0.539$ ,  $p > .25$ ) and therefore can be treated as a single effect over all treatments.

TABLE 6: TEST OF HOMOGENEITY OF WITHIN CLASS REGRESSION

Error is partitioned into  $S_1 = E_{yy} - \sum (E_{xyj}^2 / E_{xxj})$ 

$$S_2 = \sum (E_{xyj}^2 / E_{xxj}) - (E_{xy}^2 / E_{xx})$$

SOURCE	D.F.	SUMS OF SQUARES	MEAN SQUARES	F
$E_{yy}$	49	93.629	1.911	
$S_1$	40	83.507	2.088	
$S_2$	9	10.122	1.125	.539 N.S.

$$F_{9,40}(0.05) = 2.12$$

$$F_{9,40}(0.25) = 1.34$$

The significant covariance results meant that an analysis of variance of empathy scores was unrealistic and empathy scores were adjusted such that, as near as possible, each treatment group was equated on the covariate intelligence.

Using these adjusted means and a t-statistic, differences between means of relevant conditions were tested for evaluating the first two hypotheses (Tables 7 and 8).

TABLE 7: ADJUSTED MEANS & AVERAGE EFFECTIVE ERROR OF EMPATHY SCORES

(i) FACTOR A : SEX

	MALE	FEMALE	ERROR ( $S^{12}$ )
$\frac{A}{y}$	7.708	8.274	1.932

(ii) FACTOR B : TREATMENTS

	1	2	3	4	5	ERROR
$\frac{B}{y}$	5.905	7.880	7.419	9.753	9.001	1.965

(iii) CELLS

	1	2	3	4	5	ERROR
MALE	5.061	7.841	7.066	9.112	9.467	
FEMALE	6.749	7.917	7.772	10.394	8.536	1.93

Key to treatment Nos: 1. NEW 3 yr old  
 2. OLD 3 yr old  
 3. NEW 4 yr old  
 4. OLD 4 yr old  
 5. XOLD subjects

TABLE 8: COMPARISON OF ADJUSTED MEANS

Comparison	$S\bar{D}$	t	Significance
Age: 4yr. <u>vs</u> 3 yr (3+4 <u>vs</u> 1+2)	.405	4.18	.001
Length of Old <u>vs</u> New stay: (2+4 <u>vs</u> 1+3)	.405	5.321	.001
Sex: Female <u>vs</u> male	.359	1.577	N.S.
Age of Start at 2yr starting: <u>vs</u> start at 3 yr (2+5 <u>vs</u> 1+4)	.405	1.511	N.S.
Interactions			
Age x length of stay: 1+4 <u>vs</u> 2+3	.405	.443	N.S.
Age x sex: (1+2) M.+(3+4) F <u>vs</u> (3+4)M + (1+2)F	.401	.14	N.S.
Age x age of starting: 2+4 <u>vs</u> 1+5	.405	3.368	.005
Sex x length of stay: (2+4)M + (1+3)F <u>vs</u> (1+3)M + (2+4)F	.401	.397	N.S.
Sex x age of starting: (2+5)M + (1+4)F <u>vs</u> (1+4)M + (2+5)F	.401	2.384	N.S.

This analysis revealed a significant main effect of length of stay in day-care ( $\underline{t}$  (49) = 5.32,  $\underline{p} < .001$ ), OLD day-care children receiving significantly higher empathy scores than NEW children (see Fig 2.) However OLD and XOLD subjects (treatments 4 & 5) were not significantly different on empathy ( $\underline{t}$  (49) = 1.315,  $0.1 < \underline{p} < 0.2$ ).

Testing the differences between treatment means also revealed a significant main effect of age ( $\underline{t}$ (49) = 4.18.  $\underline{p} < .001$ ), four year old children scoring higher on empathy than three year olds.

Interaction between age and length of stay variables was not significant, although it was clear that OLD three year old children received a similar but slightly higher empathy score to NEW four year olds (mean empathy scores were 7.880 and 7.419 respectively, see Fig. 2.)

The third variable age of starting day-care, confounded in the design, did not have a significant main effect on empathy. However, the only significant interaction in the analysis of results was between age of subjects at testing and age at which day-care was started ( $\underline{t}$  (49) = 3.368,  $\underline{p} < .005$ ). In this interaction, length of stay is clearly confounded and makes a meaningful interpretation difficult (Interaction illustrated in Fig 3).

Testing differences between means also showed no significant differences in empathy due to sex, although females generally scored higher than males (see Fig 4).

In order to assess prosocial behaviour of day-care children according to the third hypothesis, the social behaviour rating scale was completed, through group discussion among the workers in a day-care centre. Thus the ratings on each subject combined a number of impressions. On analysis it was found that social behaviour scores correlated positively and significantly with empathy scores, partialling out the contribution of I.Q. (partial correlation = + .632,  $\underline{p} < .001$ , Table 9).

FIG 2: EMPATHY SCORES OF NEW & OLD DAY-CARE SUBJECTS

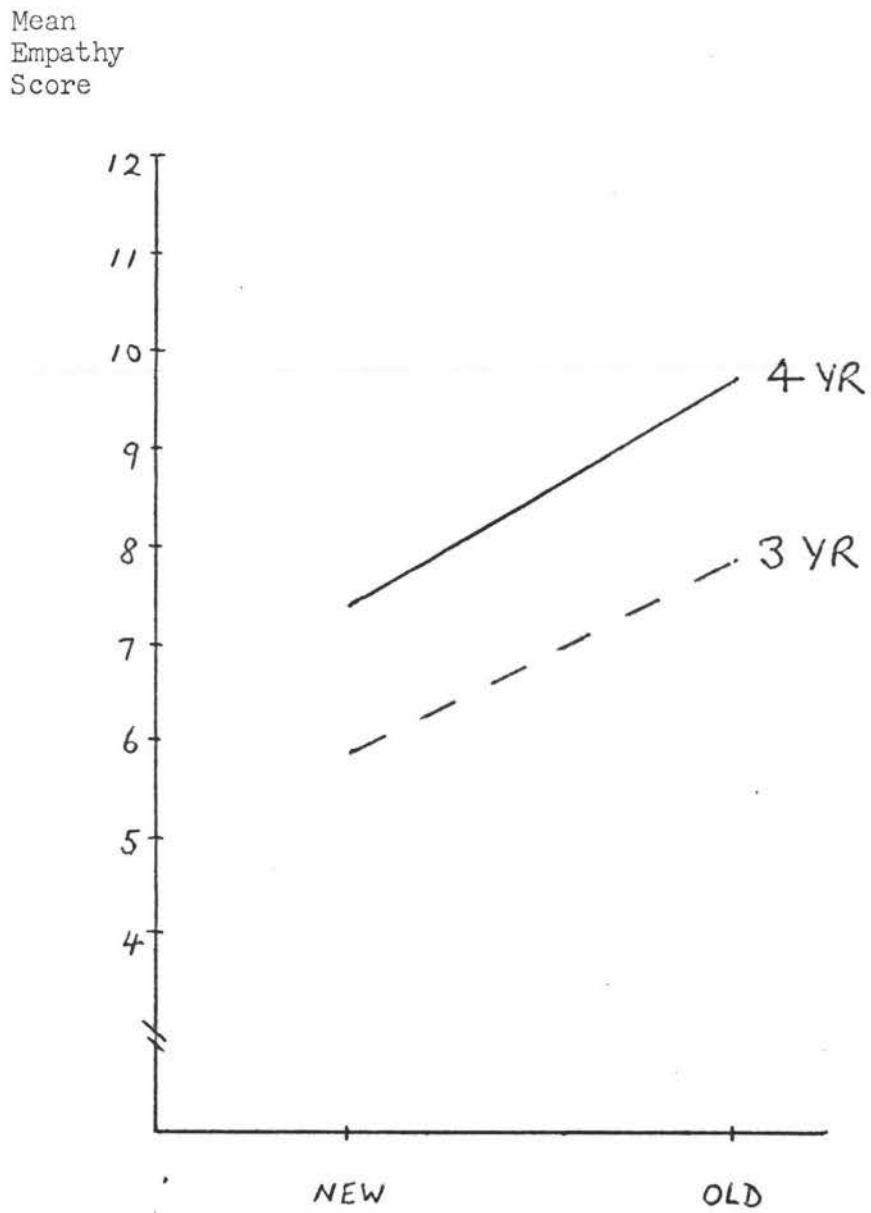
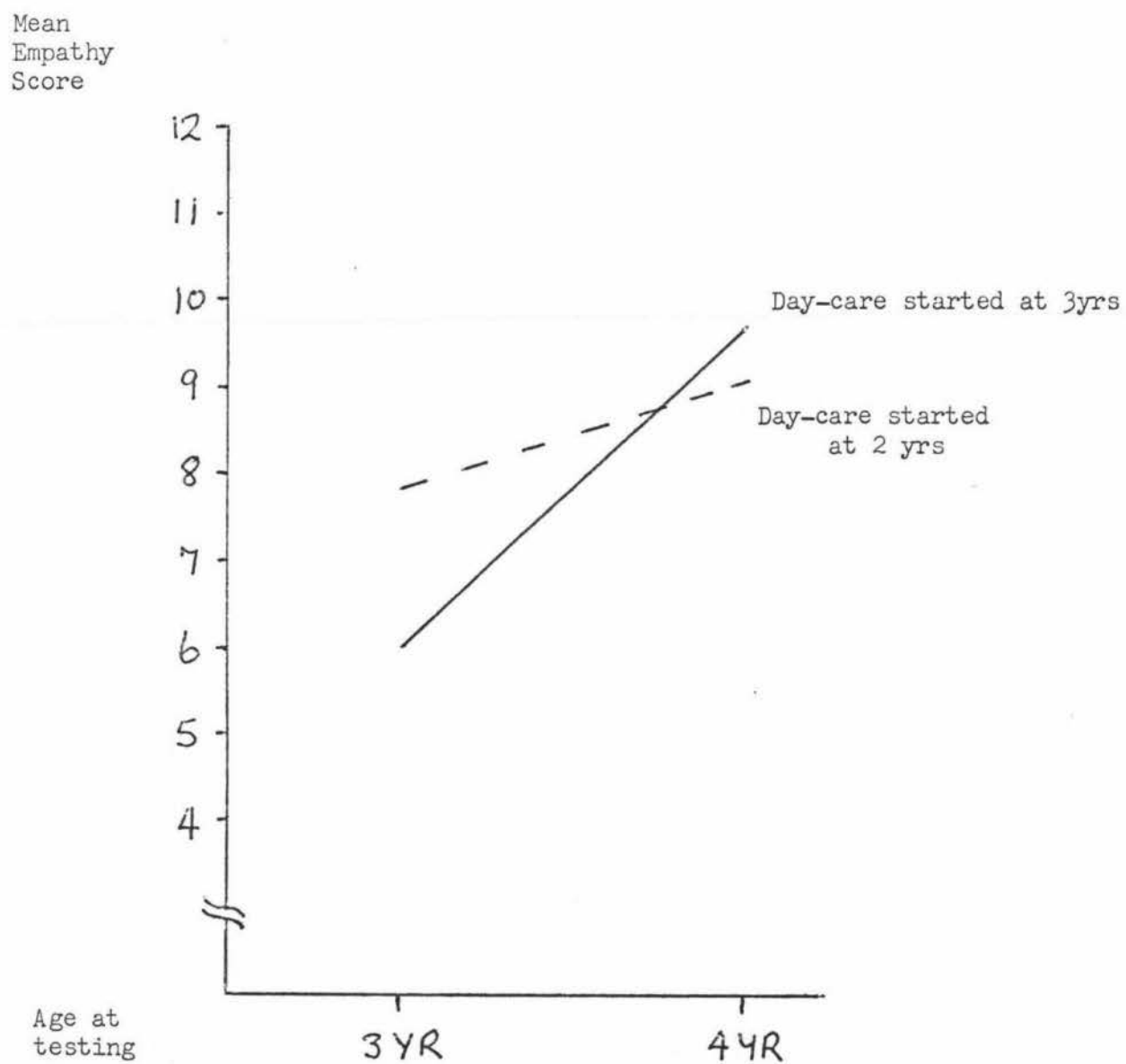


FIG 3: INTERACTION BETWEEN LENGTH OF STAY IN DAY-CARE AND AGE OF STARTING DAY-CARE



Mean  
Empathy  
Scores

Treatment

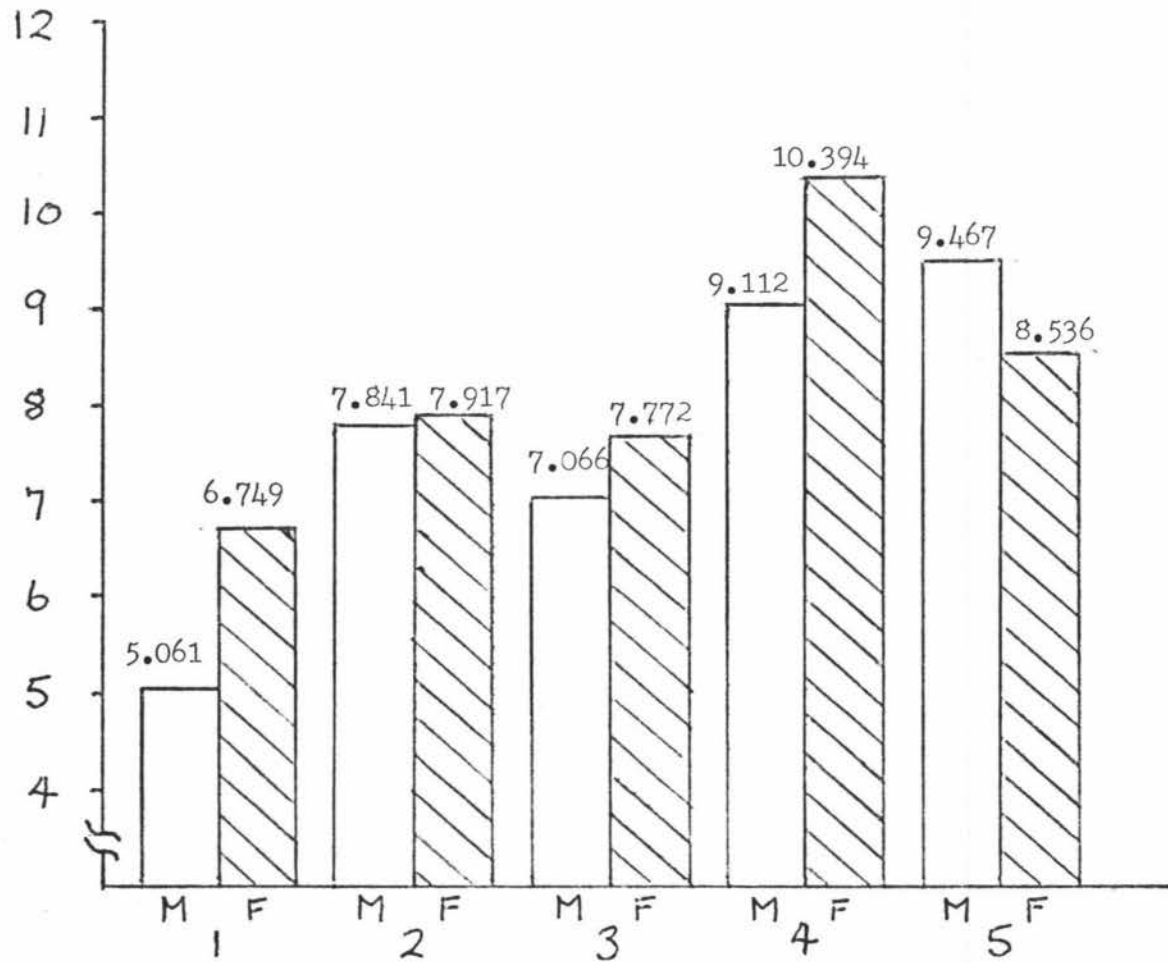


FIG 4: MEAN EMPATHY SCORES OF MALE AND FEMALE SUBJECTS



TABLE 9: CORRELATIONS & PARTIAL CORRELATIONS AMONG EMPATHY  
SOCIAL BEHAVIOUR & I.Q. SCORES

	CORRELATION	SIGNIFICANCE	PARTIAL CORRELATION	SIGNIFICANCE
Empathy & social behaviour scores	+ 0.612	.001	+ 0.632	.001
Empathy & I.Q. scores	+ 0.474	.001	+ 0.491	.001
Social behaviour & I.Q. scores	+ 0.128	N.S.	- 0.194	N.S.

The interrelations between all three scores was of minor interest (Table 9). Correlations and partial correlations indicated that the relationship between social behaviour and I.Q. scores is not significant, while that between empathy and I.Q. is very significant ( $p = .001$ ).

Also subsidiary to the major hypotheses was an analysis of variance carried out on subject's three emotion scores, HAPPY, SAD/ANGRY, and AFRAID. This analysis showed a significant main effect of emotions. ( $F(2,100) = 28.729$ ,  $p < .001$ , Table 10). Furthermore, the nonsignificant interaction between Treatments and Emotions ( $F(8,100) = 0.3467$ ,  $p > .25$ ) shows that treatment effects on the separate emotions did not differ and confirms that emotion scores could be meaningfully added to give a total empathy score.

TABLE 10: ANALYSIS OF VARIANCE OF CHILDREN'S EMOTION SCORES

SOURCE	D.F.	SUMS OF SQUARES	MEAN SQUARES	F	P
Treatments	4	43.352788	10.838194	13.133	<.001
Sex	1	0.868056	0.868056		
Treatments x sex	4	6.097222	1.524306		
Error	50	41.263889	0.825278		
Total	59	91.5819			
(within subjects)					
Emotions	2	47.419444	23.709722	28.729	<.001
Tr x emotions	8	2.288889	0.286111	0.3467	>.25
Sex x emotions	2	0.019444	0.009722	0.0118	>.25
Tr x sex x emotions	8	2.577778	0.322222	0.3904	>.25
Error	100	82.527778	0.825278		
Total	179	226.415278			

Emotion scores were not adjusted for covariance with intelligence since each emotion may have been affected differently and consequent analysis very complex. Since the main effect was very large and the interactions very non-significant, the same trends can be expected had the appropriate adjustments been made for the effect of intelligence.

Certain trends were also evident in terms of how the subjects responded to the four emotions. For example, HAPPY items were answered correctly most often (81.25% of all HAPPY items were correct) and SCARED items were answered least correctly (only 50% of the SCARED items were correct, see Table 11).

TABLE 11: TOTALS & PERCENTAGES OF RESPONSES FOR EACH ITEM PRESENTED  
(probability (response/item))

		RESPONSES				TOTAL
		HAPPY	SCARED	SAD / ANGRY	NO RESPONSE	
<u>STIMULUS</u> <u>ITEMS</u>	HAPPY	195 81.25%	10 4.167%	30 12.5%	5 2.083%	240 100%
	SCARED	50 20.833%	120 50.0%	65 27.083%	5 2.083%	240 99.99%
	SAD/ANGRY	81 16.875%	59 12.292%	329 68.542%	11 2.292%	480 100%

However, looking at the types of responses (Table 12), a different pattern emerged, for example, SAD/ANGRY responses were most often correct (77.59% of all SAD/ANGRY responses were accurate) and HAPPY responses were correct least often (only 59.82% of all HAPPY responses were correct).

TABLE 12: TOTALS & PERCENTAGES OF ITEMS FOR WHICH EACH RESPONSE WAS GIVEN  
(probability (item/response))

		<u>RESPONSES</u>			
		HAPPY	SCARED	SAD/ANGRY	NO RESPONSE
<u>STIMULUS</u>	HAPPY	195	10	30	5
<u>ITEMS</u>		59.816%	5.291%	7.075%	23.81%
	SCARED	50	120	65	5
		15.337%	63.492%	15.33%	23.81%
	SAD / ANGRY	81	59	329	11
		24.847%	31.217%	77.594%	52.38%
	TOTAL	326	189	424	21
		100%	100%	99.99%	100%

In order to evaluate the final hypothesis, change in empathy over time, all subjects were retested on the three measures after an interval of twelve weeks day-care attendance. The effect of this interval on changes in empathy was analysed by a 5 x 2 (Treatments x Sex) analysis of variance (Table 13).

TABLE 13: ANALYSIS OF VARIANCE ON CHANGE IN EMPATHY

<u>SCORES OVER TEST-RETEST INTERVAL</u>				
SOURCE	D.F	SUM of SQUARES	MEAN SQUARES	
Sex	1	0.029	0.029	.011 N.S.
Treatments	4	36.502	9.126	
Treatments x sex	4	1.646	.412	$F_{1,40}(.25) = 1.36$
Error	41	107.033	2.611	
Total	50	145.21		

Using the same procedure of testing differences between means with a  $t$ -statistic (Tables 14 & 15), a single significant main effect of length of stay in day-care was found ( $t(41) = 2.906$ ,  $p < .01$ ), with NEW children showing a greater increase in empathy than OLD children (see Fig. 5).

TABLE 14: MEAN CHANGE SCORES OF EMPATHY

(i) FACTOR A : SEX

	MALE	FEMALE
$A\bar{y}$	1.067	1.02

(ii) FACTOR B : TREATMENTS

	1	2	3	4	5
$B\bar{y}$	1.75	0.25	2.084	-0.167	1.30

(iii) CELLS

	1	2	3	4	5
Male	1.5	0.25	2.0	0.083	1.5
Female	2.0	0.25	2.167	-0.4167	1.1

FIG 5: CHANGE IN EMPATHY WITH LENGTH OF STAY IN DAY-CARE

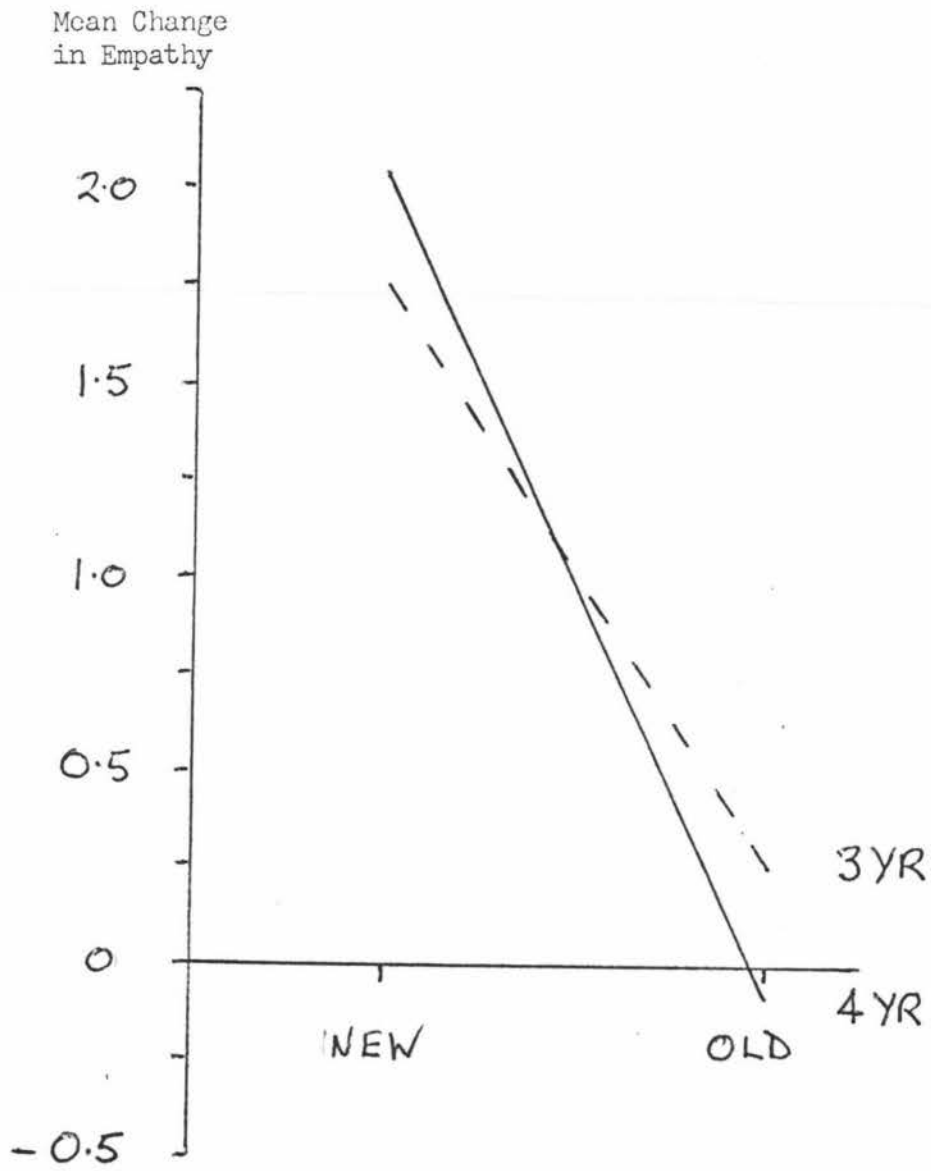


TABLE 15: COMPARISON OF MEAN CHANGES IN EMPATHY

Comparison	$S_{\bar{D}}$	t	Significance
Age: 4yr <u>vs</u> 3 yr (3+4 <u>vs</u> 1+2)	.505	0.257	N.S.
Length of stay: New <u>vs</u> Old (1+3 <u>vs</u> 2+4)	.512	2.906	.01
Age of starting: Start at 2yr <u>vs</u> start at 3yr (2+5 <u>vs</u> 1+4)	.493	- .033	N.S.
Interactions			
Age x length of stay: 1+4 <u>vs</u> 2+3	.505	1.224	N.S.
Age x sex: (1+2) M + (3+4) F <u>vs</u> (3+4) M + (1+2)F	.505	-0.034	N.S.
Age x age of starting: 2+4 <u>vs</u> 1+5	.496	2.991	.005
Sex x length of stay: (2+4)M + (1+3) F <u>vs</u> (1+3) M + (2+4) F	.506	.390	N.S.
Sex x age of starting: (2+5) M + (1+4) F <u>vs</u> (1+4) M + (2+5) F	.493	.203	N.S.

Of the ten groups only OLD four year old females showed an average decrease in empathy. (Treatment 4, Table 14).

The only significant interaction effect was again between age at testing and age of starting day-care ( $t(41) = 2.991, p < .005$ , Fig. 6.)

It should be noted that the change in empathy scores was not adjusted for the effect of intelligence, since the influence of intelligence on the ability to change empathically is probably negligible. As in the analysis of emotions, the trends were so significant that the same can be expected had the results been adjusted for intelligence.

While the initial set of empathy and Social Behaviour scores were positively and significantly correlated, correlation between the change in these scores was non significant ( $r = +.066$ ).

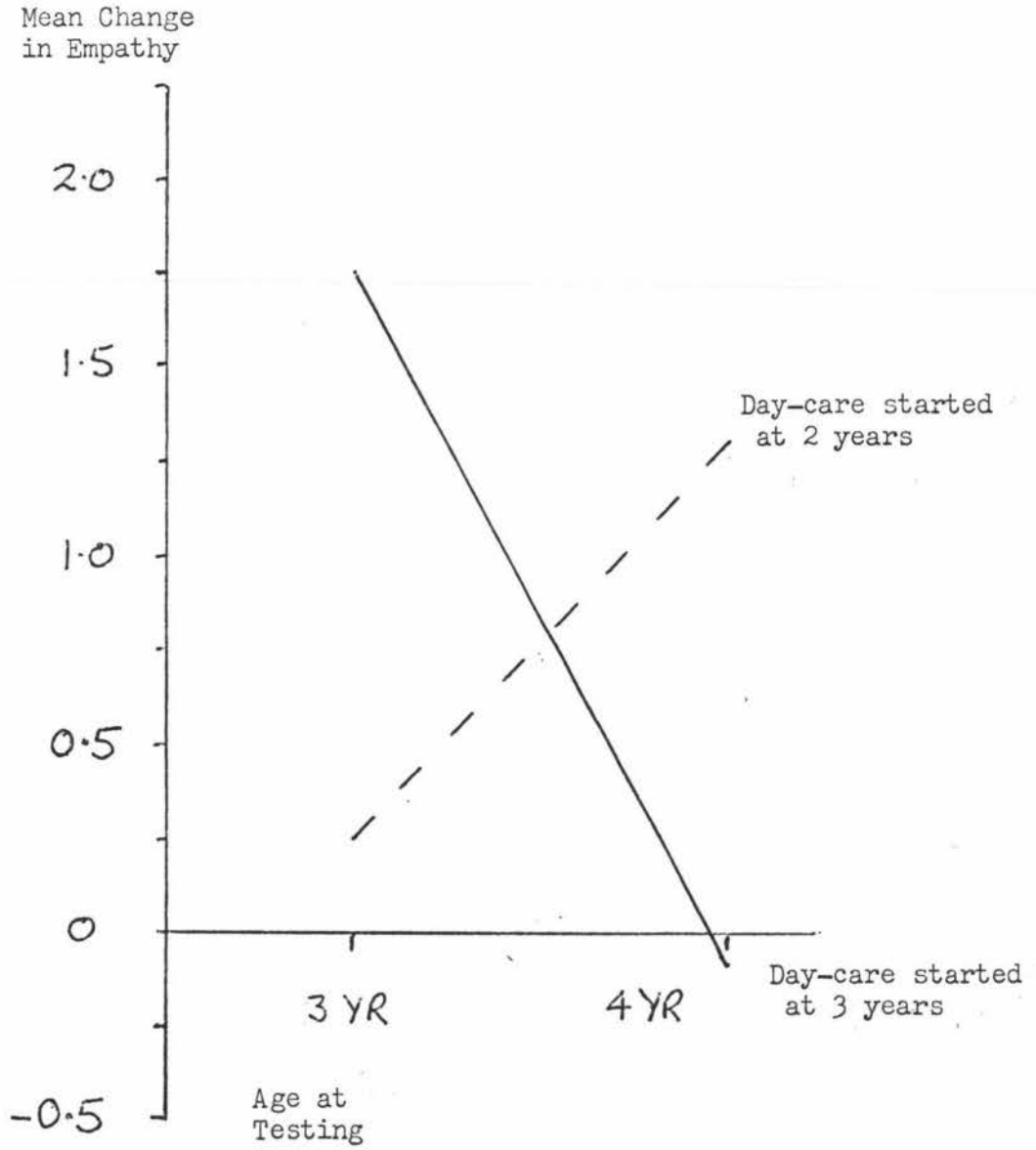
As part of the general description of subjects, the means and standard deviations of I.Q. scores are given (Table 16) and, using the test-retest sample of 51, reliability of the PPVT was found to be 0.495.

TABLE 16: I.Q. SCORES - MEANS & STANDARD DEVIATIONS ( )

	NEW		OLD			
	M	F	M	F	M	F
3 yr	103.33 (17.22)	98.5 (12.14)	111.667 (10.64)	105.83 (8.89)	XOLD	
4 yr	107.667 (12.56)	105.6 (9.22)	108.33 (16.2)	115.667 (19.93)	105 (13.8)	97.83 (13.2)

For reference, a summary of all scores on both testing sessions (empathy, I.Q. and Social Behaviour scores) can be found in Appendix D.

FIG 6: INTERACTION OF AGE WITH AGE OF STARTING DAY-CARE,  
ON CHANGE IN EMPATHY





## DISCUSSION AND CONCLUSION

The purpose of the present section is to interpret the results and draw conclusions from them.

As a preliminary finding, the results indicate that intellectual ability is an important factor in empathy. Although this effect may be related to the use of a 'cognitive' measure of empathy, since the emphasis is on the child's understanding and labelling of emotions, it is nevertheless consistent with other evidence. Deutsch & Madle (1975) report that most investigations have found mental age as a correlate with empathy situational measures irrespective of whether cognitive empathy or affective empathy is being assessed.

Given this effect of intelligence, the major hypothesis of the study is supported, namely that day-care can encourage the development of empathy in children. It was found that children as young as three years of age can respond empathically and furthermore, that children who have been attending day-care for six to twelve months have a higher level of empathic ability than children who have not experienced day-care.

In addition, OLD three year old children were as empathic as NEW four year olds and in fact, the former group received a slightly higher mean empathy score. The experience of day-care has therefore contributed as much to the growth of empathy as approximately eleven months of maturation in the absence of day-care. On the other hand, there was a lack of significant difference in empathy between OLD and XOLD children (comparing four year old subjects only) that is suggestive of a 'ceiling' on day-care's facilitating effect over empathy.

While there has been limited empirical research on the whole question of day-care, peers and empathy the confirmation of the major hypothesis is predictable on theoretical grounds. Evidence has been cited suggesting that early contact with peers may contribute importantly to the child's socialisation and the development of his social and interpersonal competence (e.g. Hartup, 1970b). Although the study began by considering possible dangers of day-care attendance, it was indicated that such an experience may facilitate social development by providing

unusually good opportunities for peer interaction and social participation (e.g. Caldwell, 1973). Further to this argument, was the fact that empathy itself may be influenced by socialisation and rearing practices and that it's development is particularly fostered by peer relations and interactions (Piaget, 1967).

Therefore it seems likely that peer interactions and social aspects of day-care were the factors responsible for the growth of empathy found in the present study. Furthermore, in the absence of day-care it is reasonable to anticipate that growth in empathy and peer behaviour would be retarded, as also confirmed by the present findings.

Empathy was found to increase with age, in agreement with previous findings and supporting another of the study's hypotheses. (Borke, 1971; Flapan, 1968; Rothenberg, 1970).

While empathy was affected by the child's length of stay in day-care, it did not differ with the age at which day-care was started, confirming the decision to choose length of stay as the critical independent variable in the study. However the interdependence between age of the child at testing, length of stay and age of starting day-care was impossible to eliminate and resulted in the confounding previously discussed.

Therefore meaningful interpretation of the interaction between age and age of starting day-care is precluded, allowing only suggestions. For example, since OLD and XOLD children are not substantially different in terms of empathy, such an interaction may simply reflect the low mean empathy score of NEW three year old children.

The absence of male-female differences in empathy found in the present study has been reported elsewhere (Borke, 1971; Rothenberg, 1970) but is "contrary to our cultural expectations that females have greater social insight and empathic ability than males" (Borke, 1971, p.269). However, the absence of differences found may reflect the type of child-rearing practices present in day-care, where it is possible that expectations of social understanding and awareness are similar for girls and boys.

Children's scores indicate a substantial relationship between prosocial behaviours and empathy suggesting that these behaviours - cooperativeness, kindness, sharing, friendliness - develop and are strengthened by the child's empathic ability. The idea that the capacity for empathy is essential to a wide range of basic processes and skills in the area of social behaviour and development (Bronfenbrenner, Harding & Gallway, 1958), has been largely unexplored and there is a serious need for more extensive investigation in this whole area of the relation between social cognition and interpersonal behaviour.

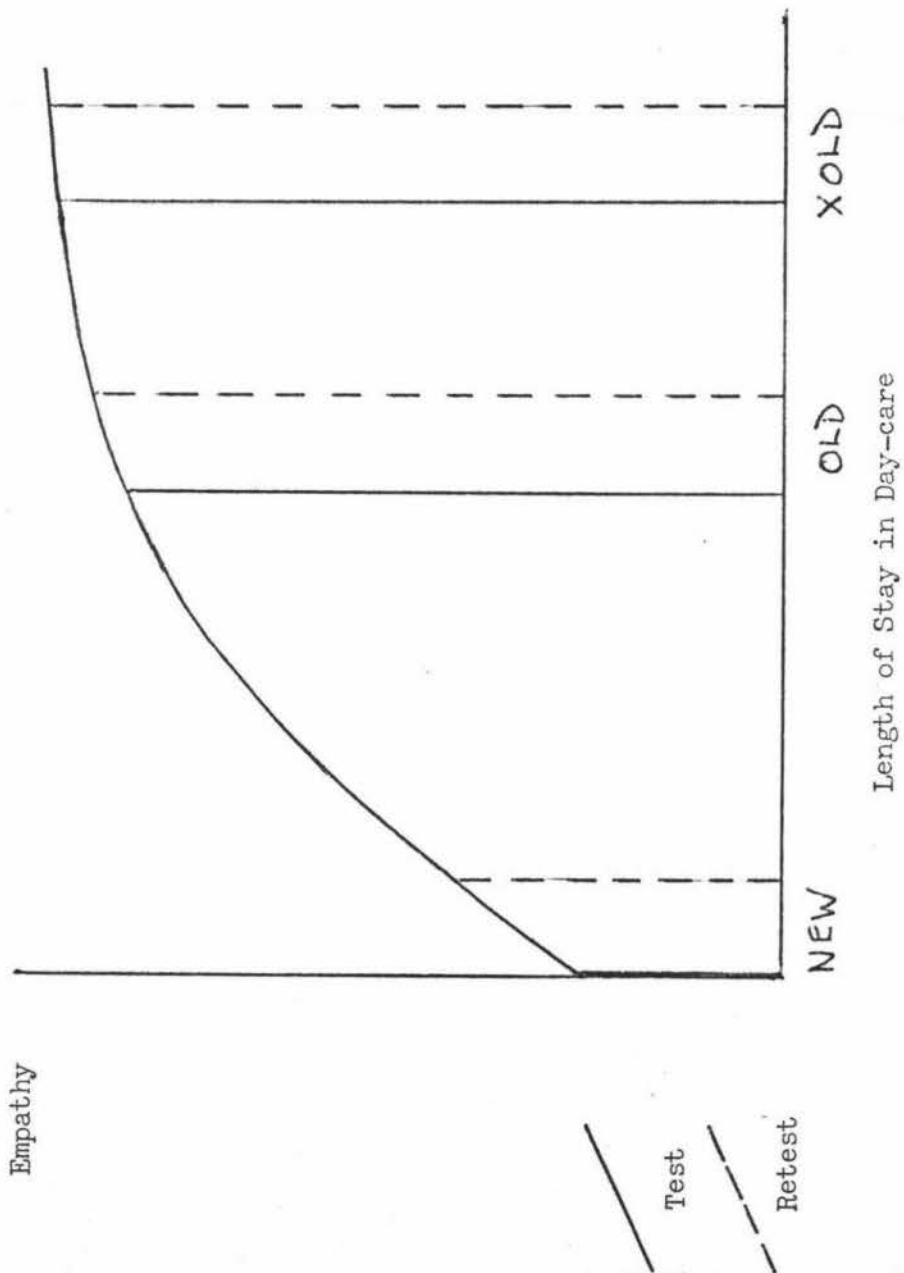
The present results also provide some evidence on the validity of the Social Behaviour Rating Scale. While social behaviour scores were not significantly related to I.Q. scores, they were related to IPT scores suggesting that the empathy and social behaviour measures are both measuring the same underlying construct of empathy.

Despite the expectation that day-care fosters the growth of empathy, changes in empathy over the test-retest interval were slight. However NEW children show a greater increase in empathy than OLD children, that is, the effectiveness of three months of day-care is negligible for children who have already spent six to twelve months in care, but considerably more effective for those children just beginning day-care.

That increases in empathy differ according to the amount of time already spent in day-care gives added support to the notion of an upper limit or ceiling on the extent to which day-care can facilitate empathy. A model of the effect of day-care on empathy can therefore be formulated and is illustrated in Fig 7 - the rate of change in empathy development corresponds to the slope of the line and there is clearly a decreasing marginal change in empathy with increasing time spent in day-care. The lack of empirical research in the areas of empathy and day-care, means that the model is pertinent only to the present study and cannot be incorporated into a more general scheme of either empathy development or day-care effects.

Further to changes in empathy over the test-retest interval, was the interaction between the age of the child and the age at which day-care

FIG 7: HYPOTHESIS OF DAY-CARE'S EFFECT ON EMPATHY  
(not to scale)



was started, also found in empathy scores on the first testing sessions. Since there is again the confounding of length of stay in this interaction, a meaningful interpretation can not be made.

Given the implication that empathy facilitates prosocial behaviour it is expected that increases in empathy will correspond with improved social and interpersonal behaviours. This has not been substantiated by the present results where, although empathy and social behaviour scores increased (60.78% and 64.7% respective increases), there was no evidence of a relationship between the two. This implies, therefore that empathy, in this case a cognitive awareness and the behaviours and skills reflecting this awareness, have increased independently of one another.

Subsidiary to the major hypotheses were the results concerning children's responses in terms of the three emotion categories, happy, sad/angry and afraid. The ability to respond empathically varied with the emotional response being identified (Borke, 1971, 1973; Mood, Johnson & Shantz, 1974). Although happy items were more often correct than afraid, sad or angry items, happy responses were given incorrectly to many of the items. This suggests an indiscriminate use of the response.

On the other hand, sad/angry items were less often correct than happy items but sad or angry responses were the most accurate and discriminating. Hence, it is necessary to consider "response-correctness" as well as "item-correctness" to obtain a true indication of empathy performance. By considering these two types of information the present results contradict Borke's (1971) finding that happy situations are identified most correctly and with the highest reliability, and that angry situations are identified with the greatest difficulty. Present results show an exact reversal of this in terms of those situations that are most reliably identified by preschool children. The trend that emerged shows a lack of discrimination in children's responses to happy and afraid situations. In part, this may result from certain features of Borke's Interpersonal Perception Test, for example, in answering the question "Show me how Mary (John) would feel if you told him a ghost

story," the child may respond in terms of the story-telling and answer happy, ignoring the fearful nature of the story. That is, the ability to respond empathically requires the combination of all aspects of information, a response based on only part of the information often being incorrect.

Although problems of experimental design have been previously discussed, there are general shortcomings that need to be mentioned. To begin with, day-care research uses a sample of subjects that is largely "self-recruited" and for a number of reasons may represent a non-typical group; that is, they may possess distinctive characteristics and abilities resulting from factors other than their attendance at day-care. In answering even the most basic question about day-care there are a complexity of variables involved, concerning characteristics of day-care - staff-training, size of centre, materials, programmes, quality of care, the parents - working status, parenting skills, SES, and the child - age, development, birth order etc.

These are variables in any day-care study and since only a few can be controlled, the present findings can only be stated with the knowledge that there are such variable and uncontrolled factors involved.

Furthermore, the testing of preschool children presents it's own difficulties, particularly in the reliability of assessments. Due to large variations in mood and attention, the performance of pre-schoolers can be unstable from day to day. (Anastasi, 1976; Cronbach, 1970). It is therefore not surprising that the test-retest reliability of the three measures was not high ( $r$  (IPT) = 0.695;  $r$  (Social Behaviour) = 0.505;  $r$  (PPVT) = 0.495) and this is not enhanced by the long test-retest interval over which the correlations were calculated.

A final area of weakness concerns the construct of empathy. While the definition of empathy has been precisely stated for the present purpose, there are difficulties concerning the consistency of definitions and consequent validity of empathy measures. There is some evidence for the convergent validity of the Interpersonal Perception Test through correlation with the measure of social behaviour, but discriminant



validity was not indicated. The high correlation of the IPT with I.Q. scores was however consistent with previous findings on the correlates of empathy.

Within its operational and conceptual boundaries, the study concluded that day-care promotes the growth of empathy in pre-school children. By children acquiring more experience with interpersonal relationships they became more knowledgeable about the thoughts and feelings of others.

In addition, the extent to which children had an understanding and awareness of others seemed to bear a significant relationship to their prosocial behaviours and positive interpersonal attitudes.

Unfortunately the paucity of research surrounding both day-care and empathy has meant that these findings and conclusions can be verified only in the implications from theory. Future work could fruitfully be directed toward specification of day-care's role in social development.

A far-reaching implication of the present conclusions is that day-care is capable of providing the child with a basis for wider learning and experience. The rather timid attitude that day-care may possibly enrich the lives of young children should be abandoned and replaced with the view of day-care as a valuable experience for development.

Some evidence also allows speculation on the training of empathy with respect to problems of aggression and violence. Since empathy has an inhibitory effect on aggression (Feshbach & Feshbach, 1969; Huckaby, 1971; Mehrabian & Epstein, 1972) it is possible that by training children to be empathic and socially sensitive, levels of conflict and aggression will be reduced. With empathy and prosocial behaviours being facilitated by socialised activities and peer relationships, formal education and child-rearing could have an important impact on the modification of aggression. By enriching the child's social experience and extending his social competency, a positive step in resolving violence and aggression in our schools and society could be taken.

Hence attention should be directed towards the development of mature levels of empathy.

Despite obvious limitations in the understanding of empathy, "education and child-rearing do not and cannot wait for extensive data". (Shantz, 1975, p315).



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APPENDICES

- A List of day-care centres
- B Test materials
- C Example item of Interpersonal  
Perception Test
- D Summary of all test scores

## APPENDIX A

## Day-care centres involved in the study:

ADELAIDE CHILD CARE CENTRE  
CITIZEN'S DAY NURSERY  
FRASER CRESCENT CHILD CARE CENTRE  
GRIFFINS CHILD CARE CENTRE  
HOMESTEAD (PALMERSTON NORTH)  
JOYLYN  
KELVIN GROVE CHILD CARE CENTRE  
LEVY CHILD CARE CENTRE  
MELLING CHILDREN'S CENTRE  
MIRANGI DAY NURSERY  
MOTHERCARE DAY NURSERY  
PETER PAN CHILD CARE CENTRE, KELBURN  
SALVATION ARMY CHILD CARE CENTRE  
TEACHER'S COLLEGE CRECHE  
UPPER HUTT COMMUNITY CHILD CARE CENTRE  
W.D. & H.O. WILLS CHILD CARE CENTRE

## APPENDIX B

## Test Materials

Interpersonal Perception Test Part One

Part Two

Social Behaviour Rating Scale

## M A S S E Y    U N I V E R S I T Y

DEPARTMENT OF PSYCHOLOGYINTERPERSONAL PERCEPTION RESEARCHPART ONE

NAME: ..... DATE OF BIRTH: .....

AGE: ..... DATE: .....

EXAMINER: .....

PRETEST:INSTRUCTIONS:

1. Examiner places single picture of child (the one normally used for Part Two), in front of subject and the face of one happy boy and one happy girl.

Examiner says: We're going to play a game where I want you to pick out the face that matches the body I give you. Pointing to picture. This is a picture of Mary (John). Pick up the face that belongs to Mary's (John's) body and put it on the picture.

If subject correctly identifies appropriate face, examiner says:

That's right. Mary (John) is a girl (boy) so we choose the girl's (boy's) face.

If the subject does not identify the appropriate face, examiner explains:

Mary (John) is a girl (boy) so we should put the girl's (boy's) face on Mary's (John's) body. Examiner places correct face on picture. Like this. Then removes face from picture, and says: Now you pick out Mary's (John's) face and put it on the picture.

When subject has mastered this, proceed with the second task.

2. Examiner places pictures showing child of same sex as subject in following order: Happy, Sad, Afraid, Angry. Here are some more pictures of Mary (John). See if you can pick out the face where Mary (John) is HAPPY; and where Mary (John) is AFRAID; and where Mary (John) is ANGRY.

Examiner circles the faces child selects correctly:

HAPPY      SAD      AFRAID      ANGRY      NONE

If subject gets trial completely correct, proceed with test.

If subject makes any incorrect responses, examiner must go through the explanation for only those ones chosen incorrectly. Examiner says: Some of those you didn't get quite right. Let's go through them again.

- 2 -

Incorrect response for HAPPY - Examiner points to happy face, and says: In this face Mary (John) is smiling. That means she (he) feels HAPPY. Can you see her (him) smiling?

Incorrect response for SAD - Examiner points to the sad face, and says: In this face Mary (John) is crying, because she (he) feels SAD. Can you see her (him) crying?

Incorrect response for AFRAID - Examiner points to afraid face and says: In this face Mary (John) is very scared, that means she (he) feels AFRAID. Can you see how scared she (he) is?

Incorrect response for ANGRY - Examiner points to angry face and says: In this face Mary (John) is very cross. That means she (he) feels ANGRY. Can you see how cross she (he) is?

After going through the necessary explanations, examiner repeats initial task, placing pictures of faces in a new random sequence in front of the subject. Examiner says: Now YOU have another turn. See if you can pick out the face where Mary (John) is feeling HAPPY; and where she (he) is feeling SAD; and where she (he) is feeling AFRAID; and the face where she (he) is feeling ANGRY.

Examiner circles faces child selects correctly:

HAPPY          SAD          AFRAID          ANGRY          NONE

Continue procedure until the subject gets one complete trial correct; also noting how many trials are needed to reach this.

When the subject makes correct responses, examiner gives encouragement by saying: That's good. Now what about when Mary (John) feels ..... (Sad, Afraid, Angry, Happy).

TEST:

INSTRUCTIONS: Now I am going to tell you some stories about Mary (John) and I want you to pick the face showing how Mary (John) feels in each story. There are no right or wrong answers. All I want to know is how you think Mary (John) feels in each story.

NOTE: Examiner reshuffles pictures before each story and circles child's response.

1. Show me how Mary (John) would feel if her mother was going to take her some place she liked to go. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_?          H S A A N

4. Show me how Mary (John) would feel if her mother forced her to eat something she didn't like. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
6. Show me how Mary (John) would feel if she fell and hurt herself. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
5. Show me how Mary (John) would feel if she dreamed that a tiger was chasing her. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
10. Show me how Mary (John) would feel if someone she liked very much had to go away. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
11. Show me how Mary (John) would feel if she got a new toy as a gift. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
9. Show me how Mary (John) would feel if she were alone in the dark. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
7. Show me how Mary (John) would feel if her sister or her brother took her toys away from her. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N

M A S S E Y    U N I V E R S I T Y

DEPARTMENT OF PSYCHOLOGY

INTERPERSONAL PERCEPTION RESEARCH

PART TWO

NAME: ..... DATE OF BIRTH: .....

AGE: ..... DATE: .....

EXAMINER: .....

TEST:

INSTRUCTIONS:

Examiner says: Now I am going to tell you a few more stories only this time there will be just this one picture of Mary (John) for you to put the face on.

Examiner places picture in front of the subject.

NOTE: Examiner reshuffles pictures before each story and circles child's response.

5. Show me how Mary (John) would feel if you pretended to be a ghost and ran after her in the dark. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
  
4. Show me how Mary (John) would feel if you pushed her down and she got hurt. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
  
7. Show me how Mary (John) would feel if she just finished building a tower of blocks and you knocked it down. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N



1. Show me how Mary (John) would feel if you gave her some ice cream. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
10. Show me how Mary (John) would feel if you said something bad about her father or mother. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
8. Show me how Mary (John) would feel if you told her a ghost story. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
12. Show me how Mary (John) would feel if you invited her to come and play with you. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N
6. Show me how Mary (John) would feel if you left her and went to play with someone else. Would she feel (examiner names emotions according to sequence). Pick up the face you think and put it on the picture. Why do you think Mary (John) would feel \_\_\_\_\_? H S A A N

M A S S E Y U N I V E R S I T Y

DEPARTMENT OF PSYCHOLOGY

SUPERVISOR RATING SCALE FOR SOCIAL BEHAVIOUR

OF CHILDREN IN CHILD CARE CENTRES

SUBJECT'S NAME: .....

AGE: .....

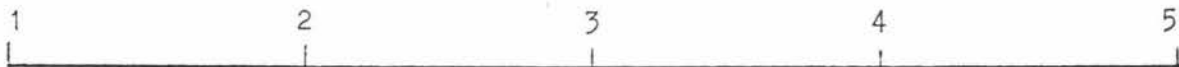
INSTRUCTIONS: This questionnaire provides a measure of each child's social behaviour. A number of items are given and you should think of each one separately and mark the alternative most closely describing the child's behaviour. You answer each item simply by circling the no. on the scale corresponding to the behaviour category most characteristic of the child.

It is important to spread your ratings across the whole scale, and not to use the middle categories too often.

1. SHARING BEHAVIOUR: Definition - when one child offers another a valued object, e.g. a toy, game or food.

For example, "John gives one of his toy trucks to Peter so they can both play together."

TO WHAT DEGREE IS THIS KIND OF BEHAVIOUR (shown by John) TYPICAL OF X?



Not at all characteristic  
i.e. unable to share toys.

Minimally typical.

Moderately characteristic.

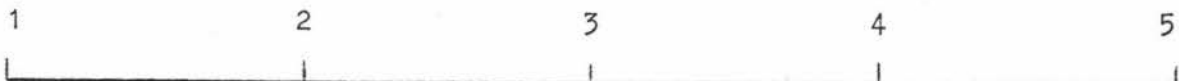
Strongly typical

Maximally typical, i.e. willingly shares toys frequently.

2. HELPING BEHAVIOUR: Definition - when the child engages in behaviour indicating concern over the comfort or welfare of another child, like retrieving a dropped object.

For example, "Jane crawls behind a chair and gets stuck. Jane starts to cry. Mary tries to pull her out, and then calls for help."

TO WHAT DEGREE IS THIS KIND OF BEHAVIOUR (shown by Mary) TYPICAL OF X?



Not at all characteristic

Minimally typical.

Moderately characteristic.

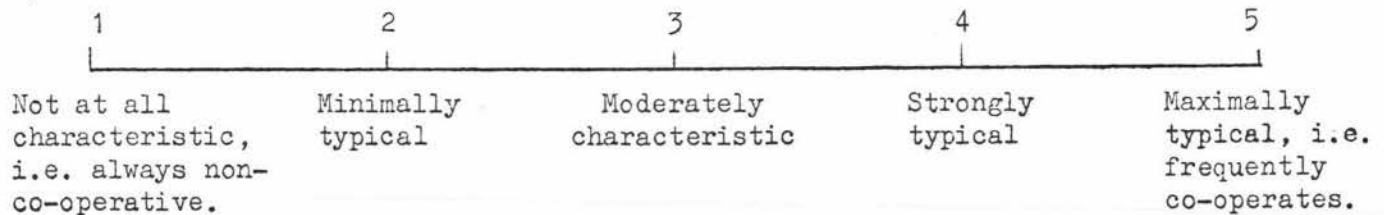
Strongly typical.

Maximally characteristic.

3. CO-OPERATIVE BEHAVIOUR: Definition - when a child complies willingly with another's suggestion or initiative.

For example, "Susan is building with some blocks on the table, sees some on the floor which she needs, and asks Jane to pick them up. Jane, who is nearby, picks up blocks and carries them to Susan."

TO WHAT DEGREE IS THIS KIND OF BEHAVIOUR TYPICAL OF X?



4. PLAY BEHAVIOUR: Definition -

Associative and Co-operative play: Group play in which the child interacts with other children in the nature of the behaviour, e.g. conversation, borrowing or sharing toys, following or chasing one another, physical contact and organised play involving different roles.

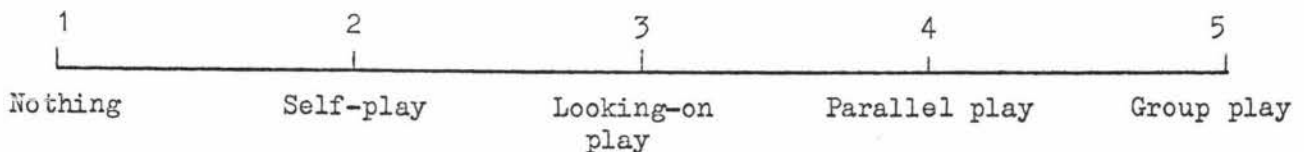
Parallel play: Child plays independently, but the behaviour he chooses naturally brings him among other children; he plays beside, rather than with, other children.

Looking-on play: Intermediate category in which child watches others play, follows them around, stands or sits near them, but does not interact with the children, or take part in play behaviour himself.

Self or Solitary play: Child plays along and independently and there is no interaction with other children, his interest is centred on his own behaviour which is pursued without reference to what others are doing.

Nothing: Minimal activity, either physically or socially.

SELECT THE BEHAVIOUR MOST CHARACTERISTIC OF THE CHILD WHILE AT THE CENTRE.



5. INITIATION OF CONTACT WITH OTHER CHILDREN: Definition - the degree to which a child seeks out other children to play with.

For example, "Jane is in the back corner. Mary goes over to Jane and says 'Let's play nurse'."

or, "John goes and asks Peter to come and help him build a house in the sand."

TO WHAT DEGREE IS THIS KIND OF BEHAVIOUR TYPICAL OF X?

5. contd.

1	2	3	4	5
Not at all typical, i.e. waits until someone else seeks him out.	Minimally typical.	Moderately typical, i.e. will only seek out specific children.	Strongly typical.	Maximally characteristic, will seek out any child to play with.

6. TYPE OF ROLE PLAY: Definition - ability of the child to understand another's perspective.

For example, adult role play involves dressing up like an adult, or playing an adult role such as 'fathers' or 'mothers'.

TO WHAT DEGREE IS ADULT ROLE PLAY TYPICAL OF X?

1	2	3	4	5
Not at all characteristic, i.e. child never pretends to be anyone different from himself.	Minimally typical.	Moderately typical.	Strongly typical.	Maximally typical, i.e. always enacts classes of social 'others' e.g. mothers, engine drivers etc.

7. SYMPATHETIC BEHAVIOUR: Definition - when the child is generally solicitous to another child in distress.

For example, "Jane bumps her head and cries. Mary is beside Jane and she starts to cry also."

or, "John falls over in the park. Peter goes to him and helps him up, and they both go to the supervisor."

TO WHAT DEGREE IS THIS KIND OF BEHAVIOUR TYPICAL OF X?

1	2	3	4	5
Not at all characteristic.	Minimally typical.	Moderately characteristic.	Strongly typical.	Maximally characteristic.

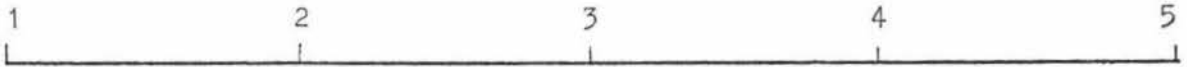
8. APPROACH TO NEW CHILD: Definition - when the child engages in friendly behaviour to a child who is new to the child care centre, indicating awareness of the new child's feelings of sadness or loneliness.

For example, "John takes the new boy out to see the big trucks they play with outside, and shows him how they work."

N.B. This is spontaneous behaviour on the child's part, without being instructed to do so by the supervisor.

8. contd.

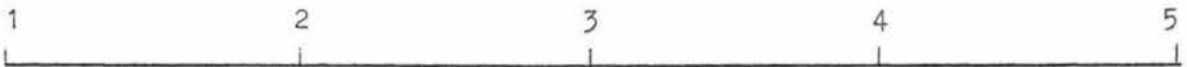
TO WHAT DEGREE IS THIS KIND OF BEHAVIOUR TYPICAL OF X?



Not at all characteristic.      Minimally typical.      Moderately characteristic.      Strongly typical.      Maximally typical.

9. MAINTAINING SOCIAL CONTACT: Definition - when the child makes sure a social contact continues, and enjoys participating with other children. For example, "John is sitting in a group. The group leaves to go outside, and John follows."

TO WHAT DEGREE IS THIS KIND OF BEHAVIOUR TYPICAL OF X?



Not at all characteristic.      Minimally typical.      Moderately characteristic.      Strongly typical.      Maximally characteristic.

10. GENERAL RELATIONS WITH OTHER CHILDREN: Definitions -

Rating 1 - No ability to get along with other children - does not talk; very shy; cannot share; cannot take turns; cannot refrain from bossing, pushing, snatching; disruptive.

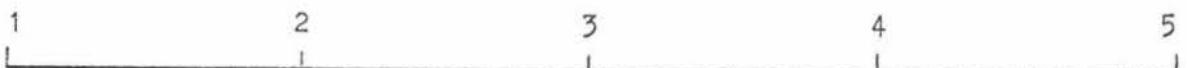
2 - Needs a great deal of adult or supervisor help to get along with others OR can only get along with a few 'special' friends OR can only get along with others when engaged in a few specific activities OR is very inconsistent from day to day in ability to get along with other children.

3 - Can get along with other children to a limited extent.

4 - Frequently displays friendly attitude plus ability to get along with others reasonably well.

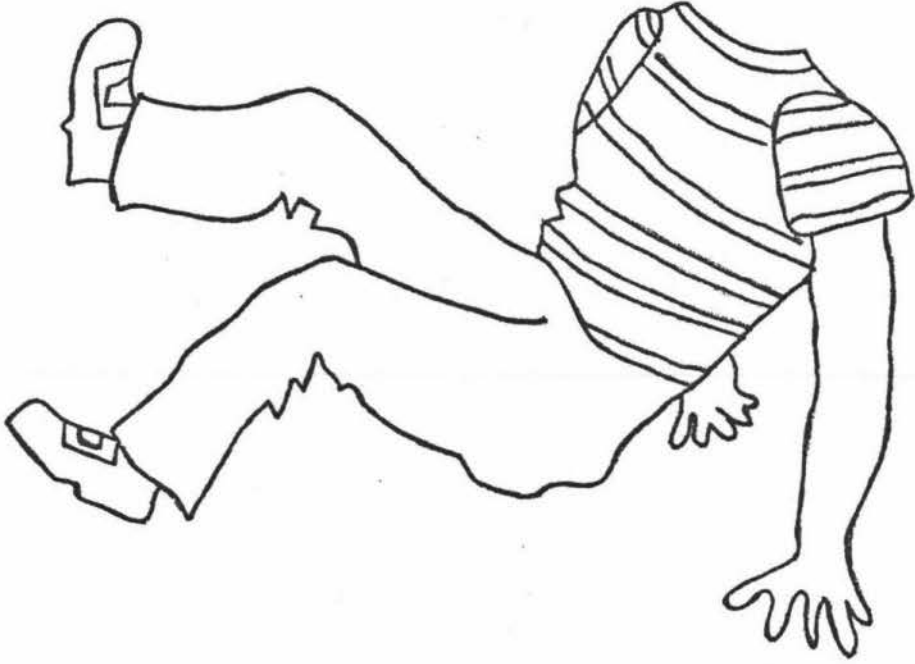
5 - Consistently displays ability to get along with others reasonably well in any situation.

RATE THE CHILD ACCORDING TO HOW HE ACTS MOST OF THE TIME, I.E. THE BEHAVIOUR MOST CHARACTERISTIC OF HIM.



## APPENDIX C

## Example item of Interpersonal Perception Test



Part 1. Question 6: Show me how Mary (John) would feel if she fell and hurt herself?



N.B. The pictures depicting the events were mounted individually on A4 sized cardboard and the faces were individually mounted on 'playing card' sized cardboard.

APPENDIX D. Summary of all test scores

TEST DATA										RETEST DATA				
	AGE	LENGTH OF STAY (MTHS)	I.Q.	HAPPY	SCARED	SAD/ANGRY	TOTAL EMPATHY (/12)	BEHAVIOUR RATING (/50)	I.Q.	HAPPY	SCARED	SAD/ANGRY	TOTAL EMPATHY (/12)	BEHAVIOUR RATING (/50)
<b>GREATER 12 MTH</b>														
<b>MALE 4 YR OLD</b>														
1	4-0	16	86	4	1	2.5	7.5	42.5	102	4	1	2.5	7.5	27.0
2	4-1	24	125	3	2	3.5	8.5	30.0	112	4	3	3.0	10.0	29.0
3	4-4	19	106	4	4	3.5	11.5	44.0	-	-	-	-	-	-
4	4-4	24	102	4	4	3.5	11.5	34.0	113	4	4	4.0	12.0	40.0
5	4-4	36	96	4	2	2	8.0	35.0	121	4	3	4.0	11.0	23.0
6	4-6	25	115	3	3	3.5	9.5	42.0	108	4	4	4.0	12.0	29.0
<b>FEMALE 4 YR OLD</b>														
1	3-11	22	102	3	3	3	9.0	20.0	-	-	-	-	-	-
2	3-11	20	81	2	1	2.5	5.5	39.0	105	2	1	2.0	5.0	37.0
3	4-6	28	84	4	1	2	7.0	44.0	95	4	2	2.5	9.5	40.0
4	3-11	23	97	4	1	3	8.0	36.0	112	4	2	4.0	10.0	29.0
5	3-11	14	110	4	1	3.5	8.5	41.0	141	4	2	4.0	10.0	35.5
6	4-6	20	113	4	4	2.5	10.5	38.0	126	4	3	3.5	10.5	41.0
<b>6-12 MTH</b>														
<b>MALE 4 YR OLD</b>														
1	4-6	10	117	4	1	3	8.0	43.0	110	4	3	2.5	9.5	41.0
2	4-4	8	90	3	3	2.5	9.5	35.0	117	4	3	3.5	10.5	29.0
3	4-5	12	120	4	2	2.5	9.5	26.5	110	4	2	4.0	10.0	29.0
4	4-6	12	86	3	2	2	7.0	41.0	112	4	1	2.0	8.0	41.0
5	4-6	6	124	4	2	3.5	9.5	41.0	101	4	1	2.5	7.5	42.0
6	4-5	10	113	4	4	4	12.0	38.0	127	4	4	3.5	11.5	33.0
<b>FEMALE 4 YR OLD</b>														
1	3-11	11	117	4	3	4	11.0	42.5	129	4	4	4.0	12.0	45.0
2	4-1	12	85	4	1	4	9.0	42.0	106	4	1	3.5	8.5	30.0
3	4-4	7	127	4	4	4	12.0	50.0	123	4	4	4.0	12.0	50.0
4	4-4	7	126	4	4	4	12.0	31.0	131	4	4	4.0	12.0	28.5
5	4-2	11	138	4	4	3.5	11.5	39.5	119	4	3	3.5	10.5	42.5
6	4-3	6	98	4	3	3	10.0	39.0	125	3	2	3.0	8.0	46.0
<b>MALE 3 YR OLD</b>														
1	3-6	12	116	3	3	3	9.0	35.0	112	3	0	4.0	7.0	35.5
2	3-6	10	125	3	3	2.5	8.5	23.0	110	4	4	3.5	11.5	27.0
3	3-6	7	97	4	2	3	9.0	26.0	97	2	3	1.5	6.5	40.0
4	3-0	12	102	2	1	2.5	5.5	21.0	105	3	2	2.0	8.0	27.0
5	3-6	8	111	4	1	4	9.0	36.5	122	4	4	3.5	11.5	29.5
6	3-0	8	119	4	1	3	8.0	18.0	119	3	0	4.0	7.0	27.0
<b>FEMALE 3 YR OLD</b>														
1	3-2	8	109	4	2	2.5	8.5	36.25	117	3	2	2.5	7.5	44.0
2	3-4	7	111	4	1	3	8.0	22.0	128	4	1	4.0	9.0	25.0
3	3-3	7	105	4	0	3.5	7.5	28.5	125	4	3	3.0	10.0	24.0
4	3-1	11	104	3	2	1.5	6.5	22.0	101	2	2	2.5	6.5	21.5
5	3-3	12	90	3	3	1.5	7.5	25.0	101	3	1	2.5	6.5	20.0
6	3-2	7	116	3	3	2.5	9.5	37.25	143	3	2	3.5	8.5	29.0
<b>NEW</b>														
<b>MALE 4 YR OLD</b>														
1	4-2	1/2	98	4	2	4	10.0	33.0	108	4	3	3.5	10.5	45.0
2	4-1	3/4	107	3	1	1.5	5.5	30.5	-	-	-	-	-	-
3	4-5	3/4	90	4	0	1.5	5.5	26.0	106	4	1	3.0	8.0	31.0
4	4-2	3/4	112	4	1	2	7.0	20.0	113	3	2	2.5	7.5	35.0
5	4-6	3/4	113	1	3	2	6.0	36.0	112	4	4	3.5	11.5	40.0
6	4-2	1/4	126	3	2	4	9.0	38.5	131	4	2	4.0	10.0	37.0
<b>FEMALE 4 YR OLD</b>														
1	4-1	1/4	100	2	2	3.5	7.5	33.0	-	-	-	-	-	-
2	3-11	3/4	98	4	1	2	7.0	33.0	124	4	2	2.5	8.5	28.0
3	4-3	1/2	100	4	2	3	9.0	23.0	-	-	-	-	-	-
4	4-4	1/2	123	2	3	2	7.0	40.0	113	4	4	3.0	11.0	46.0
5	4-0	1/4	107	3	3	2.5	8.5	41.0	-	-	-	-	-	-
6	4-1	1/4	105	4	1	2.5	7.5	32.0	123	3	2	3.5	8.5	26.0
<b>MALE 3 YR OLD</b>														
1	2-11	1/4	122	2	2	1.5	5.5	21.0	135	3	2	1.5	6.5	40.0
2	3-5	3/4	78	1	0	1	2.0	21.0	87	0	1	2.5	3.5	24.0
3	3-6	1/4	87	2	3	1	6.0	26.0	117	3	2	2.0	8.0	29.0
4	3-1	1/4	111	3	2	1	6.0	27.0	124	2	1	2.0	6.0	42.0
5	3-4	1/4	106	1	0	3	4.0	20.0	-	-	-	-	-	-
6	3-5	1/4	116	3	1	2	6.0	24.0	125	4	3	3.0	10.0	27.0
<b>FEMALE 3 YR OLD</b>														
1	3-6	3/4	101	3	3	3	9.0	42.0	103	4	1	3	8.0	34.0
2	3-5	3/4	90	4	2	1	7.0	26.0	92	-	-	-	-	-
3	3-2	1/2	85	2	1	1.5	4.5	19.0	-	2	2	2	6.0	32.0
4	3-6	1/2	120	3	2	3.5	8.5	22.0	114	4	3	4	11.0	36.0
5	3-0	3/4	95	1	1	2	4.0	19.0	103	0	1	2	3.0	19.0
6	3-6	1/2	100	2	0	3	5.0	24.0	-	-	-	-	-	-