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Two ethological studies of social behaviour in day nurseries

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TWO ETHOLOGICAL STUDIES OF SOCIAL BEHAVIOUR IN DAY NURSERIES

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ABSTRACT

TWO ETHOLOGICAL STUDIES OF SOCIAL BEHAVIOUR IN DAY NURSERIES

The development of ethological and observational methods of studying children's social behaviour is discussed, characteristics of the methods are outlined, and their theoretical basis is considered. Recent literature dealing with the social development of pre-school children is reviewed, with particular reference to social interactions with adults and peers, the development and function of smiling, and the effect of gender on social behaviour.

The first study reported, compared the frequencies of some social behaviours observed in 2-year-old girls and boys with frequencies of the same behaviours observed in 4-year olds cared for at the same local authority day nursery. Developmental changes in these behaviours, inferred from comparison of the two age groups, are discussed. The study showed that social interactions with peers were significantly more frequent in 4 year olds, as has often been found; interactions with adult caregivers, however, did not decrease in frequency in the older group. It is argued that relationships with caregivers in the nursery are especially important for these deprived children. It was observed that children more often participated in smile exchanges with adults, and it is suggested that caregivers regard smiling as an important social skill, and taught it to the children by example. All the children had more frequent social interchanges with caregivers than peers. The older children however had significantly more successful social interchanges with peers than the younger ones. A significant degree of correlation was found between the frequency with which a child was seen to smile, and the frequency of its social interactions in general.

A further pilot study compared the social interactions between 2 groups of 4 year olds and their mothers, during a 20 minute play period. The first group were cared for in a day nursery; the second group at home. Significantly less spatial proximity, and significantly more verbal exchange, between mothers and children, was observed in the day care group. It is suggested that, as a result of social experience with other adults and peers in the nursery, the day care group may have developed more mature relationships with their mothers. Observation of the 2 groups under different conditions, however, and problems of inference from attachment theory, make the results of the pilot study ambiguous.

SECTION ONE: GENERAL INTRODUCTION

Current ethological and observational approaches in developmental psychology have arisen from two main sources. First, principles and methods in use in the biological sciences have increasingly been applied to studying the traditional concerns of psychology, behaviour and social relations, both in the human and in other species. Hinde (1979) noticed a gradual decline of attempts to build 'grand theories on an inadequate descriptive base' and supported research aimed at establishing such a base of systematic knowledge. This was to be built in psychology as it had been in biology, by naturalistic observation.

The method Hinde advocated had originated in the animal studies of Lorenz (1966, 1973) and Tinbergen (1951) where a new rigour and interest had been given to naturalistic observation. This was done by precise anatomical specification of invariant units of behaviour, which occurred in a particular species within a particular context. It was based on neo-Darwinian principles, of evolution of behaviour of species as a result of natural selection. This is, behaviours which are best adapted to survival within the surrounding ecosystem are selected, by means of the reproductive success of those members of the population which are phenotypically within an optimum range.

Ethologists therefore consider the adaptive function, or survival value, of behaviours they observe (Tinbergen 1951), and the history of adaptation of the species to its environment. They also consider what means of adapting to the environment are given as part of the species phylogeny, and are pre-adapted in new members (Bruner 1974).

In ethology, too, the context within which a behaviour occurs is crucial to its classification or interpretation. Developmental change in behaviour is also investigated: that is, ethologists ask how behaviours of adult members of the species develop from immature behaviours (Blurton Jones 1972).

In his highly influential survey of ethological studies of young children, Blurton Jones wrote that ethological methods emphasise the preliminary, descriptive and observational phase of a science of behaviour. In this phase, data are collected which may then suggest hypotheses to be tested. At the time when Blurton Jones wrote, Bowlby (1969) had already described 'attachment behaviour' of children, and had put forward the hypothesis that behaviours which maintained mother and child in proximity had functioned to protect children from predators in the human environment of evolutionary adaptedness. This hypothesis generated much research and debate during the subsequent five years, and helped to establish human ethology as a thriving area of developmental psychology.

The second main source of ethological and observational theory and method is the new paradigm which, during the last thirty years, has slowly been coming into use in social science. Basic definitions, for instance of the object of knowledge, and of causality, have changed during this time in a way described by Kuhn (1970) as a 'paradigm shift'. Kuhn argued that scientific revolutions are made, not by the disproof of previous theories, but by gradual changes in the basic concepts with which the scientist works.

Developmental psychologists, like their co-workers in other areas of the discipline, had regarded the individual as their object of knowledge. They had studied individual mothers and individual children,

treating the behaviours of parent and child as separable, and seeing causality operating in only one direction. Parental behaviour was understood as determining, child behaviour as determined (Sears, Maccoby and Levin, 1957).

More recently, developmental psychologists have argued that the unit of study should be the child-caregiver dyad. Schaffer (1977), Lewis and Rosenblum (1974) and Richards (1974b) among others, emphasised the interactive nature of social behaviour, and developed a concept of mothering as 'interlocution'. Schaffer argued that human development occurs by means of transactions with others, in which the participants constantly negotiate, and the behaviour of each is modified by the other. Richards (1974b) noted that many previous developmental studies had failed to find stable correlations between caretaking practices and children's behaviour. He argued that this was because their methodology was based on the assumption that the same practice would have the same affect on all children at all times. He suggested that new paradigm studies (for example Richards and Bernal 1972) found more stable effects, because they understood the relationship between child and caregiver in terms of feedback, as Schaffer also did, and because they regarded knowledge of the context of behaviour as crucial to understanding it, just as Lorenz did.

The new paradignm, in which relationships rather than individuals are studied, and a concept of information exchange replaces a concept of mechanical cause and effect, (Shotter 1981) has been much influenced by Systems Theory (Von Bertalanffy 1971). This theory understands living organisations as self-maintaining, self-reproducing systems, consisting of many interdependent self-regulating subsystems in constant intercommunication. Information exchange, or feedback, occurs both within the organism and between organism and environment, enabling the

living system to operate as a 'biased homeostat' (Pribram 1968). Thus
it is able to maintain an optimum body temperature during cold weather,
or during energetic activity, and, as a result of feedback between
organism and environment, it can conceive of a plan for interacting
with the environment. It this were, for instance, a plan to build
a nest, it can organise a hierarchy of behaviours, from the molar
activity of searching for material to eye-movements at a molecular
level, in accordance with its intention (Miller, Galanter and
Pribram 1960).

Ambrose (1978) stated that the concepts of hierarchically organised
behaviour, and of negative feedback or homeostasis, are fundamental
to the understanding of biological systems, and noted that the two
concepts are combined in the TOTE unit of Miller et al. Bruner (1974)
also stressed in his observational work the 'intentionality' of the
first 'anti-gravitational' movements of the newborn. Ethological
and observational approaches are thus based on the assumption that
the organism is active and intentional.

It has often been said (Trevarthen 1978, Ambrose 1978, Hinde 1979) that
this model is incompatible with that used in operant or mediation
learning theory (Brown 1961, Osgood 1967) which assumed that 'all thought
and action is a function of the environment' (Overton & Reese 1973).
That is, the child's behaviour is understood as a response to stimulation
from its environment, which directly or indirectly causes it. In itself,
the child is conceived of as passive.

Richards (1978) criticised the mistaken 'biologism' which offered a
circular explanation of behaviour as caused by innate drives. Such
an approach, he argued, cannot accommodate any concept of the self,
or of intention. For Richards (1974)'speech, social communication,

thought, self-reflection and consciousness' are fundamental human attributes, which had been left out of behaviourist psychology because of the extreme difficulty of defining them operationally. He acknowledged the difficulty, but pointed out that a psychology which dealt with it by omission would be left with a 'mechanistic and distorted' conception of humanity.

The ethological method, aimed at building a descriptive base for psychology, and committed to understanding social behaviour as exchange of information between active, intentional participants, has developed rapidly during the last ten years. Blurton Jones (1974) offered a useful summary of its characteristics.

The method is concerned with exact descriptions of observable behaviour. It looks to the natural history of behaviour as 'the proper source of hypotheses'. It considers the causation, development, survival value and evolutionary history of behaviour. It distinguishes two ways in which the meaning of behaviour can be explained; the first is by specifying what caused the individual to behave so, the second is by specifying the affect of the behaviour on other individuals. Finally, ethology distrusts 'untested major categorisations of behaviour'.

It will be helpful to discuss and illustrate these characteristics of the method one by one. First, the 'exact description of observable behaviour' of children raised some preliminary questions. Ethologists avoided major categorisations, such as 'aggressive' or 'affiliative' behaviour, and tried to define behavioural units which were simple enough to be specified precisely. Smith and Connolly (1972) noted on the other hand that a researcher using 'micro-categories' of behaviour is likely to collect a mass of data which will be difficult to analyse

and which may not then show meaningful patterns. Richard and Bernal
(1972) looked for categories which are species-typical, and which
are found repeatedly in the same form. They also used categories
which seem to be functional, in the biological sense, and seem to
affect other individuals, or to be used as a response to other
individuals. They noted that a useful descriptive category will co-
vary with related categories, or distinguish empirically selected
groups of subjects by its presence and absence, or variation.

Of course, the description of human behaviour by a human scientist is
never unproblematic, whatever the method used. Hinde (1979) disclaims
any belief in 'pure description', acknowledging that 'descriptions are
inevitably influenced by the common knowledge of the contemporary culture,
and by pre-existing paradigms'. Twentieth century sciences recognise
the presence of a scientist as a necessary condition of their production,
and this recognition has particular importance in the social sciences,
where the 'observing subject' is necessarily a part of the object of
observation, human sociality.

Blurton Jones identified 'looking to the natural history of behaviour
as the proper source of hypotheses' as the second characteristic of the
ethological method. This, and some other features of the method, can be
illustrated and discussed using the first major theory constructed in
developmental ethology, Bowlby's 'attachment theory' (1969)

Bowlby had not collected rigorously defined behavioural data, as Blurton Jones
and his colleagues recommended, but had otherwise constructed his hypothesis
according to the ethological method they outlined. 'Attachment behaviour' is
a general term describing social and communicative behaviour, such as
crying, smiling, calling and contacting the mother when alarmed. These
are directed by the child to his mother, particularly when he is from
eighteen to thirty months of age. The child prefers spatial proximity to

the attachment figure, and this preference persists over time and during separation. Bowlby had observed regular phases of protest, despair and detachment in children under six separated from their mothers, and disturbances of behaviour which occurred after mother and child were reunited.

Looking to the natural history of behaviour as the proper source of hypotheses, and considering the survival value and evolutionary history of attachment of mothers and children, Bowlby suggested that this behaviour was an adaptation to the Savannah environment in which the human species had evolved. It had functioned there to maintain physical closeness of mother and child, and thus, to protect the infant from predators. This hypothesis generated a great deal of research, and the concept of attachment was subsequently developed, notably by Ainsworth and her co-workers (1974,1979).

The distinction, emphasised by Blurton Jones as made by ethologists, between causal explanations of behaviour and explanations of its effect, can also be illustrated with the aid of the concept of attachment. Attachment theory explains the cause of the behaviour as its natural selection in the environment of evolutionary adaptedness, because it functioned there to protect children from predators. It is now pre-adapted, especially in younger children and to be elicited under alarm conditions. The effect of attachment behaviour on the mother is explained by reasoning that she is pre-adapted to respond to it by staying close to her baby. Theoretically these explanations are distinct, but in practice, Blurton Jones (1974) pointed out that it is perhaps impossible, when studying interaction, to measure the behaviour of one participant independently of that of the other. Dunn (1975) also wrote that if a baby stops crying when picked up, this could mean that its mother is sensitive and responsive, or that the baby is easy to please, or both.

Hinde (1979) considered that this difficulty had not been adequately
dealt with in the work of Ainsworth et.al. (1974). Evolutionary
theory suggests that social behaviours are generally adapted to
reciprocal behaviours of conspecifics, and Ainsworth argued that
the infant's environment of evolutionary adaptedness included a
'responsive' mother. Bernal (1974) objected that it is premature at
present to define a responsive mother, since the long-term affects
of different strategies of mothering are not understood. Ainsworth
et.al.(1974), however, wrote: "unresponsive mothers may be viewed as
the product of developmental anomalies, and likely themselves to
foster anomalous development in their infants'.

The effect of maternal responsiveness, to which infants had become
adapted in the primaeval environment, was confusingly measured in
terms of the child's adoption of certain contemporary culture - and
class - specific values in the latter half of the first year of life.
'The more attentive the mother, the less demanding and impatient the
baby learns to be'. Though they pay lip-service to the interactive
approach, Ainsworth et.al. here see causality as unidirectional.

Hinde (1979) suggested approaching the problem differently, by investigating
the relationship itself, rather than by trying to measure characteristics
of the participants separately. Relationships have emergent properties
which cannot be inferred from these characteristics, even if it were
possible to measure them independently.

Blurton Jones stated that 'ethology distrusts untested major categorisations
of behaviour'. Categories should be behaviourally defined so that observ-
ations are replicable. Ainsworth wrote that maternal sensitivity has four
essential components: awareness of signals, accurate interpretation,
appropriate response and prompt response. It is difficult to see how the

second and the third components could be defined, except by a subjective
decision on the part of the researchers. 'Accurate interpretation' of
the child's signals further requires 'empathy' with him, and freedom
from 'distortion' caused by the mother's fantasy, denial or projection'.
Bowlby's synthesis of ethology and psycho-analysis had been productive
and, as he pointed out, would probably not have been unacceptable to Freud.
In Ainsworth et al. (1974) however, the terms of the alliance between the
two approaches are by no means made clear.

Bernal (1974) and Dunn (1975) both pointed out, however, that such major
categories as attachment or maternal responsiveness can help to solve an
unavoidable problem in developmental ethology. The problem is that
observable behaviours change their meaning developmentally. The mother
holding the baby has a different meaning at birth and at twelve months.
Continuity can be found, however, in a category which can be behaviourally
defined, but is defined by different behaviours at different ages.

Dunn reported a video-taped observational study of mother-child inter-
action which had attempted to do this. Interactions were recorded at birth
and at fourteen months, but no clear continuities were found between the
two samples of interaction. Empirically chosen behavioural indices which,
it was hoped, might contribute to a variable of 'maternal warmth' failed
to co-vary (Dunn & Richards 1975). Dunn also noted that, to have ecological
validity, the notion of a sensitive mother would have to cover both situations
where the mother picks up the baby immediately, and where she knows it needs
five minutes to cry itself to sleep. Such a flexible construct would be
very difficult to define behaviourally.

Bernal raised similar problems with the concept of attachment, referring to
Lewis and Ban (1971), who found that their four behavioural indices of
attachment in children one to two years old failed to co-vary. The indices
were: time spent looking at mother, touching her, vocalising to her, and
being in proximity to her. The second and fourth indices were negatively

related developmentally, (that is, there was a negative correlation between amount of touching at 12 and 24 months), and the first and third indices were positively related by age. Lewis and Ban also found large age, sex and individual differences in time spent in these behaviours.

Bernal referred to a development in attachment theory: a distinction between a construct of attachment, and observable attachment behaviour. Ainsworth argued reasonably that attachment, as a preference for proximity to a particular person, could persist without behavioural manifestations in her absence, and then appear in terms of behaviour on her return (1969). A difficulty arose, however, when Ainsworth suggested that an infant with a secure attachment could leave its mother and engage in confident exploration. Bernal pointed out that it followed that both distance from, and proximity to the mother could now be used as indices of attachment.

This kind of difficulty, together with the development of theoretical work in ethology which suggested that behaviours generally serve more than one adaptive purpose, brought about the formulation of a more general question about the function of the uniquely prolonged period of dependency in young humans. Ambrose (1978) argued from a biological perspective that it would be premature to accept Bowlby's attachment hypothesis. Attachment is a composite of different behaviours which may not all have emerged as a result of the same selection pressures. So while crying may have been selected under alarm conditions, smiling probably was not. He referred to Mayr (1976) who suggested that to look for a single function, such as protection from predators, for a behaviour is over-simplification; behaviours are likely to have been selected as good for more than one purpose. Ambrose had found (1969) that infant smiling seemed to function to establish 'mutuality of relationship' between child and caregiver, and

to facilitate exploration of the environment. These other possible
functions of smiling are not incompatible with Bowlby's attachment
hypothesis.

Ambrose argued that the behavioural neoteny of humans, which gives
the species adaptability, a unique capacity for learning and potential
for creating many different forms of culture, also implies that social
maturity takes longer to reach. Individual differences in what con-
stitutes social maturity also become greater and, interestingly, vulner-
ability to restrictions on social experience becomes reduced. 'A
comparative approach to the behaviour of young primates' (Cairns 1976)
suggested that the child's capacity for multiple relationships is
relatively accelerated. While its physical structure is relatively
immature, it shows an advanced development in 'communication-discrimination'
processes. A more biological perspective revealed the child's strong and
flexible sociability where Bowlby, perhaps under the influence of psycho-
analysis, had emphasised its vulnerability to disruptions of early social
experience.

Mason (1975) stated that the survival value of prolonged dependence of
young primates can only be understood if it is considered as a source
of evolutionary innovation. It allows the species time to develop different
structures, functions and organisations.

Humans in particular are adapted to meet environmental contingencies
by social means, and therefore the development of communication and of
understanding of the social world is the crucial task of infancy and
childhood. Human intelligence 'develops from the start as an inter-
personal process' (Trevarthen 1974). Konner (1972) reporting observations
of infant-mother interaction in a threatened hunger-gatherer culture, that

of the Kung Bushmen, noted that by twelve months attachment functioned

not only to protect babies but to 'maintain proximity with effective

models of subsistence and reproductive behaviour'.   Social communication

between infant and caregiver was a source of social learning as well as

of protection.

Fascinating data have been published throughout the 'seventies showing

that from birth infants are pre-adapted to take part in social communication.

Abercrombie (1971) suggested that the relative enlargement of the human

breast functions to ensure face-to-face interaction during feeding.

Kaye (1975) observed the proto-dialogue set up by newborns and care-

givers, who respond to the burst-pause rhythm of the baby's sucking by

waiting quietly during bursts and jiggling the breast or baby during

pauses.   This is 'the earliest example of mothers and infants learning to

take and give turns' and Kaye's argument that this formal structure is that

of all human communication, including of course language exchange, was

widely accepted.   Condon and Sander (1974) observed 'interactional

synchrony' between infant and caregiver; the body movements of the newborn,

which look so ineffective compared to those of the young of many other

species, are synchronised with the rhythmns of the caregiver's speech.

They argued that infants participated in this way in 'millions of

repetitions of linguistic forms', long before their acquisition of language

as McNeill (1970) defined it.   Schaffer, Collis and Parsons (1975) found

silence in 12 and 24 month olds was a cue promptly taken up by mothers,

who then spoke.   By 24 months, these children co-ordinated gaze and

speech, looking at their mothers during and immediately following their

own utterances, to cue them to take their turns.   Many other examples

could be given.

Reviewing this sort of research, Schaffer (1977) wrote: 'infants show a

rapidly developing capacity for varied forms of communication,.....
this starts well before the onset of language.....language therefore comes to
be based (in some way yet to be established) on an already existing
communication system'.   Although there is debate about whether pre-
linguistic and linguistic communication are continuous or not
(Lock 1978, Chomsky 1978) developmental ethology now sees the child
as pre-adapted to become a social person, and to do this through
communicative relationships with other people.

Current issues therefore are: what does it mean to become a social
person?   And how do communicative relationships function to bring
about the development of a new member of society?

Stern et al.(1975) wrote that evolutionary theory predicts that
biologically important processes, such as communication by caregivers,
will be patterned in time to correspond to the infant's innate
response biases.   It appears that these innate biases include distinct
responses to people and things : Weisberg (1963) found that . 3 month-
olds learned to respond to another person more quickly than to a buzzer.
Stern wrote:'the caregiver thus, in trying to care for and engage the
infant creates themes and variations of sound and movement which the
infant's mental processes will gradually re-transpose into classes of
human acts of caring and engaging'.

Such workers understood Stern's 'retransposition' as a learning process
in which the infant elaborated Piagetian schemata in order to inform
itself about the culture into which it had been born.   By this means
the 'biological' newborn is socialised.   There is, however, an alternative
view.

Habermas (1970) argued that without primary, unlearned inter-subjectivity any communication between the newborn and caregivers, through which social learning might take place, would be impossible. That is, shared understandings between people pre-date the emergence of language systems (Newson 1978). Trevarthen (1974) observed primary intersubjectivity, 'the linking of subjects who are active in transmitting their understanding to one another' developing from the beginning of relationship.

In ths view, 'the central issue in the problem of socialization is the development of a person'. (Richards 1978). For Richards, infant behaviour patterns of biological origin are made social by the recognition and interpretation of caregivers. The meaning of even universal preadapted behaviour patterns such as crying and smiling is established this way. Adults, for instance, distinguish between'involuntary' smile-like grimaces caused by wind, and 'real smiles' which have been evoked by some social communication of their own. Similarly, although western cultural experience suggests that crying is a call for attention or food, in cultures where the infant is always carried by the mother and the breast is always within reach, it will be differently interpreted (Richards 1974b). Newson (1978) stated that only because babies are treated as communicators do they learn 'the essential human art' of communication.

Shotter (1978) explored the implications of this approach. If we assume that infants are born competent to participate in social exchanges, what will social development entail? Shotter shared the assumptions generally underlying the ethological approach, and conceived of human development as a process of becoming able to pursue an intention through a long series of acts designed to fulfil it. The development of this ability required, as Richards said, the construction of a concept of self. For Shotter, the child is placed in the culture when its gestures have the

same effect on itself as on the interlocutor; every communication then
involves 'a reference to the self of the individual making it' (Mead 1934).

Developmental ethology has thus been characterised by a commitment to
the observation of behaviour, and by an understanding of social communication
as an exchange of information between intentional partners. Human develop-
ment takes place by means of this process, to which infants are pre-
adapted because the primary human adaptive strategy is to deal with the
environment by social means. As Trevarthen and Hubley (1978) wrote:
'An accurate account of the intelligence of infants....must specify elaborate
features of their behaviour, that are both uniquely human, and directly
concerned with the un-self-centred sharing of initiative on which human
society and its cultural evolution depend'.

SECTION TWO: INTRODUCTION TO 'SOCIABILITY' STUDY

Developmental ethology has concerned itself with social behaviour,
that is the behaviour of children in relationships with parents, other
adults, and peers. Strayer (1980) noted that ethological studies of
social behaviour for which he used Crook's (1970) term 'Sociobilogy',
had collected by the early 1970s a large body of data from primate
societies. The assumptions of sociobilogists at that time led them to
search these date for operational measures of categorisations like
leadership, dominance, and affiliative bonding. They found, however,
that assigning an individual a high dominance score did not make its
interaction patterns more explicable by the researcher. Such categories
failed to be predictive of behaviour in social groups. It seemed that
a return was needed to precise description of relatively simple units
of behaviour, upon which more general behavioural categories could
then be based.

This led Hinde (1976) to formulate a systematic inductive approach to
specifying the nature of social relationships and 'group structures'.
Hinde proposed four levels of social description. On the first are
individual action patterns, and a series of these, produced by each of
two people in relationship, make up an interaction sequence on a second
level of description. Interaction sequences 'summarise dyadic social
exchange within the group', and analysis of these sequences informs a
third level of description, where the varying quality and complexity of
relationships can be specified. This leads to the induction of more
general organising principles, which apply to variations found at the
third level and form a fourth level of description. These principles
constitute group structures.

Many studies of children's social behaviour to date have been descriptive that is, they have dealt with data on Hinde's first two levels. Blurton Jones and Leach (1972) observed individual action patterns of parents and children when parents were leaving their children at the playgroup, and when they returned to collect them. The individual action patterns were collected into interaction sequences. Correlational analysis of first level data allowed prediction of second level interactions: for example, a child's approach and arm-raising increased the probability of its mother touching it.

Blurton Jones and Leach also discussed variation in quality of relationships, using data consisting of interaction sequences. For example, parents who were more likely to touch an approaching child, had children who were less likely to move away from the approaching parent at going-home time.

Some recent studies have described group structures on Hinde's fourth level. 'Social dominance' has been investigated in pre-school groups: Blurton Jones (1967) found no evidence of dominance hierarchies in groups of under fives, and his results were supported by Wasserman and Stern (1975). This level of study, however, has lately emphasised pre-social behaviour because, as Strayer (1980) pointed out, the most fundamental structures of a group must be those which hold it together, and which cause aggresive behaviour to be ritualised so that it is not disruptive of the group.

Strayer noted that, as yet, no explicit general theory underlies ethological study of children's social behaviour. It is very generally accepted in psychology, however, that the earlier an experience occurs in the life-span of an organism, the more affect it will have on later development, through (Clarke and Clarke 1976) are critical of this assumption. This principle may explain why,

as Hinde (1979) noticed: 'the parent-child relationship is often re-
garded as the source of all inter-personal relationships'. Freud (1909)
also believed firmly in the crucial importance of early experience and
the emphasis of psychoanalysis on early experience clearly influences the
assumption of attachment theory, that social groups are held together
by emotional ties, of which those between infants and their mothers are an
important prototype. Freud himself, as distinct from later psychoanalysts,
understood human sociality as constituted much more by a child's experience
of the family triangle. Bowlby (1969) argued, for instance, that disrup-
tion of a mother-infant relationship caused disruptions of the child's
later social behaviour. In general, it would have difficulty in forming
mutually satisfying relationships with others, and in particular might
become antisocial and delinquent. More detailed study of the latter
hypothesis has shown that other factors, such as socio-economic class, IQ
score, education and cultural background, are also involved in delinquency
(Conger, Miller and Walsmith 1975).

Harré (1974) drew attention to this assumption of attachment theory, which
he also saw underlying many other psychological approaches to social
development and remarked that in his view, 'nothing could be farther from
the truth' than that social groups are held together by emotional ties.

For Harré there is a marked discontinuity between the durability of
social institutions and the rapid fluctuations of personal feeling. His
ethogenic approach assumes no connection between the two, but defines
social behaviour as 'the creation and maintenance of social order by
ceremonial means'. Success in this dramatic and ritualistic project
demands skills 'connected with forms of symbolic action, and so....part of
that range of capacities which are employed in linguistic and paralinguistic
interaction'. Positive or negative experience of an infant - caregiver

relationship is not directly predictive of later social behaviour. Harré also proposed a discontinuity between the social worlds of children and adults, and argued that some social behaviour of children is 'autonomous' and unrelated to adult social behaviour. Hinde (1979) criticised this position as 'anti-developmentalist', and it is certainly in conflict with ethology, where study of the relation between immature and mature forms of behaviour is one of the essential features of the method.

Developmental ethology then assumes a relationship between earlier and later social experiences. It aims to describe such experiences, so that data become available to suggest hypotheses about the nature of the relationship. Some ethologists assume that the parent-child relation is the 'source' of later social relations (Hinde 1979). Hinde wrote that at present there is not enough evidence to confirm or refute this hypothesis, but he noted that though understanding of human relations in general, and also of child-caregivers relations, has advanced during the last 20 years, there has been little contact between the two areas of study. He pointed out that there are marked differences between the child-caregiver and other relationships; for instance, in the child care-giver relationship there is a great disparity between the cognitive capacities of the participants. This is not often the case in any peer relationship. The initial disparity implies that large-scale change, predominantly of the child, will be a feature of the relationship, and any rules the participants negotiate will have to govern the continual changing of rules.

Schaffer and Crook (1978) wrote that a child 'is transformed from a biological to a social being' during the first year of two of its life. The society of which it is becoming a member impinges on it through agents whose identity varies from culture to culture. They may be a

nuclear or extended family, or peers. But Schaffer and Crook stressed the importance in contemporary British culture of a primary caregiver, often the biological mother, who is also the first socializing agent for her child.

Lewis (1976) saw all relationships between a child and adults as contributing to the child's social development, by giving it a sense of its own intentionality and effectiveness. He suggested that the child communicates with adults, who have much greater control over the environment, in order to carry out intentions, and so develops a sense of efficacy through creating 'fairly clear-cut contingencies' in its surroundings. Deprived of adequate opportunity for this kind of communication , a child is unable to develop social and cognitive skills, and, Lewis suggested, might come to suffer from 'learned helplessness'. This view is similar to that of Newson (1978)and Richards (1978) who argue that a child constructs a self through social relationships, at first with adults, because of its dependence on them.

McCurk (1978) situated the child from birth in a network of relationships many of which can have determinant effects on its social development. These relationships are with its family 'however organised' and with the surrounding community and society. In general a child's social behaviour has been defined in ethology as behaviour in relationships and social development has been studied in terms of changes in the relationships between a child and adults, and a child and peers. Hinde (1979) offered an operational definition of the term 'relationship' which is important in this approach to social development. He proposed that in empirical research, a relationship could be defined as 'interactions between familiar people on a time base'. It is in these terms that developmental ethologists study social behaviour.

In comparative terms, Ambrose (1978) wrote that primate infants have in common a massive amount of exploration and play. These behaviours are first directed to the mother, then become more wide ranging with the mother as base, and finally are directed to peers and the group and become independent of the mother. There are also important differences between young humans and other young primates, particularly in 'quality and extent of social bonds' formed in the course of early development. Humans show more intimacy, face-to-face communication, and mutual play, and a greater range, flexibility, and frequency of mutual interactions. These points are excellently substantiated by, for example, Trevarthen's (1977) filmed records of infant-caregiver interactions. Ambrose offered an evolutionary explanation of the rich and various intimacy between human infant and caregiver, which he understood as the outcome of relative reduction of reflex behaviours in human infants, and also of the amount of initiative needed from the parent to sustain interaction with a relatively dependent infant. He emphasised that a 'remarkable degree' of flexibility in human social development allows alternative or additional attachments beside that to the mother.

For historical and theoretical reasons outlined above, child care-givers relationships have often been given primary importance in developmental ethology. Eckerman et al. (1975) compared interactions with the mother and with peers in children under 2 cared for at home. They reported a higher frequency of behaviour to mother than to peers, and more similarity between behaviour to mother and behaviour to peers, than between behaviour to peers and behaviour to objects. They interpreted their findings as showing that 'the peer system generalised out of the mother-child system'. Liberman (1976) studied a group of 3 year olds over a three-month period and found that 'security of attachment' to the mother was correlated with 'social competence with peers' shown three months later. Social competence was measured in terms of responsiveness, amount of

reciprocal behaviour, and number of recorded interaction sequences containing more than one behaviour each. Lieberman argued that a child's relationship with its mother is one factor contributing to social competence, and the amount of nursery school experience the child had had also contributed. Vandell (1977) found a significant correlation between events in parent and peer relations for boys between 16 and 22 months. Those whose mothers offered them toys, later offered toys to peers; those whose mothers took toys from them, later took toys from peers.

Using evidence such as this, Vandell and Mueller (1980) argued that the 'parent-child system' has an important affect on 'child-child systems'; there is also feedback from the child's relationships with peers to subsequent parent-child interactions. For instance, those who had characteristically longer interaction sequences with peers at 16 - 19 months, also had significantly longer sequences with parents at 22 months. There are also important differences between the parent-child and child-child systems. Peers sometimes present more novel and interesting behaviour and are easier to imitate (Eckerman et al.op.cit.). Children are both more positive and more aggressive with peers, but use more vocalisation and gesture in interactions with parents (Vandell and Mueller 1980). Each system appears to influence the other, in this view, and the unique quality of each appears to be important in development.

Lewis and Rosenblum (1975) wrote that, from an ethological perspective, the function of a child's relationship with peers is much less obvious than the function of its relationship with caregivers. Foot, Chapman and Smith (1980) however suggested, on the basis of a review of the research to date on peer relationships, that children choose as friends age-mates with comparable social and cognitive skills. Within such friendly relationships, they engage in a process of social 'reality-

testing', practising the skills of co-operation, negotiation, and conflict management. Foot et al. argued that in peer relationships, children have an opportunity to test 'social and moral norms', which does not arise in relations with adults. For instance, a 2-year-old might establish in this way that mild pushing of peers will pass without adult intervention in a pre-school group, whereas biting another child will not.

Hartup (1978), an influential worker in this field, took the same view. 'Capacities to create and maintain mutually regulated relations with others, to achieve effective models of emotional expression, and to engage in accurate social reality - testing derive from interactions with other children as well as from interactions with adults....peer relations affect the course of socialisation as profoundly as any social events in which children participate'. As Hinde pointed out, relations between adults and a small child involve participants of very disparate size, cognitive development, and in this culture, status. The child will therefore be able to test its developing social powers, and its hypotheses about social relations, more effectively in reciprocal relationships with peers.

'Peers' are defined by Lewis and Rosenblum (1975) as those with whom one interacts at a comparable level of behavioural complexity, and Foot et al. (op. cit.) observed that children choose such peers as friends. In a period of rapid behavioural development such as the pre-school years, however, this definition may exclude some chronological age-mates, as well as children one or two years younger or older. Hartup (1978) noted that Western child-care practice tends to group children of the same chronological age together. He observed that such children may differ greatly in size, intelligence, social and motor skills, but still argued that mixed-age play groups teach more social skills. A wider range of social roles and experiences is available in a mixed age group; a child

can experience dependence and nurturance, aggression and co-operation, sociability and passivity, intimacy and self-reliance.

Developmental ethologists have studied peer relations principally by observing children's play. Such diverse authorities as Piaget (1977) and Erikson (1950) agreed that children's thoughts and feelings are most effectively communicated through play. Tizard et al. (1976b) defined play as 'spontaneous cognitive behaviour', involving the deployment of verbal and non-verbal as well as social skills. They stressed the developmental aspect of play, measured by the child's play attention-span, the kind of use which it makes of materials, the extent to which different activities are integrated into one game, and the ability to 'make imaginative re-interpretation of objects'.

An early aspect of children's play behaviour to be measured was the extent of their social participation in the play of the group. Parten (1932) developed a scale for measuring social participation, which distinguished solitary, parallel, and associative play, as indicating different levels of social development. Tizard et al. subdivided Parten's scale, and rated the developmental level of associative play according to the amount of 'co-operation and division of labour' they could observe going on. Mueller and Lucas (1975) observed that reciprocity and complementarity in play interactions emerge late in a child's second year, in the form of organised role-relations such as giver and receiver, chaser and chased. Vandell (1977) reported the same observation, and added that more complex interactions first appear in dyads rather than larger groups.

Gender has been found by many observers to be a variable affecting children's social behaviour. Wasserman and Stern (1975) studied approach behaviour in a pre-school group, and found that more avoidance behaviour occurred in girl-boy dyads. Like Charlesworth and Hartup (1967) they found there was more

positive non-verbal communication between children of the same sex, and also reported a trend for smiles to be 'more characteristic of approaches involving females'. Hutt (1978) reviewed an accumulation of evidence that girls are more verbal than boys. She referred to studies which showed that infant girls have a lower auditory threshold than boys, and better auditory discrimination (McGuinness 1975a), and that mothers talk and vocalize more to their daughters than sons (Miss 1967). A possible inference is that girls are more sensitive and responsive to language and that this encourages parents to use it in interaction with them.

A number of observers of pre-school groups have reported that girls' play involves more looking, talking, exchange of objects and dramatic role-taking that that of boys. (Tizard et al.1976). If social maturity is measured in terms of incidence of these behaviours, as it often has been, girls are found to be more mature than boys of the same chrono-logical age.

If Hinde's definition of relationship ('interactions occurring between familiar people on a time base') is used in developmental research, the researcher must specify what is to consitute an interaction. Interactions obviously develop in behavioural complexity and length as the child grows older. Many researchers have adopted 'visual regard' as a minimum criterion for defining social interaction (Becker 1977, Mueller and Brenner 1977). Thus a 'social take' occurs when one child looks at another's face, rather than snatching the toy without acknowledgement of the other's personhood (Harré 1976). Mueller and Vandell (1979), in a review of the literature on interaction, commented that when this criterion is used, a remarkable consistency has been recorded in the emergence of peer social behaviour. Children look at peers at 2 months old, touch at

3 - 4 months, and smile and vocalise at 6 months. At the pre-school
stage, an interaction is often defined operationally as social behaviour
which elicits social behaviour (Becker 1977),(Mueller and Vandell 1979).
Mueller and Vandell noted that by the age of 12 months, many of the
'crucial behavioural elements of subsequent friendship' have appeared
in interactions. These are giving and taking of objects, laughing,
smiling and imitating. They proposed four levels of social competence.
At the first, social behaviours are observed; at the second, social
interactions; at the third, play. which involves co-operation and division
of work; and at the fourth, friendship, which involves play over an ex-
tended period of time, and preference for the friend's company. 'Social
behaviour' and 'social interaction' can be observed almost from birth, if the
criterion of visual regard is used to define an interaction. Newborns gaze
at the caregiver during the 'sucking dialogue' described by Kaye (1977).
'Social behaviours' are communicative behaviours, or signals,directed to
another person.

The concept of signalling behaviour has been important in ethology. Darwin
(1872) described innate, universal signals for 'the expression of emotions
in Man and Animals'. Smiling is such a signal, in that it occurs univer-
sally in humans, and is pre-adapted, not learned. Blind infants smile
without ever having seen the expression in another.

Eibl-Eibesfeldt (1970) argued on this basis that smiling is a direct
'expression of emotion' and has the same signal-value in all cultures.
Ross and Goldman (1976) suggested that in pre-school groups, smiles and
laughter metacommunicate 'this is play'; that is, a smile accompanying
an activity defines it as a game. Bateson (1973) had suggested this
metacommunicative function for the Chimpanzee 'playface', instantly
recognisable by humans as a 'smile'. The playface, when present, can
for instance redefine the activities of fighting (wrestling, biting) as

play, and gloss the bite as a non-aggresive nip.

Lewis (1978) in an ethological study of different forms of smile in pre-school children, identified the playface with his category 'broad smile' which easily becomes a laugh. Other smiles described by Lewis are low and high-intensity simple smiles, two types of 'upper smile', and a 'lower smile', which he interprets as 'a gift-wrapped threat'. For Lewis, each smile has a signal-value; it does not follow, however, that these values must be the same in every culture. Richards (1974b) wrote that while smiling is a species-specific inherited pattern, its meaning is defined by its cultural context, both for the signaller and the receiver. A child learns the meaning of its smiles by having them inter-preted by others in different contexts. The situations in which smiling can occur in infants very soon become closely defined. Ambrose (1961) observed that in newborns it could be elicited by any unspecific moderate or intense stimulation, but eliciting stimuli becomes rapidly more specific, until after the age of 5 weeks human eyes are the main eliciting stimulus.

Blurton Jones (1972) reported that frequency of smiling co-varied in children and parents. Bowlby (1969) had included smiling as part of attachment behaviour, but Blurton Jones and Leach (1972) found that it was not correlated with other attachment behaviours, directed to arriving and departing parents by children in a nursery group. Smiling of mother and child which Blurton Jones and Leach observed was associated in their analysis with smiling at the teacher; that is, the same children tended to exchange smiles with their mothers and with the teacher. Ambrose (1978) reported that smiling functions to facilitate a small child's exploration, which is a vital process 'enabling the infant to learn the rules that govern changes in his complex environment'. (Bruner,1969) . Smiling facilitates this process , as well as 'establishing mutuality

of relationship' between infant and caregiver, because it is a support-
ive social exchange which can function at a distance. So it confirms
the caregiver's continued interest and support for the baby's activity,
without interrupting it.

It is characteristic of the ethological method to look for an effect
of context on behaviour. Children's social interactions are affected by
their surroundings; when they are observed at play, both the amount of
space available, and the type of toy or activity available affect behaviour
(Smith and Connolly 1980). Vandell and Mueller (1980) showed that objects
play an important part in 'the peer-interaction system', though not in
the parent-child system. De Stefano (1976) observed the interactions of
a group of 18-month olds when large toys (such as slides and bicycles),
medium sized toys, and no toys at all were available. There was most
interaction when large toys or no toys were available, but large toys
promoted positive, and no toys negative interactions.

Strayer (1980) found, in an ethological study of a 3-5 year old group
in a University day-care centre, that nearly half of all observed pro-
social activity was object-related. His protocol specified 'give, offer,
take, and share' as object-related behaviour. It has also been found
that available space affects interactions: Loo (1972) reported that
moving a nursery group to a smaller room reduced the number of interactions
in the group.

Blurton Jones (1974) discussed the assumption, underlying ethological
study of pre-school groups, that a nursery school or day-care centre,
which allows the children 'free activity' provides a setting for
naturalistic observations. He asked what meaning should be ascribed to

the term 'naturalistic' in this context. In ethological study of free-living members of other species, naturalistic observation implies that behaviour is studied in the environment where it evolved, and where it has maximum survival value. Blurton Jones pointed out that in a nursery group the method may not have these implications but may mean that observed behaviour is to be described and an attempt then made to explain it; or that free activity of the group provides a wide range of behaviour not elicited by the observer, and description of it is likely to suggest useful research hypotheses. He suggested, however, that children under 5 have probably had continuous access to caregiving adults, and peers of various ages, during most of human evolutionary history. In this sense, perhaps, the nursery group could be regarded as a natural setting.

On the other hand, Richards (1978) rightly said that an ethological view of human development must not refer only to a speculative environment of evolutionary adaptedness, taking no account at all of a child's actual culture and history. Ethologists have found a wide range of interesting behaviour in pre-school groups (Smith and Connolly 1980), and this is the best argument for studying them, with the proviso that each group and each child must be seen in its own social context.

The two studies reported here are descriptive accounts of the behaviour of pre-school children. The first study describes social behaviour observed in a free play situation in two local authority day nurseries. A particular group of children was therefore observed and while their social circumstances of course differed they shared the social context of the nursery and the surrounding community, and each had been allocated a place in the nursery for one of a number of social reasons.

In Britain more than 25% of children 0 - 4 years old spend at least part of the day away from home. Of these children, more than half are cared

for in institutions of different kinds which come under the final

jurisdiction of the Department of Health and Social Security (Garland

and White 1980). In 1977, DHSS statistics showed that 8% of children

in the 0 - 4 age group were cared for in day nurseries provided by the

Social Services Departments of local authorities.

This group of children has not been much studied, partly because

university playgroups are often more accessible to research students and

partly because S.S.D. day nursery children are a special population.

Tizard et al. (1976a) excluded such nurseries from a study of pre-

school centres, because they 'tended to cater for children from single-

parent or disturbed families'. The great majority of the children join

the nursery after being referred to the Social Services Department by

a social worker, or doctor, because the child and its family are in need of

support. Often there is a single parent; but single parenthood is now an

alternative rather than an anomaly. There were 570,000 single parents with

dependent children in Britain in 1971; by 1976 there were 750,000, an

increase of 32% (Garland and White1980). If these parents are to find work

they need good and reliable day care for their children. For the 'disturbed'

families referred to by Tizard et al. good day care provision is a necessary

support for children and parents living in poverty and under stress.

Developmental ethology has changed its emphasis during the last ten years,

from study of children's relations with primary caregivers (Bowlby 1969),

to study of social development in a wider social context (Schaffer and

Crook 1978). This change of emphasis has included more study of non-parental

care of children and has shown that their social development can be satis-

factory when they have relationships with a variety of caregivers (Caldwell

et al. 1970, Belsky and Steinberg 1978). The children observed in the

following studies were victims of poverty and social stress and
day nursery care was intended by social policy makers to give them
the opportunity of normal social development. Study of this group of
children was of particular interest therefore in that it could indicate
whether relationships with a number of non-parental caregivers, who
supported a child's family system, could allow the satisfactory social
development of deprived children.

SECTION THREE: METHOD OF 'SOCIABILITY' STUDY

The first study reported here was carried out in two local authority
day nurseries between June 1980 and February 1981. Its aim was to
describe developmentally the children's social interactions, with
adult caregivers and with peers, during 'free activity' time. The
interactions of two groups of children, aged two and four, were
compared to construct a picture of developmental change in the children's
relationships in these two years. 'Relationship' was defined as 'inter-
actions with familiar people on a time base' (Hinde 1979). As Hinde
noted, description of this kind involves selection of behaviour of
interest to the researcher. Selection, he suggested, is guided by
'the problems in hand', and the theoretical approaches thought likely
to be most useful in solving them.

The relative dependence of human infants, and the relative-complexity
of human culture, suggest that a child's relationships with caregivers
develop before, and have determinant effects upon, its peer relationships.
There is evidence that interaction patterns which occur first in parent-
child relationships appear later in child-child relations (Vandell 1977,
Pastor 1981). As yet, however, there is comparitively little available
description of children's social behaviour to non-parental caregivers,
or of how this relates to behaviour with familiar peers. This study was
intended to provide some such description.

Ambrose (1978) referred to a common pattern in young primates, of directing
more social behaviours away from the mother, to peers and the group
generally, as social development proceeds. This study was intended to
describe developmental change in the direction of the children's social
behaviour in a group consisting of non-parental caregivers and familiar
peers.

Blurton Jones and Leach (1972) suggested that smiling in pre-school children might be an index of developing capacity for social inter-action in general, rather than for social interaction with parents in particular. This study aimed to describe developmental change in the frequency of children's smile exchanges with caregivers and peers. The frequency of smile exchanges with peers was also correlated with frequencies of exchange of gaze, speech and objects with peers. If smiling is a behavioural measure of a child's developing social competence, (Mueller and Vandell 1979) these behaviours should co-vary.

Mueller and Lucas (1975) found that in a pre-school group, many social behaviours directed to a peer met with no response. Mueller and Vandell (1979) suggested that these unreciprocated social behaviours are 'the building blocks for early (peer) interaction', which begins when a child directs social behaviour to a peer who responds to it. Frequency of unreciprocated social behaviour to peers and caregivers was recorded in the two groups of children observed, in order to describe developmental change in its frequency between 2 and 4 years.

Finally, instances of monologue were recorded. Speech not evidently directed to another was observed in a pre-school group by Piaget (1955) who understood it as a measure of the children's 'egocentricity' or entire absorption in their own points of view. For Piaget this term is primarily descriptive of cognitive processes of children, rather than a judgement of their social attitudes, though some later workers seem to have understood it in this way. Other researchers have since looked for 'collective monologue' and have failed to observe it (Isaacs 1933). Schaffer et al (1975) referred to Jaffe and Feldstein's (1970) contention that dialogue, not monologue, is the fundamental language process and

drew attention to the various pre-verbal dialogues in which infants
and caregivers engage. Schaffer (1977) argued that the current
ethological model of the child, involved from birth in intersubjective
relationships, is incompatible with Piaget's notion of egocentricity.
An intention of the present study was to describe how monologue, if
observed, related to other social behaviours.

As sex is a variable affecting social behaviour, each group of
children observed had an equal number of girls and boys (Appendix 1:
tables 1 to 4) and sex was treated as one independent variable in most
analyses of the children's interactions.

It was originally planned to carry out the whole study in Day Nursery 1
and virtually all the observations were made there. But the two year old
group in this nursery had a majority of boys, and in order to observe seven
two year old girls, it was necessary to include two girls from Day Nursery
2. Day Nursery 2 is provided by the Social Services Department of the
same local authority, it is fairly close geographically to Day Nursery 1,
and serves families in comparable social and economic situations. Never-
theless, observing children from another institution must add variability
to the data. It has been shown that provision of space and toys, and
the ratio of staff to children, affect social behaviour (Smith and
Connolly 1980) and these differ in the two nurseries. Day Nursery 1 is an
old pre-fabricated building, nor purpose-designed, where the younger
children have a room for themselves, and the older or more socially com-
petent are cared for in two large interconnecting rooms. Day Nursery 2
is a new purpose-designed building, where the children are divided into
groups each with a 'home room', and free play goes on in a large communal
central space, where the children can easily move out of sight of their
regular caregivers. Interaction between them is certainly affected by

this ; and peer interactions are probably also affected, because home room peer groups also become scattered.

Tizard and Tizard (1974) also noted, in a study of institutions caring for pre-school children, that their organization affected staff attitudes and these in turn affected interactions between staff and children. Their study distinguished 'child-oriented units' in which 'the person in change had much greater responsibility to make decisions about matters which affected all aspects of the unit's functioning'. In such units there was responsibility sharing and less role-differentiation between senior and junior staff; children were more involved in the staff's activities and were spoken to in a different way. Children in these institutions did significantly better in standardized tests of verbal intelligence.

Tizard and Tizard's study was of residential institutions for pre-school children in the full-time care of the local authority. Nevertheless, its findings about staff-child interactions probably apply to day-care institutions. Judged by its criteria, Day Nursery 1 was child-oriented, and Day Nursery 2 less so, and these organizational differences probably affected staff-child interactions in the ways it described.

The children were chosen for the present study by criteria of age and sex. Every child observed had also been coming to the nursery for at least six weeks, since McGrew (1972) showed that social behaviour is affected by a child's familiarity with the nursery group. No attempt could be made, because of the size of Day Nursery 1 (40 children from about 1 to 5) to exclude children because of particular aspects of their social background. A.D.E.S/D.H.S.S. (1975) report on nursery centres (day nurseries with nursery schools) emphasised that local authorities

provide these in 'areas of special social need'. It mentioned
their provision for children 'whose poverty or home background may
leave them tired, insecure, or disturbed' and continued: 'many of
the children suffer from some degree of cultural deprivation, and seem
to need a high level of stimulation and personal attention if they are
to become involved in the normal experiences that are part of a nursery
programme'.

These comments certainly apply to the children observed in this
study. The trained staff[1] in both nurseries were well aware of the
stresses suffered by the children and their families, whom they often
knew outside the nursery, because some of them had grown up in the
local community. They did their best to give the 'high level of
stimulation and personal attention' needed by children who had perhaps
been referred to the nursery by a social worker because of possible
non-accidental injury, or by a doctor because of 'failure to thrive'
syndrome (Cooper 1979).

In Day Nursery 1, some of the younger children (Group 2B and some of
Group 2G: appendix 1, table 2) were cared for in a different context
from that provided for the older or more socially competent (some of
group 2G and groups 4G and 4B: appendix 1, tables 1 and 2). What
provision should be made for younger children is a matter for debate in
day care. The D.E.S./D.H.S.S. Report on Nursery Centres (1975) mentioned
that some day nurseries had begun with mixed age groups, following
arguments like those of Hartup (1978) that a mixed age group provides
more social learning experience for its members. After some experience,
however, they decided to separate children under three for part of the

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[1]
  N.N.E.Bs: that is nursery nurses who have obtained the Diploma of the
Nursery Nurses' Examination Board after a 2 year practical and theoretical
course in the care of young children. The Social Services Department also
offers periodic training adapted to the particular needs and interests of
its workers.

day, because of their need for 'a secure base' and other special

physical and emotional needs. At Day Nursery 1 new members under

3 were introduced to Room B, where there were rarely more than eight

children, and the staff changed only at intervals of several months.

They spent their day in this room, had their meals there, and also

rested there on small camp beds after dinner. Those from room A

who were tired by this time joined them for a rest. The staff con-

sidered the needs of individual children and the current size of the

group in deciding when a child should leave it and spend the day in

room A.

'Room A' was in fact two rooms, each twice as big as room B. The

older children cared for here (some of group 2G and groups 4G and

4B; appendix 1: tables 1 and 2) were in three groups, each with a

trained Nursery Officer in charge of it. During free activity time,

they could choose their place and occupation within room A, where

various activities were available from time to time; for instance, a

sand-tray, a large slide, painting and table-games.

Data were collected for this study by a single observer, who had

spent some initial time in all the rooms of Day Nursery 1, giving

general help with care, and working for short sessions with children who

had special language difficulties. The presence of the observer was

accepted by the children, who normally didnot contact her during

observation periods, because she was obviously occupied. Smith and

Connolly (1972) noted the same response to familiar observers. If, as

occasionally happened, the child being observed caught the observer's

eye and came up to talk observation was discontinued and the observ-

ation period was begun again later.

Smith and Connolly (1972) discussed the time-sampling method of observation which was used in this study and pointed out that, in deciding on the length of the sampling period, researchers should consider the duration of the sampling period relative to the duration of behaviours which are of interest. Six-minute sampling periods were used here, because they had been decided on by Leach (1972) for observing interactions similar to those of interest in the present study. Smith and Connolly (1972) recommended a sequential method of recording, which gives more information than noting the number of times a behaviour occurs during a sampling period. A sequential recording gives information about the order, the number of occurrences, and the duration of behaviours. It thus provides a clear account of interactions, which was essential for the present study.

Smith and Connolly recommended division of sampling periods into units, in which occurrence or non-occurrence of a behaviour could be noted. In this way duration and frequency of behaviours within a sampling period can be recorded. The six-minute sampling period used here was divided into units of one minute. Behaviours were recorded in five categories, each of which occupied a column on prepared data cards.

In the first column, the six units into which the sampling period was divided were marked, and the observed child's position and occupation were recorded in each unit.

In the remaining columns, behaviours were recorded relative to the 'time markers' in column one, giving a sequential record, from which for instance it was clear whether the observed child initiated an interaction, or another child approached it and communicated first. Duration of interactions in time could also be recorded, and the number of behaviour exchanges which constituted a particular dyadic interaction.

Behaviour by the observed child to other children, and by other
children to the observed child, was recorded in columns 2 and 3.
In columns 4 and 5 behaviour by the observed child to caregivers,
and behaviour by caregivers to the observed child was recorded.
If a behaviour continued past a time-marker, it was re-recorded
in the next unit. Duration of behaviours for an entire minute was
recorded by noting them twice, at the beginning and end of the unit.

It was planned to observe each child for 6 six-minute sampling periods,
not more than two of which should occur on the same day, and all of
which must occur within two months (Blurton Jones 1972). In practice
this was nearly always possible. Two children left the nursery after
5 observations had been made.

Records were made using a 'running commentary' method (Leach 1972).
The observer using this method defines behaviours of interest specif-
ically before observation is undertaken, and devises a code for record-
ing these behaviours. Leach found that this method was more inclusive
and flexible than using a checklist could be, and that it was suitable
for making sequential accounts of observations.

In the present study, however, the children's socially communicative
behaviours were observed and recorded by only one researcher. This was
unavoidable, because the researcher had no collaborators in the study,
but in these circumstances,the normal practices for establishing inter-
observer reliabilities in the categorisation of behaviours (Smith and
Connolly 1980) could not be used.

This creates a serious methodological problem. It does not necessarily
mean that the observations themselves are likely to be unreliable.

Smith and Connolly's (1980) study used only one observer to collect

behavioural records, since they argued that much practice improved

his record-keeping, and his presence became familiar to the children,

thus minimising observer effect. In their study, however, good inter-

observer agreements had previously been established for all behavioural

units defined as of interest in the research.

Leach (1972) noted that ethological studies have often relied on

'the replication of their observations by other workers' rather than

on 'repeated inter-observer reliability tests and training.' She,

however, had a colleague to collaborate with her on one series of

observations and she also made a film record of some sessions as well as

an observational record. No methods such as these, for testing the

reliability of the observations, were available to the present observer.

As no other procedure was possible in this case, the observer used

behaviour categories which had been defined and used frequently by

workers in the field over a ten year period. Thus it was possible at

least to compare the results with those of similar studies, as Leach

had suggested. But since no measures of inter-observer agreement could

be established for this study, results could be interpreted only with

great caution.

In the present study, socially communicative behaviour was to be

described. Such behaviour was defined in the first instance by direction

of gaze, as it had been by Becker (1977), Mueller and Brenner (1977) and

many other workers, and communicative behaviour by, or directed to, the

observed child was recorded. If gaze, touch, speech or an object were

exchanged between interlocutors, an interaction was considered to have

taken place. One interaction, therefore, consisted of two socially
communicative behaviours by interlocutors, and three such exchanges were
counted as an interaction sequence three units in length.

A broad category 'talk' (Smith and Connolly 1980) was used to record
all vocalisations in which the observer could distinguish any one word.
'Talk' was defined as socially communicative if the speaker's gaze
was directed at another. If the speaker did not look at anyone, 'talk'
was recorded in column one of the data card, as neither directed to a
peer nor a caregiver, and was counted as 'monologue'.

A broad category 'touch' was defined as communicative behaviour, and
included various pre-defined behaviours, from gentle touches with
fingers or hand, to pushes, blows and hair-pulling. (See checklist
below).

Offering something to another was also defined as socially communicative
behaviour, and if the other looked at the giver or the object, or
touched or accepted the object, an interaction was recorded (see check-
list).

A broad category 'smile' was defined as including low and high intensity
simple smiles, both upper smiles, the lower smile and broad smile
(Lewis 1978). 'Smile' was counted as socially communicative behaviour
if it were preceded or accompanied by direction of gaze to another.
If the smiler did not look at anyone, as happened for instance when
children playing actively did so with a broad smile, 'smile' was recorded
in column 1, and not counted for the purpose of analysis. 'Laugh'
(see checklist below) defined as communicative behaviour, if the observed
child directed its gaze at another immediately before or during the
behaviour.

All definitions of the behaviours which were to be counted and analysed statistically were established before observation began, in the form of a checklist, a code was devised for recording these behaviours. Other behaviours such as 'paint' or 'run', which were not to be counted or analysed, were defined as they occured by the observer's judgement.

All observations were made in the mornings, although Smith and Connolly (1972) found there was no significant difference between morning and afternoon behaviour, in the pre-school group which they observed. The researcher decided on morning observation in the present study because in Day Nursery 1 children left at different times during the afternoon as their families or friends could collect them, so that social activity of the group included recurrent arrivals and departures. The afternoons were also used by the staff for activities such as singing games or story reading.

Observation periods were timed by using a wrist-watch with a clear second indicator.

The behaviours counted and analysed in this study were defined as follows:-

Checklist

Definitions of Socially Communicative Behaviours

'Look':   gaze directed at another's face for more than one second.
                                    (Smith and Connolly 1980)
'Talk':   any utterance containing one or more recognisable words.
            (excluding Playnoise, Chant and Sing). (Smith and Connolly 1980)

'Smile':   corners of mouth withdrawn and turned upwards (excluding
            grimace with lower lip square). (Includes simple, upper and
            open smile: (Brannigan and Humphries 1972) Excludes laugh or
            playface (Blurton Jones 1972)).

'Laugh':   open-mouthed smile with audible vocalisations (Blurton Jones 1972)

'Touch':   voluntary contact of hand, arm or body with hand, arm, body or
            head of another (including 'push', 'hit', and 'pull hair')
            (see Leach 1972).

'Offer
or Give':   arm extended to another, holding something (based on Blurton Jones
                                                                        1972).

'Take':   receive offered object in hand or hands; or seize and
              get possession of an object held by another. (Blurton
              Jones 1972).

'Trytake':   attempt to seize object held by another, who pulls it back
              again. (Included in 'take' category by Blurton Jones, 1972).

'Threaten':   stare for more than 2 seconds at another's face with low
              frown; with or without utterance (based on Leach's, 1972
                                                      'fixate')

'Bite':   teeth make painful contact with another (McGrew 1970,
                                                      Leach, 1972)

'Cry':   face puckered (Blurton Jones 1967) with accompanying
              vocalisations.

'Show':   as 'offer' but at greater distance (more than arm's length)
              from another. (Smith and Connolly 1980).

'Kiss':   touch another's face with lips (based on Blurton Jones and
              Leach 1972).

'Approach':   walk or run towards another with gaze directed to her or
              his face. (based on Blurton Jones and Leach 1972).

'Watch':   gaze at another, avoiding gaze exchange (Smith and Connolly
                                                      1980)

SECTION 4: RESULTS OF 'SOCIABILITY' STUDY

All social behaviours as defined by the checklist (see Section 3 above)
were recorded by the observer either as directed by the observed child
to a caregiver or peer. If the caregiver or peer responded an inter-
action was recorded. Table 1:1 below shows the frequency of the children's
interactions with caregivers in ranked order.

TABLE 1:1

Frequency of children's interactions with caregivers (in ranked order)
(whether initiated by child or caregiver.)

rank	4 year old boys	4 year old girls	2 year old boys	2 year old girls	
1	27	26	33	36	
2	25	25	22	29	
3	24	23	19	22	
4	21	22	18	20	
5	17	14	18	17	
6	16	14	17	15	
7	9	13	10	15	
mean	20	20	20	22	N = 28

These data were then analysed to determine whether the children's age
or gender significantly affected the frequency of their interactions with
caregivers. A 2 factor analysis of variance for data from independent
subjects was used. No significant effect of age or gender was found,
and there was no significant degree of interaction between them, as shown
by the summary table 1:2 below.

TABLE 1:2

Analysis of Variance Summary Table

Effect of Child's age & sex on frequency of interactions with caregivers (whether initiated by child or caregiver)

SOURCE	DF	SS	VE	F	
Age	1	8.035	8.035	0.1765	NS
Sex	1	8.035	8.035	0.1765	NS
Age & Sex	1	12.894	12.894	0.2833	NS
Residual	24	1092.286	45.510		
TOTAL	27	1121.250			N = 28

Table 2:1 below shows the frequency of the children's interactions with peers, in ranked order.

TABLE 2:1

Frequency of Children's interactions with peers (in ranked order) (whether initiated by observed child or peer.)

rank	4 year old boys	4 year old girls	2 year old boys	2 year old girls	
1	28	26	17	18	
2	19	21	11	11	
3	17	20	10	10	
4	16	19	7	9	
5	14	18	4	9	
6	13	9	3	7	
7	6	8	2	7	
mean	16	17	8	10	N = 28

These data were then analysed to determine whether the children's age or gender significantly affected the frequency of their interactions with peers. A 2 factor analysis of variance for data from independent subjects was used. The summary table 2:2 below shows that the 4 year old group had a significantly greater frequency of peer interactions than the 2 year olds. There was no significant difference between boys and girls in the frequency of their peer interactions, nor any significant interaction between age and gender affecting frequency of peer interactions.

TABLE 2:2

Analysis of Variance Summary Table
Effect of Child's age and sex on frequency of interactions with peers

Source	DF	SS	VE	F	
Age	1	424.32	424.32	13.08	p > .01
Sex	1	22.32	22.32	0.69	NS
Age & Sex	1	2.90	2.90	0.08	NS
Residual	24	778.60	32.44		
TOTAL	27				N = 28

Table 3:1 below shows the frequency of children's smile exchanges with caregivers in ranked order.

TABLE 3:1
Frequency of Children's Smile Exchanges with Caregivers (in ranked order)

rank	4 year old boys	4 year old girls	2 year old boys	2 year old girls
1	16	20	21	33
2	11	15	13	14
3	9	13	10	8
4	6	13	6	8
5	4	6	5	7
6	3	4	3	5
7	0	1	2	5
mean	7	10	9	11

N = 28

These data were analysed using a 2 factor analysis of variance for data from independent subjects. No significant effect of a child's age or gender was found on the frequency of its smile exchanges with caregivers, nor any significant degree of interaction between age and gender, as shown by the summary table 3:2 below.

TABLE 3:2

Analysis of Variance Summary Table

Effect of child's age and sex on frequency of smile exchanges with caregivers

Source	DF	SS	VE	F	
Age	1	12.89	12.89	0.23	NS
Sex	1	66.04	66.04	1.20	NS
Age & Sex	1	0.32	0.32	0.006	NS
Residual	24	1318.86	54.95		
TOTAL	27				N = 28

Table 4:1 below shows the frequency of children's smile exchanges with peers in ranked order.

TABLE 4:1

Frequency of children's smile exchanges with peers (in ranked order).

rank	4 year old boys	4 year old girls	2 year old boys	2 year old girls	
1	10	14	4	8	
2	5	5	4	4	
3	4	5	1	2	
4	2	4	1	1	
5	2	4	0	0	
6	1	1	0	0	
7	0	0	0	0	
mean	3	5	1	2	N = 28

These data were analysed using a 2 factor analysis of variance for date from independent subjects. No significant effect of a child's age or gender was found on the frequency of its smile exchanges with peers, nor any significant degree of interaction between age and gender, as shown by the summary table 4:2 below.

TABLE 4:2

Analysis of Variance Summary Table

Effect of child's age and sex on frequency of smile exchanges with peers

SOURCE	DF	SS	VE	F	
Age	1	36.57	36.57	3.33	NS
Sex	1	7.00	7.00	0.64	NS
Age & Sex	1	0.57	0.57	0.05	NS
Residual	24	263.72	10.99		
TOTAL	27	307.86			N = 28

The 'running commentary' type of records collected showed the frequency of social approaches made by the children to caregivers and peers, and whether the caregiver or peer responded when approached. Table 5:1 below shows the percentage of each 4 year old's total number of observed social approaches, first to caregivers, then to peers, which met with no response.

5:1

Percentage of **Unreciprocated** Social Approaches
to Caregivers and Peers by 4 year old group
(in ranked order)

	RANK	APPROACH TO CAREGIVER	APPROACH TO PEER
BOYS	1	33	53
	2	25	44
	3	17	42
	4	9	35
	5	0	20
	6	0	17
	7	0	0
GIRLS	1	31	55
	2	25	55
	3	25	43
	4	20	39
	5	20	27
	6	13	20
	7	0	0
	mean	15.5	32.1

N = 14

Table 5:2 below shows the mean percentage of total social approaches by
4 year old girls and boys which received no response.

TABLE 5:2

Mean Percentages of Unreciprocated Social Approaches

	Approach caregiver	Approach peer
4 year old boys	12.0	30.1
4 year old girls	19.1	34.1

N = 14

Table 5:3 below shows the percentage of each 2 year old's total
number of observed social approaches, first to caregivers, then to
peers, which met with no response.

TABLE 5:3

Percentage of Unreciprocated Social Approaches to Caregivers and Peers
in the 2 year old group (in rank order)

	rank	Approach to Caregiver	Approach to Peer
BOYS	1	40	100
	2	37	82
	3	0	80
	4	0	67
	5	0	62
	6	0	60
	7	0	45
GIRLS	1	33	60
	2	31	60
	3	25	57
	4	23	50
	5	22	50
	6	14	50
	7	9	37
	mean	16.7	61.4

N = 14

Table 5:4 below shows the mean percentage of total social approaches by 2 year old girls and boys which received no response.

TABLE 5:4

Mean percentages of Unreciprocated Social Approaches

	Approach Caregiver	Approach Peer
2 year old boys	11.0	70.9
2 year old girls	22.4	52.0

N = 14

These data were then combined and analysed using a 'split plot' analysis of variance. Independent measures from the 2 age groups of the percentage of unreciprocated social approaches were compared. The percentage of each individual subject's unreciprocated approaches to caregivers and peers was also compared, to determine whether a child's approach to a peer is significantly more likely to meet with no response. The summary table 5:5 below shows that significantly fewer of the total social approaches made by 4 year olds to caregivers or peers were unreciprocated; and that significantly more approaches made by the children to caregivers were reciprocated than were those made to peers. It also shows a significant degree of inter-action between the age and caregiver/peer variables.

TABLE 5:5

Analysis of Variance Summary Table

Effect of child's age on the percentage of unreciprocated social approaches
to caregivers and peers

SOURCE	D.F.	SS	VE	F	
Between subjects	27	8625	319.4		
Age	1	3241	3241	15.7	p < .001
Residual (between subjects)	26	5384	207		
Within subjects	28	23505	839.5		
Caregiver/ peer	1	13146	13146	45.0	p < .001
Age x Caregiver/ peer	1	2772	2772	9.5	p < .001
Residual (within subjects)	26	7587	291.8		
TOTAL	55	32130			

Table 5:6 below represents graphically the data from tables 5:1 to

5:5 inclusive. It shows a consistent high level of reciprocated

approaches to caregivers by children in both age groups. It also shows

a substantially higher percentage of reciprocated approaches to peers in

the 4 year old than in the 2 year old group.

TABLE 5.6

PERCENTAGE FREQUENCY OF UNRECIPROCATED INTERACTIONS WITH
PEERS AND WITH CAREGIVERS, OBSERVED IN 2-YEAR-OLD AND
FOUR-YEAR-OLD GROUPS

Table 6:1 below shows frequencies of interactions with caregivers which were initiated by the boys and girls in the 4 groups, in ranked order. A 't' test to compare the mean of the boys'group with the mean of the girls' group showed no significant difference.

TABLE 6:1

Frequency of interactions wich caregivers initiated by 4 groups of children (in ranked order)

rank		Boys	Girls
(4 year olds)	1	16	19
	2	11	13
	3	11	12
	4	10	11
	5	7	9
	6	3	8
	7	2	4
(2 year olds)	1	14	15
	2	12	12
	3	9	11
	4	7	10
	5	6	8
	6	5	6
	7	5	5
mean		8.43	10.21

('t = 1.1558:NS)

Table 6:2 below gives mean frequencies of interactions initiated with caregivers for each of the 4 groups of children.

TABLE 6:2

Mean frequency of interactions with caregivers initiated by 4 and 2 year old boys and girls

	2 year olds	4 year olds
boys	8.28	8.57
girls	9.57	10.86

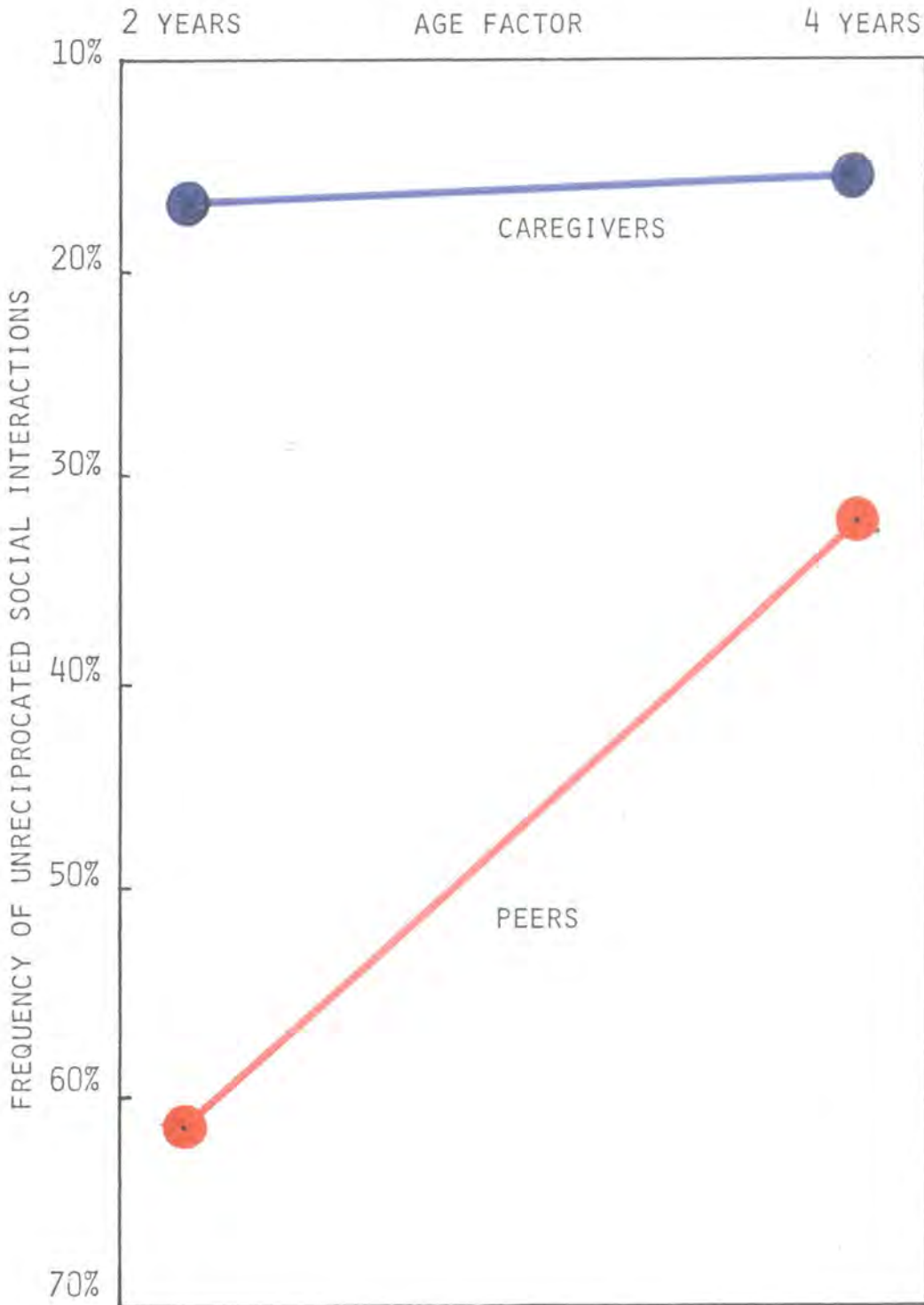Table 7:1 below shows frequency of interactions with peers initiated by the boys and girls in the 4 groups, in ranked order.

TABLE 7:1

Frequency of interactions initiated with peers by the 4 groups of children (in ranked order)

rank		Boys	Girls
(4 year olds)	1	7	8
	2	7	7
	3	6	7
	4	6	6
	5	5	6
	6	4	6
	7	2	1
(2 year olds)	1	4	7
	2	3	4
	3	1	4
	4	1	3
	5	1	2
	6	1	2
	7	0	2
mean		3.43	4.64

Table 7:2 below gives mean frequencies of interactions initiated with

peers by each of the 4 groups of children during the total observation time.

TABLE 7:2

Mean frequency of interactions with peers initiated by 4 and 2 year old
boys and girls

	2 year olds	4 year olds
Boys	1.57	5.28
Girls	3.42	5.85

The data in table 7:1 were analysed using a 2 factor, independent measures

analysis of variance. The summary table 7:3 below shows that a child's age

affected significantly the frequency of interactions it initiated with

peers. Gender had no significant effect, nor was there a significant degree

of interaction between age and gender.

TABLE 7:3

Analysis of Variance Summary Table: Effect of child's age and sex on
frequency of interactions initiated with peers

Source	DF	SS	VE	F	
Age	1	66	66	19.4	$p < .001$
Sex	1	10.3	10.3	3.03	NS
Age & Sex	1	2.9	2.9	0.85	NS
Residual	24	82	3.4		
TOTAL	27	161	5.96		

The 'running commentary' records showed the length of all interaction

sequences engaged in by each of the children observed (see Section 3)

If, for example, a child spoke to a peer, who looked up at her but did

not respond further, an interaction 1 unit in length was recorded.

Table 8:1 shows the mean length of each child of the interaction sequences
it was observed to participate in with caregivers. The means are given
in ranked order.

TABLE 8:1

Mean length of interaction sequences between caregivers and children
in the 4 groups (in ranked order)

4 year old boys	4 year old girls	2 year old boys	2 year old girls
7.55	4.78	5.66	6.25
5.81	4.60	5.05	4.90
4.33	4.50	4.54	4.58
4.25	3.55	4.27	4.50
3.72	3.50	3.66	4.25
3.66	3.17	3.50	4.00
3.50	3.00	3.00	3.08
M = 4.68	M = 3.87	M = 4.24	M = 4.50

Tables 8:2 and 8:3 give the mean length of interaction sequences with
caregivers observed for boys and girls, and for 4 and 2 year olds.
Inspection showed that there was no significant difference between boys
and girls, or between 4 and 2 year olds, in the average length of their
observed interaction sequences with caregivers.

TABLE 8:2

Mean length of interaction sequences between
caregivers and boys, and caregivers and girls

BOYS	GIRLS
4.46	4.19

TABLE 8:3

Mean length of interaction sequences between
caregivers and 4 year olds, and caregivers and 2 year olds

4 year olds	2 year olds
4.28	4.37

The records also measured in the same way the length of each interaction

sequence the children were observed to participate in with peers. Table 9:1

shows the mean length of peer interaction sequences observed for each child,

in ranked order.

TABLE 9:1

Mean length of interaction sequences between peers and children in the
4 groups (in ranked order)

4 year old boys	4 year old girls	2 year old boys	2 year old girls
5.77	5.50	6.00	8.66
5.12	5.16	4.66	4.75
5.00	4.90	4.60	4.60
5.00	4.16	4.18	4.28
3.87	3.88	3.66	4.25
3.83	3.45	3.00	3.80
3.58	3.42	2.50	3.00
M = 4.59	M = 4.35	M = 4.08	M = 4.76

Tables 9:2 and 9:3 give the mean lengths of interaction sequences with

peers observed for boys and girls, and for 4 and 2 year olds. Again,

inspection showed no significant difference between boys and girls or between 2 and 4 year olds, in the average length of their observed interaction sequences with peers.

TABLE 9:2

Mean lengths of interaction sequences with peers
for boys and girls

Boys	Girls
4.34	4.56

TABLE 9:3

Mean lengths of interaction sequences with peers
for 4 and 2 year olds

4 year olds	2 year olds
4.47	4.42

Table 10:1 shows 2 ranked scores for each of the 28 children observed. Above is the rank representing the relative frequency with which a child was observed to smile. Below is the rank representing the relative frequency of that child's observed social interactions with caregivers and peers.

TABLE 10:1

Ranked scores for all children observed, representing frequencies of smiles and frequencies of social interactions

Smiles	1 pair of ranked scores for each subject observed																											
Smiles	1	2	3	4	5	6	7	8	10	10	10	12	13.5	13.5	15	16	17	18.5	18.5	20.5	20.5	22.5	22.5	24.5	24.5	26	27.5	27.5
Social Inter-actions	2.5	8	5.5	20	2.5	7	11.5	5.5	11.5	19	24	11.5	18	1	15	26	9	22	26	15	22	17	11.5	22	4	26	15	28

$N = 28$

Kendall's rank correlation coefficient T gives $Z = 2.74$. This indicates a degree of correlation between frequency of smiling and frequency of social interaction significant at the 0.003 level of confidence (one-tailed test).

TABLE 11:1

Ranked scores for all children observed, representing frequencies of monologue, and frequencies of interaction with peers

1 pair of ranked scores for each subject observed.																												
monologue	1	2	3	4	5	6	7.5	7.5	10	10	10	12.5	12.5	15	15	15	18	18	18	21	21	21	24	24	24	27	27	27
peer interactions	9	11	19	26	14.5	22.5	14.5	1	10	5.5	16	7.5	17	5.5	19	27.5	2	25	22.5	13	27.5	7.5	24	11.5	3	21	4	19

Kendall's rank correlations coefficient T gives 2 = 0.01. This indicates no significant degree of correlation between frequency of monologue and frequency of interaction with peers.

SECTION 5:   DISCUSSION OF RESULTS OF THE 'SOCIABILITY STUDY.

This study of the social behaviour of children in a day nursery aimed to

describe developmental change in the children's relations with caregivers

and peers, initially in terms of frequency of observed interactions

with them.   The frequency of the children's interactions with caregivers

showed no such change: no significant difference was found between

the frequencies of interactions with caregivers in the 2 year old and

the 4 year old group (Section 4: tables 1:1; 1:2).

As Holmberg (1980) has noted, few studies have as yet examined toddlers'

interactions with adults who are neither parents nor strangers.   The

findings of the present study are, however, in agreement with those of

Holmberg, who also observed children in day care centres.   She found'a

surprisingly consistent level of both initiations and subsequent recip-

rocal interchanges' in adult-child dyads across the 30 month age span

she observed, from 12 to 42 months.   In contrast, she noted, with peers

the frequency both of initiations and elaborated interchanges increased

with age.

In the present study 'interaction' had been defined as a sequential exchange

of social behaviours, accompanied by exchange of gaze.   Alone, therefore,

this finding was ambiguous, because it did not indicate who initiated inter-

actions.   The 2 year olds, for instance, might have had more social behaviour

directed to them by caregivers, perhaps because some were in a smaller room

and the staff/child ratio was higher there.   The nursery staff might also

have considered the 2 year olds to be more in need of social stimulation than

the older children.   Initiatives from caregivers could thus have involved the

younger children in more interactions than they themselves would have

initiated.   Conversely, the older children might have taken more social

initiative with caregivers, in order to have a comparable number of inter-
actions with them.

The 'running commentary' records, however, indicated whether any particular
interaction sequence was initiated by a child or caregiver; and, in fact, no
significant difference was found between the frequency of child-caregiver
interaction sequences initiated by the 4 groups of children. (Section 4:
tables 6:1 and 6:2).

The number of interaction sequences initiated by the children with care-
givers was also relatively high (a total of 261 sequences, Section 4: Table 6:1)
compared to the number of interaction sequences they initiated with peers
(Section 4: Table 7:1, a total of 113).

Strayer (1980) wrote that although descriptive studies 'seldom contribute
directly to our understanding of children's social relationships, they
reflect a basic assumption in ethology that qualitative differences in complex
social phenomena.....cannot be understood without a detailed consideration of
quantitative differences in individual action patterns which constitute social
exchange between individuals.' The children observed in the present study
had high frequences of social exchange with their caregivers; and although
significantly more of their social behaviour was directed to their peers as they
grew older, no concurrent decline was found in the frequency of social exchanges
with caregivers. It seemed, therefore, that relationships with caregivers con-
tinued to have vital functions in the children's social development between
2 and 4 years of age.

Ambrose (1978) noted that primate phylogeny specifies less direct environmental
control of behaviour than occurs in other species. It follows that ontogenetically,
an individual's dependence on information from the environment is greatly
increased; the individual has more freedom of action, and needs information

in order to choose what action to take. Children are extremely dependent
on information about their highly complex social environment, and most of
this information is to be gained from adults who have learned to understand
and mediate the culture. Children must also negotiate with adults in order
to make changes in their environment, because adults control environmental
contingencies and resources. The children in the present study, for example,
had to negotiate with adults for use of particular play materials in order
to play outdoors, or to be taken for a walk or a trip, to have a sweet, or to
be read a story.

For all young children, whatever their social circumstances, relationships
with caregivers function to mediate information about complex cultures. All
children in pre-school groups in Britain must act upon their environment largely
through relations with their caregivers. Researchers working with less deprived
pre-school groups, however, have sometimes found that the older children,
particularly the boys, reduce the frequency of their social behaviour to care-
givers as their contact with peers develops (Blurton Jones 1972, 1974).
No such effect was found in the present study.

Relations with caregivers, of course, have other vital functions for the pre-
school child, and for some of the children in this study relationships with
their familiar caregivers in the day nursery were an important source of
adult support. This support is crucial for adequate emotional development
(Bernal 1974) and for cognitive development (Bruner 1974).

Bernal noted that attempts to define and investigate the pre-school child's
dependence upon caregivers for emotional support had yielded inconsistent and
confusing results. She suggested this might mean that the concept of depend-
ence was too inclusive to be very useful. Studies of 'dependent' behaviour
to caregivers have distinguished two main categories, of proximity-seeking,
and attention-seeking. Many workers have found that proximity-seeking remains
directed to adults during the pre-school period, while attention-seeking

behaviour changes to being directed towards peers. Maccoby and Masters (1970) suggested the explanation that adults continue to give satisfactory physical contact experiences, and peers come to be as satisfying as adults are, when a child wants attention.

The children in both the older and younger groups in the present study had much affectionate contact with caregivers. The various kinds of affectionate contact observed were evidently a source of great satisfaction, particularly to the younger children, those from violent or neglecting families, and those with a clinically depressed single parent. For local authority day nursery children an important reason for maintaining relationships with caregivers as peer-relatedness develops, is that caregivers supply emotional support.

Kellmer Pringle (1965) supported this contention, with her finding that children in residential nurseries sought attention from adults much more actively than those in other nersery groups, who were able to derive more emotional support from their parents. Connolly and Smith (1972) who observed children in day nerseries, suggested that they sought contact with the male observers so actively because many were from single-parent homes, and were suffering 'parental deprivation'. They argued, however, that if the children were suffering such deprivation, it could be counteracted by the socially stimulating environment of the day nursery.

For the group observed in the present study, nursery care appeared to allow adequate emotional development in terms of the quality of the children's relationships with caregivers. These relationships continued to be as important to the children at four as they were at two, as was shown by the sustained high frequency of interactions with caregivers. But their close relationships with adults did not prevent the development of peer relations. Nor did the children seem dependent on caregivers in a way that interfered

with their autonomous activity (Leach 1972) except occasionally and briefly during crisis-points in their lives. A child might, for instance, be temporarily in the care of the local authority during the birth of a sibling. When a short-term need of this kind arose for support of a child's family, members of the day nursery staff would sometimes foster the child for a few days, so that it could be with a familiar adult. In general, the day nursery staff seemed to form a more vital part of the children's emotional support network than would be the case in a university play-group, and this function of child-caregiver relationships could partially account for their sustained importance to this particular group of children.

Bruner (1974) argued that young children need 'diffuse, affective, yet critical support', which can only be given fully by adult caregivers, in order to thrive. 'Sustained, intention-directed behaviour flags' without such caregiver support, and vital competences fail to develop. Bruner defined this support process as sensitively adapted not to discourage a child from new ventures, and to protect such ventures against 'distraction or premature interferences'. He noted that a 'culture of failure' which could result, for instance from persistent poverty, could not provide support of this kind, because members of such a culture have no reason to set goals, mobilise means of achieving them, or cultivate delay of gratification.

The majority of the children observed in the present study came from families suffering persistent poverty and failure, where the adults had been unable to develop their capacity for providing delicately adjusted support for children's cognitive development. But such support was available from the day nursery staff, who believed that part of their function was to provoke and sustain the children's interests. They understood the normal course of child development through their N.N.E.B. training, and were aware

of how individual children in their group were placed in relation to it.
This awareness was formalised in the cases of those children on the 'at
risk' register [2], who had regular developmental check-ups with the visit-
ing doctor, in which the staff co-operated.

For many of the children, therefore, the day nursery was the main source
of encouragement and support from caregivers for their new cognitive
ventures. Relationships with caregivers had another vital function in
addition to that of providing emotional support; they helped the children
to thrive in Bruner's sense of developing their competence. This function
of child-caregiver relations could also partially account for their sus-
tained importance to this particular group of children.

There is some encouraging evidence that non-parental caregivers can provide
adequate support for children's cognitive development. Tizard and Tizard
(1974) found, in a study of residential nurseries, that the children scored,
on average, above the population mean on standardised tests of verbal
intelligence. They wrote: '.......inasmuch as linguistic attainments are
indicators of the social and intellectual adequacy of the environment, this
set of nurseries can be said to have attained good standards of care....
Since most of the children come from lower working class parentage, it is
likely that their cognitive development was more advanced than it would have
been had they remained in their own family.'

(2)
A register kept by the Area Health Authority and the Social Services Depart-
ment of children who need periodic medical check-ups for a variety of reasons
either medical, social or both.

A descriptive study of the kind reported here can give information about changes in behaviour which occur developmentally (Ambrose 1978) by comparing descriptions of the behaviour of individuals of different ages. This study showed, by comparing the frequency of observed interactions in the 2 year old and the 4 year old group, that a significant developmental change occurred in peer relationships between two and four. Interactions with peers were significantly more frequent in the four year old group. (Section 4: Tables 2:1 and 2:2), and the 4 year old children were observed to initiate significantly more peer interchanges than the 2 year olds (Section 4: table 7:3).

This finding is in agreement with those of many other workers who have shown that 'children become more competent participants in (peer) interchanges as they grow older.' (Cairns 1979). As Richards (1978) pointed out it was sometimes assumed that this change formed part of a process by which the 'biological' newborn was transformed into a social person by maturation and socialization. Ethologists, however, see the newborn as pre-adapted to be social, and as an immediate participant in social interchanges.

The children in the present study were able to participate in as many social interchanges with caregivers at two as they were at four, which seemed to indicate that the two year olds were already integrated into the social world surrounding them. The two year old group also showed social interest in their peers, and directed about half as much social behaviour towards them as they did to caregivers. This was not surprising, since many workers have shown that peer relations begin to be a source of satisfaction for children before twelve months, and are extremely well developed by two (Foot et al.1980). Vandell and Mueller (1977) reported that infants and toddlers can engage in 'fairly extended and sophisticated social interactions' with their peers.

This evidence suggests that the development in peer relationships between two and four found in the present study, should perhaps not be ascribed to a process of 'socialization' which changes a child from a biological into a social being. An ethological, descriptive approach to this development would be to investigate it by observing the behaviour of the children in the interactions of which their peer relationships consist.

The two year old group in this study directed much social behaviour to peers as well as to caregivers, but analysis showed a significant difference ($p < .001$: Section 4: table 5:5) between peers' and caregivers' responses to this behaviour. Caregivers were significantly more likely than peers to reciprocate when a social approach was made to them, and they responded very similarly to social approaches from 2 and 4 year old children. This resulted in a high and consistent level of social interaction between children and caregivers (Section 4: table 5:6). On the other hand younger peers were significantly less likely to reciprocate than older peers when a social approach was made to them ($p < .0001$, Section 4: table 5:5). This finding supports those of Becker (1977), Holmberg (1980) and Lee (1973), who showed that many social behaviours of younger pre-school children received no response from peers. Lee reported that 60% of the social behaviours of one year olds she observed were unreciprocated by a peer. As Hinde (1979) wrote: 'the extent to which an individual exhibits social behaviour is not indicative of the extent to which that individual enters social relationships'.

The discovery, by developmental ethologists, of the crucial importance of timing and alternation to human interaction may explain why, though young children are socially oriented to each other, they manage few social exchanges at 2 relative to the number they make at 4. Newson (1979) wrote: 'the

infant is biologically tuned to react to person-mediated events, which are in phase with his own activities and spontaneous reactions'. It has been clearly shown (Schaffer and Crook 1978) that adult caregivers can offer social communication which is sensitively tuned to be 'in phase' with the spontaneous activity of small children. At first, however, children themselves do not possess this skill in the timing and alternation of social behaviour to such a high degree, as was shown in the present study by the high frequency of social behaviour unreciproated by peers as opposed to adults. The children did not fail to respond because they were not yet socialized. All those observed were socially oriented towards peers, although some tended to have positive and some have negative interactions with them.

Strayer and Strayer (1976) studied 'affiliative behaviour' to peers, defined in terms of behavioural categories such as looking, touching and 'communicative gestures' in a group of 3-5 year olds in a university daycare centre. They found that even in this group of older children, over half of all 'affiliative overtures' met with no response. There were no significant differences in 'responsiveness' within the group; all the children observed were sometimes responsive to social approaches and sometimes were not. Recent research has also indicated that children don't change developmentally from playing alone to playing with others, as Parton (1932),for instance, believed. Roper and Hinde (1978) showed that how much a child plays alone, and how much it interacts with others when playing with them, are separate issues: these behaviours do not co-vary.

Liberman and Garvey (1977) found that the most common latency observed in the social exchanges of $3\frac{1}{2}$ year olds was 1.5 seconds. When a pause exceeded this length, the probability that an interlocutor would respond markedly decreased. This finding offered evidence that immediate, precisely timed responses are crucial to social exchanges between peers.

The four year olds in the present study had significantly more social exchanges with peers, and significantly fewer unreciprocated social behaviours to peers, than the two year old group (Section 4: tables 2:2 and 5:6). It seemed that more skilful timing and alternation of social communications by all the four year olds could plausibly account for this increase in the frequency of peer exchanges. The children's communication skills must have improved as a result both of maturation and of the experience of being a regular member of the day nursery peer-group. Social competence develops particularly with peers, because a child must take more responsibility for conducting interactions, and must learn to give much clearer signals (Foot et al. 1980). Hartup (1978) agreed that 'social competence derives from children's interactions with other children', and Liberman (1976) found that practice in child-child interaction led to 'a more mature responsiveness' to peers. Doyle, Connolly and Rivest (1980) found that being with familiar peers enables pre-school children to engage in play at a higher cognitive level, as well as to show more 'positive and successful' peer-directed social behaviours. Holmberg's (1980) study in day care centres also found a trend towards fewer 'unsuccessful initiations' in peer interactions in the older children (3 year olds) although the difference did not reach significance level.

Hartup emphasised that children's opportunities for social 'reality-testing' are greatest with their peers, and through this process children learn how to express and accept feelings, and how to conduct interactions with friends which are reciprocally satisfying to the participants. He argued that 'children learn to master aggressive impulses within the context of peer relations'. Patterson et al. (1967) also showed that

feedback from peers, and to learn how to express aggressive feelings

in ways the group found reasonably acceptable, was very important for some

of the children in the present study. These children came from homes

where histories of poverty and despair contributed to cause violence between

family members, and some had joined the day nursery in order to reduce

pressure on adults who might react with violence towards the child.

Blurton Jones (1972) noted that studies were needed which used detailed

analyses of children's social behaviour and could, for instance, distinguish

between the children with a low frequency of peer interactions who play

alone with toys, and those who watch peers without interacting with them.

The running commentary records of the present study showed that younger

children with low frequencies of peer interactions watched others, and the

older children (2 boys),who had the lowest number of peer interactions in

the group, played alone with toys. Several of their recorded peer inter-

actions consisted of repelling a peer verbally or non-verbally. The study did

not provide enough evidence to argue that watching peers is characteristic

of two year olds with low frequencies of peer interaction, and playing

alone with toys is more characteristic of similar four year olds; but it suggest-

ed that this might be an interesting hypothesis.

Smith and Connolly (1972) carried out a cluster analysis of their observ-

ational data from a nursery group, and found two main dimensions of

behaviour: 'social maturity - immaturity' and 'play with toys - without

toys'. Behavioural indices of social maturity were, for instance, co-op-

erative play and sustained interactions. In the present study, a count

was made of the number of dyadic exchanges making up an interaction sequence

between the observed child and a peer or caregiver. Although there was a

wide range of variation between individuals, this averaged out within groups,

and the mean length of interaction sequences did not differ significantly
for two and four year olds, for boys and girls, or for peer and child-adult
exchanges (Section 4: tables 8:1 to 9:3). Smith and Connolly also found
that there was no effect of sex-difference on their social maturity -
immaturity dimension, which was partially defined in terms of sustained
interactions. But the findings of the present study, that age had no
significant affect on the length of interaction sequences, suggested that
a more detailed analysis of the relation between 'social maturity' and sus-
tained interactions would be a useful research project. Asher, Markell
and Hymel (1981) also suggest this, in a critique of studies which use
frequency of interaction with peers as a measure of a child's social
adequacy.

A higher frequency of social interactions between peers was found in
room A, where the whole four year old group in this study was observed.
It has been argued that this higher frequency of peer interactions was due
both to the increased maturity and to the greater social experience
of the children. Other factors, however, may also have contributed to it.
The children cared for in room B did not differ greatly in chronological
age, whereas those cared for in room A ranged in age from 2 to 5 years.
Lougee et al. (1977) found, in a study of dyadic interactions in a nursery
group, that the most frequently observed interactions were between a two
year old and a five year old. This suggested that age differences between
the children in a group increases the frequency of their interactions.
Langlois et al. (1978), however, found that when the children were familiar
with each other, frequency of interactions in same-age dyads increased.
Becker (1977) also found that familiarity was an important factor promoting
interaction. All the children in the present study had familiar peers,
since no child was observed who had not been coming to the nursery for at
least six weeks. It seemed, therefore, that although the greater age range

of the children in room A may have affected the frequency of peer

interactions there, it probably did not contribute to it to any great

extent.

Environmental factors in room B could also have contributed to reduce

the frequency of peer interactions observed there. Room B was smaller,

and there was a higher ratio of staff to children there than in room A.

Both Reuter and Yunik (1973) and O'Connor (1975) found that high staff/

child ratios reduced the number of peer interactions observed, and

Loo (1972) found that a smaller room also reduced the number of peer

interactions.

Sex difference in the present study had no significant affect on frequency

of interaction either with peers or caregivers, although the number of

interactions counted for girls was slightly higher in both conditions.

This study recorded the number of smiles the children directed to caregivers and peers, in order to investigate Blurton Jones's (1972) suggestion that smiling might be a measure of social development, indicating readiness to form relationships other than those to primary attachment figures. Frequency of smiling at caregivers was found not to differ significantly in the two year old and the four year old group (Section 4: Tables 3:1 and 3:2).

The frequency of all social exchanges with caregivers did not differ significantly for two and four year olds in this study, and it has been shown that this effect was not caused by caregivers taking more social initiative with the younger children. Caregivers did, however, smile more often at the younger children, although the difference did not reach significance level, and did try to elicit from them a smile in exchange. This was particularly noticeable in their interactions with the more deprived children, and it was effective in changing the children's behaviour. Twin girls, not studied in this research, were assessed on joining the nursery as mentally handicapped. Their single parent was clinically depressed and the family lived in extremely depressing conditions. The twins were withdrawn and expressionless and appeared obviously developmentally abnormal. They gradually began to look at caregivers and then to smile, however, in response to the staff's commitment to them and by the end of their stay in the nursery their social behaviour was not distinguishable from that of their peers.

Frequency of smiling probably did bear some relation to social development in this group of children, because a significant degree of association was found between frequency of smiling and frequency of all social interactions for both the two and the four year olds (Section 4: table 10:1). But while the number of times a child is observed to smile is probably to some extent determined by its social maturity it is also determined by the attitudes and expressions of interlocutors. The day nursery staff observed in the present study evidently considered participation in smile exchanges an important index of social

competence. If a child did not often smile they would direct smiles to it and encourage it to reciprocate.

It seemed, therefore, that these adults were transmitting to the children a culture in which it is important "to acknowledge the humanity, the autonomy and cognitive status of the other by some form of greeting, even if only a smile." (Shotter 1974). In the terms of such a culture, the most frequent participants in socially appropriate smile exchanges will be the most competent. The evidence of the present study also indicated that frequency of smiling covaried with frequency of participation in exchanges of gaze, touch, speech and objects with others; and this association supported the validity of using smile frequency as a measure of social development.

No significant effect of the children's age or sex was found on the frequency of smiles directed to peers. That there were fewer smile exchanges with peers than caregivers (Section 4: tables 3:1 and 4:1) was probably due on the one hand to the concern of the day nursery staff to initiate smile exchanges with the children, and on the other to the higher frequency of social exchanges in general between caregivers and children, than between children and peers (Section 4: tables 1:1 and 2:1). Nor was a significant degree of interaction found between these two variables; older girls smiled more at peers than younger boys (Section 4: table 4:1) but this difference did not reach significance level. This was not an unexpected finding, however; Wasserman & Stern (1975), among others, found smiles in peer dyads to be 'more characteristic of approaches involving females'. Tizard et al (1976) investigated social maturity, defined behaviourally in terms of co-operation and division of labour in play, and reported that boys played socially at a less mature level than girls.

It seems intuitively quite defensible to measure social maturity in terms of length, complexity and degree of co-operation observed in social exchanges and frequency of smiling also seems likely to be an indication of positive social feeling and to co-vary with such measures. Stern & Wasserman and Tizard et al found these 'mature' behaviours commoner in girls, but the present study did not find a significantly higher frequency of smiling in girls than in boys.

Such behavioural definitions of social maturity may, however, reflect a culture in which a sexual division of labour assigns some ways of promoting social solidarity, such as smiling, mainly to females. Other behaviours, such as chasing and being chased, which are more often observed in boys in some pre-school groups (Smith and Connolly 1980) also show ability to take reciprocal roles, and may promote social solidarity, but would not be included in such definitions of socially mature behaviour. Smith and Connolly (1972) found no effect of sex-difference on their dimension of social maturity, which was extracted from a wider range of observed behaviours.

When an observed child in the present study produced the behavioural category 'talk' without directing its gaze at another 5 seconds before, during, or 5 seconds after the behaviour, 'talk' was recorded in the first column of the data card, as not socially directed. These instances of 'talk' were classified as monologue.

Piaget (1955) in a very influential study of the language of two 6-year-old boys, distinguished two categories of speech: 'egocentric' and 'socialized'. Egocentric speech is itself divided into three categories: the first is repetition of words and syllables apparently 'for the pleasure of talking', which Piaget saw as an activity similar to babbling in pre-verbal children. The second is monologue in which 'the child talks to himself as if he were thinking aloud. He does not address anyone.' The third is dual or collective monologue, in which the presence, but not the point of view of another or others is recognised in the child's speech. Piaget inferred that egocentric language 'served to accompany and reinforce individual activity.'

In the present study, direction of gaze at another was the criterion which defined a behaviour as social, and the majority of the children produced some speech not defined as social behaviour. A considerable range of instances of monologue was found in the group: from 0 to 18 instances, in 36 minutes of observation time for each child. Between 0 to 6 instances were observed for the majority of children. The two children with the highest incidence of monologue (14 & 18 instances) were boys; but one, a 4 year old, was very isolated, and the other - a 2 year old, very sociable. Kendall's rank correlation coefficient was used to determine whether any significant degree of association existed between monologue scores and the number of peer interactions recorded for each child. None was found (Section 4, table 11:1)

Piaget's view of monologue was that it belonged to a stage of the child's development before it becomes a fully social person. This suggests, however,

that a negative relation should exist between instances of monologue and frequency of interactions with peers, which was not found in the present study.

A view of monologue as pre-social speech is clearly incompatible with ethological approaches which see the newborn as pre-adapted to communicate, and to define its individuality through relationships with others. Lock (1978) argued that there is continuity between pre-verbal social communication and language exchange, placing the origin of language in the interpersonal context in which all communication develops. No stage of language developed could be 'unsocialized' or egocentric in this view. Schaffer (1977) wrote: "...infants show a rapidly developing capacity for varied forms of communication... The notion originally advanced by Piaget, that children for the first few years of life are wholly egocentric in nature, must for certain be discarded."
If behaviour is defined as social when gaze is directed at another, as in this study, 'non-social' speech can certainly be observed in a pre-school group. The function of 'talking alone' as Smith and Connolly (1980) called it, is not yet clear from an ethological perspective. A descriptive approach, which also recorded the social context of monologue, would be interesting and informative.

This study of the social behaviour of children in local authority day care found no marked discrepancies between social development in this group, and in the many less deprived pre-school groups of which behavioural descriptions are available (for example Smith & Connolly 1980, Strayer 1980). The older children in the present study continued to relate closely to adult caregivers, probably in order to receive emotional support, and encourage in their cognitive development, which wasn't always available in their homes. Their relations with each other were also a real and increasing source of satisfaction to them, and they were able to deal with negative aspects of their experience, such as

aggression and violence, through these continuing and mainly positive
peer relationships. The staff at Day Nursery 1 tried to give the children
confidence in other members of the nursery community, and showed them how
to give positive social signals, and to develop relationships with others in
culturally appropriate ways. The children were almost always treated with
affection and respect by caregivers and were encouraged when they treated
peers in the same way. The researcher was impressed by the good quality of
the social environment provided for the children and considered that it
contributed greatly to their adequate social development. It seemed to
provide the stable, good quality care which Anderson (1980) regarded as
crucial in day care which helps a child develop its potential emotionally
and cognitively. Anderson, referred to Belsky and Steinberg's (1978) review
of research on the affects of day care, and noted their conclusions that
attachment to primary caregivers need not be disrupted nor dependency engen-
dered as a result of substitute care. But she emphasised that quality and
stability of caregiving must be high in day care to overcome the effect on a
child of daily separations from primary caregivers.

SECTION 6:   Introduction to Pilot Study

Attachment theorists writing in the late 'sixties and early 'seventies emphasised the crucial importance of a relationship with one primary caregiver to children's social development. In this view, day care provision for pre-school children, ahd the opportunity it gives to form relationships with adults other than parents, and with peers, is not of such vital importance to social development as the relationship with a primary caregiver.

Rutter (1972) argued, however, that a child's normal development is not as strictly dependent on its relationship with a particular caregiver as had been proposed during the previous 20 years. He showed that an infant's primary 'attachment' relationship did not differ in kind from relationships with other caregivers, as Bowlby had suggested it did, and that infants can develop normally under a wide range of care conditions. Tizard (1979), in a longitudinal study of children reared in residential nurseries, showed that 20 out of 25 children who were adopted 'seemed within 6 months or a year of leaving the institution to have formed a close, mutually affectionate relationship with their new parents'. Early experience with a number of caregivers had not prevented these children forming good relationships with their adoptive parents, and although Tizard indicated that they had some problems in relating to other adults and peers, she was optimistic that they would overcome these in time. Caldwell et al (1975) also showed that pre-school children cared for every day by a number of familiar adults in a nursery could develop faster than children of the same socio-economic class cared for at home. In general, investigation of the enabling conditions of normal social development during the last ten years has shown that these are not so limited as had been believed.

Nevertheless, it still appears that adequate relations with caregivers are among the enabling conditions of normal development, and that 'the essential human art of communication' (Newson 1978) is learned in these relationships. Mueller & Vandell, in their review (1979) of the literature on children's peer relations, showed that by 12 months they have normally developed the communication skills needed to make friends with each other - giving and taking objects, smiling, laughing and imitating each other. In Western culture, these skills develop in a child's first year within relationships with adult caregivers (Trevarthen 1974, Schaffer 1977). Lieberman (1976) also found that in a group of 3 year olds, 'security of attachment' to a primary caregiver was an important factor determining social competence in relations with peers three months later.

Current approaches to the child-caregiver relationship in developmental psychology tend to emphasise either the emotional closeness of the relation-ship, caused by the infant's dependence and the mother's pre-adaptation to nurture and protect it, or the importance of the relationship for developing and sustaining an infant's capacity to communicate with others.

Bowlby and Ainsworth (1952) emphasised emotional closeness between mother and child and its importance for later normal development. But they did not claim that the regular presence of a child's mother was enough to guarantee this. They argued that a child must be seen by its mother as ' an individual with integrity in his own right', and its development must also be a matter 'of real concern' to her. If these conditions cannot be met by a child's biological mother or mother-substitute, presumably there is a case for the child having access to auxiliary caregivers. Schaffer (1971), in a review of current problems in developmental social psychology, mentioned that the origin and development of a capacity to form lasting emotional bonds was not yet sufficiently understood. Schaffer and Crook (1978) argued that children

become members of the society into which they are born during 'the first year or two' of life, through interaction with those to whom the society gives responsibility for child-care. They saw no necessity for primary caregivers to be adult females, or biologically related to the child cared for. But they stressed that, in interactions with infants, caregivers must take most of the responsibility for structuring and sustaining social exchanges, and that infants need such support for normal social development.

Kohlberg (1969) regarded the nature of a child's relationship with its mother as determined by the stage the child had reached in its cognitive growth. He criticised the emphasis given by developmental psychologists at that time to children's physical and emotional dependence on 'attachment figures'. For Kohlberg, ' social bonds' are generated by 'experience of, and desire for, sharing and communication between selves.' This view seems closely related to that underlying, for example Trevarthen's later (1974, 1978) studies of infant-caregiver interactions, in which he stressed that 'human intelligence develops from the start as an interpersonal process.' Hinde (1979) also saw the child-caregiver relationship as a vital medium of social and cognitive learning for the child. Through this relationship, a child develops the capacities which allow 'understanding of the physical and social worlds in which others live' and taking over those worlds as locations for its own development.

Bernal (1974) however, noted that the concept of 'communication' between an infant and its caregiver has as yet no precise behavioural definition. It follows that to call infant-caregiver interchanges, and later peer interchanges, both 'communication' may imply a continuity between them which does not, in fact, exist. She also pointed out that the argument that particular social exchanges are essential to an infant's normal development,

and lack of them will affect its later behaviour, fails to specify what precisely is the relation between early exchanges and later development. Bernal wrote: 'The question of the relation of the interchange between mother and child to the acquisition of both social and cognitive skills remains wide open.'

Bernal's critique showed that basic concepts of developmental psychology, and the relations between them, needed clarification; and that first, more precise descriptions of the behaviour of children and caregivers in relationship were required. Since she wrote, much interesting research has been published in this area (McGurk 1978, Shaffer and Dunn 1979). Dunn (1976), in a helpful discussion of the relation of early experience to later development, formulated two questions which are addressed in recent research. These are, first, what is the contribution of the mother-child relationship to the necessary conditions for normal development; and secondly, how do variations in mothering affect later development. The first question suggests research designed to identify the necessary inter-personal conditions for normal development of communication skills and intellectual competence; the second suggests research designed to clarify the relations between detailed analysis of interactions and 'global clinical assessments' of a child, as developmentally 'normal'.

The pilot study reported here aimed, in general, to investigate the necessary interpersonal conditions for normal development of a child's communication skills and intellectual competence. In particular, it attempted to invest-igate the effect on social interchange between mother and child of the child being cared for in a day nursery, as opposed to at home.

Day nursery care gives a child experience of relationships with nonparental caregivers, which, as was shown in the first study reported here, may be

supportive of both emotional and intellectual development. It must, however, also disrupt the spatial link with its mother, which attachment theorists consider necessary to a child's normal emotional development (Anderson 1980).

It has been argued in recent research on children's peer relations (Foot et al. 1980) that social competence develops particularly in interactions with peers, because a child must take more responsibility for initiating and sustaining these interactions than would be necessary in an exchange with an adult. A child must also learn to give clearer social signals to peers than are necessary in an exchange with an adult. (Hartup 1978).

It was shown in the first study reported here that there was a significant increase in the frequency of the children's peer interactions, between the ages of two and four. If social competence is measured in terms of ability to initiate and sustain interactions, and give clear social signals, their competence increased during this period, and this was attributed by the researcher to regular interaction with familiar peers, as well as to the effect of maturation. This regular social exchange with peers, which increases a child's social competence, is part of the experience of day nursery care. But it may not be easily available to children cared for at home, where they may be relatively isolated from peers in a small nuclear family.

Blurton Jones (1974) discussed this possible isolation of pre-school children from their peer group and maintained that Leach (1968) had identified it, from an anthropological perspective, as being one of the present 'cultural problems of Western humans'. Blurton Jones speculated that children who have access to a peer group may grow up in a social environment which is closer to the human environment of evolutionary adaptedness than is the present Western nuclear family.

Vandell and Mueller (1980) argued that a child's relationships with caregivers and with peers form 'interdependent systems': that is, a child's experience and learning in one system will affect its experience and learning in the other. They emphasised that each system has unique qualities, and that both systems make an important contribution to a child's social development.

Children in day nurseries have access to auxiliary, non-parental caregivers, and may form relationships with them which are valuable in supporting their social and cognitive development. They also have access to a peer-group, of mixed ages up to five, which provides them with the kind of experience particularly likely to increase their social competence. If this rich social experience has the effect of supporting a child's social development, it should be possible to measure this effect on the child's interchanges with its mother.

Children cared for at home may not have access to such a rich social experience as those in day-care, particularly if they live in poverty, their primary caregivers are under stress, and their housing is unsuitable - a flat in a tower block, for instance. But their spatial and emotional link with their primary caregivers will not be broken by daily separations from them, as it is when a child goes to the day nursery. If this close link with a primary caregiver has the unique importance to normal development which attachment theorists suggest it has, it should be possible to measure some effect of its preservation on the child's interchanges with its mother.

The pilot study reported here attempted to describe some affects of day nursery care as opposed to home care on the social development of the children observed. As has been clearly argued by Hinde (1979) among others, the social development of an individual cannot be described except in terms of

that individual's relationships with others. Hinde emphasised that
'children's social and cognitive development depend on the changing
pattern of relationships in which they are involved', and showed that a
researcher may make a methodological error in attempting to assess the
effect of a variable - for example, maternal sensitivity - on a child's
social behaviour. The variable may affect the child's behaviour in one way
during social exchanges with its mother, and in another way during exchanges
with its father (Main and Weston 1981). In other words, differences in a
child's experience affect its relationships with others, not its behaviour
as an isolated individual.

The researcher must, therefore, develop theoretical and methodological
ways of understanding and describing relationships. Hinde offered an
operational definition of a relationship as 'interactions between familiar
people on a time base'. He noted that the sequence of events in an
interaction is of great importance to a description of a relationship.
For example, a kiss succeeding a fight in an interaction sequence will
have different consequences in a relationship from a fight succeeding a kiss.
Research should aim to describe the content and the quality of an interaction:
that is, the actions and reactions of the participants, and their own inter-
pretations of the meaning of the exchange.

A particular interaction, which is part of a relationship, has many levels
of meaning, as Hinde showed. The relationship itself also has both a
personal meaning for the participants, and an ideological and possibly
an economic significance in the particular social formation being studied.
The mother-child relationship, which has been studied here, has a personal,
an ideological and an economic significance for the participants and others.
Hinde also noted that a relationship is more than the sum of the characterist-
ics and actions of those participating in it. Both relationships and inter-

actions of each dyad will have consequences for the relationship.

A second dimension consists of the qualities of interactions: the intensity with which actions are performed and signals given; the character, frequency and patterning of verbal and non-verbal communication between the participants in a relationship, and whether their interactions are smoothly co-ordinated.

Interactions within a relationship were described by Hinde as either complementary or reciprocal: that is, the participants may play roles, such as those of criminal and judge, which complement each other; or they may exchange behaviours reciprocally, as when two people who live together take it in turns to cook supper. A relationship will usually consist of both complementary and reciprocal interactions. The mother-child relationship studied here was, however, characterised by Hinde as predominantly com

_ He stressed the difference between the cognitive capacities of the participants, and argued that few of their interactions are reciprocal , particularly when the child is under a year old. Schaffer and Crook (1978) also emphasised the greater responsibility of the caregiver for initiating and sustaining interactions with an infant, which at first has little control over the patterning of its communicative behaviour, and has difficulty in co-ordinating it with that of another.

Hinde noted that relationships can be described as of varying degrees of intimacy, and that the degree of intimacy of a relationship depends on the content of interactions and their intensity. He also saw interpersonal perceptions as important in relationships. These can be investigated by, for example, asking the participants how they would rate each other in terms of certain characteristics, then comparing their ratings with those of other perceivers. Participants in a relationship can also be asked whether they feel their partner understands and appreciates them. Finally, Hinde

noted that relationships are characterised by varying degrees of commitment, on the part of the participants, to maintaining the relationship.

Hinde argued that many of the events in relationships can be understood in terms of positive or negative feedback. To take a child-caregiver relationship as an example, positive feedback could operate to increase the frequency of a parent's nurturing behaviour at a time of special difficulty for the child,when it makes extra demands on the parent. If the relationship were a functional one, serving the interest of both participants, negative feedback would operate after sufficient support had been given, to decrease the frequency of parental caring behaviour and allow the child to resume its development towards independence. Hinde wrote: 'mutuality is inherent in the relationships with which we are concerned: each partner is seen as continuously or intermittently influencing the other'. Hinde's framework, therefore, is that of systems theory, which has been usefully employed recently by many workers as a theoretical basis for the description of human relationships (Bateson, 1972, Minuchin 1979). As Lewis and Rosenblum (1974) wrote: 'not only is the infant or child influenced by its social, political, economic and biological world, but in fact the child itself influences the world in turn.'

Brim (1975) also emphasised that developmental psychologists should not isolate the children they study from their 'macro-environments', which include the neighbourhood, the requirements of their parents' work, the transport facilities available, chid-care and welfare arrangements, and the national social and economic policies that bear on the lives of children and parents. Bronfenbrenner (1979) noted that ecologically valid studies of children must take into account the fact not only that the child changes developmentally, but both the smaller and the larger social systems in which it lives also

change; and that these changes affect the changing life of the child.
Developmental psychologists should acknowledge that their discipline
does not have impermeable boundaries, but leads directly to sociology
and anthropology.

It has been argued that a child's social development can be understood
only in terms of its relationships, and the pilot study reported here
aimed to evaluate the social development of two groups of children, in
terms of some characteristics of their relationships with their mothers.
Clearly, however, any attempt to describe and evaluate characteristics of
a child-caregiver relationship must be based on assumptions about the
function of that relationship. Particular relationships observed will be
described and evaluated in terms of their adequate or inadequate perform-
ance of the functions they are assumed to have.

The character and function of the child-caregiver relationship are variously
understood at present in developmental psychology. But in Hinde's terms,
many workers assume that its character should change developmentally from
that of a predominantly complementary, towards that of a predominantly
reciprocal relationship. This gradual change in the character of the
relationship functions to give a child decreasing support and increasing
autonomy as it grows towards social maturity.

Brooks-Gunn and Lewis (1978) approached the question of children's relation-
ships from the standpoint of their cognitions about them, which they called
the children's 'social knowledge'. This knowledge develops in relationships
with others, where people are first distinguished from things, and the
infant comes to classify itself as a person. They suggested that persons
may be further classified in terms of familiarity, age and gender, but
noted that to date not many research findings were available dealing with the

social meaning and function of the persons with whom a child has
relationships. They proposed five areas, however, in which relationships
might have important social functions for children: these are protection,
caregiving, nurturance, play, and exploration/learning.

Youniss, (1978) in a discussion of the concept of social development,
argued that child-caregiver relationships should be studied in terms of
the rules governing interchanges between child and caregiver, and
regulating for instance who may initiate an interaction, when, and how.
In his view, this approach is likely to give more useful results than
that of categorising child-caregiver relationships in terms of dimensions
such as warm-cold, or authoritarian-permissive.

Blurton-Jones and Leach, in an early critique (1972) of attachment theory,
noted that ethologists assume that there will be change in the behaviour
of young members of a species, which will develop from less to more mature
forms. Leach (1972) studied relationships between mothers and normal child-
ren of different ages, and also 'problem' children who were known to have
difficulty in separating from their mothers. She found that younger
normal children and older problem children showed some similar behaviours
in relation to their mothers, which she took to indicate that the problem
children had relationships with their mothers which were inappropriate in
some respects to the children's chronological age. These workers appeared
to be using a theoretical framework similar to that formulated by Nagel (1957)
in a discussion of the concept of maturation, which he understood as 'changes
(which) eventuate in modes of organisation not previously manifested in the
history of the developing system, such that the system acquires an increased
capacity for self-regulation, and a larger measure of relative independence
of environmental fluctuations.'

The pilot study reported here attempted to describe the social development of the children observed in terms of some characteristics of their relationships with their mothers. These characteristics were frequency of physically supportive interchanges, frequency of physical co-operation in a task, and frequency of supportive interchanges (exchange of smiles or words) which did not remove the child from its activity. It was assumed here, as it was by the workers quoted above, that in a non-threatening situation, where there is an activity of interest to a child, the more mature form of interchange with its mother is the form which gives support to the child's activity without interrupting it. Bruner (1974b) emphasised the importance of such support, which sustains the child's exploration and learning, to the development of its potential as a competent individual.

SECTION 7 :   METHOD OF 'RECIPROCITY' PILOT STUDY

The pilot study was intended to provide a description of some of the
interactions between children and their mothers, during a twenty minute
period which they spent together in a particular situation designed by
the researcher.   The aim of the study was to derive inferences, from
the frequency with which certain kinds of interactions took place between
mother and child, about the nature of their relationship.

The study also aimed to compare the relationship between children and
their mothers, when the children were cared for at a local authority day
nursery, and when they were cared for at home.   Accordingly, 2 small
groups of eight 4 year olds, in which the sexes were equally represented,
were chosen for observation (Appendix 2: tables 1 and 2).

Because of the small number of children involved (only 16 in all) this study was
seen as a pilot study which might serve to inform further research.   At the
time it was impossible to find any more 4 year olds in the district who had
been offered a day nursery place but had not yet taken it up.   4 year olds
were chosen because, in the district where the study was carried out, child-
ren begin school in the September after their fourth birthdays.   Tizard and
Tizard (1974) and Caldwell et al. (1975), also Schwartz, Krolich and
Strickland (1974) indicated that,for children from deprived families,
nurseries can provide a better opportunity for the development of a child's
competence (Bruner 1974b) than its home is able to offer.   If day nursery
care had provided such an opportunity for one group of children in the
present study, 4 year olds who had been coming to the nursery since they
were 2 would have attained a degree of competence which would allow them
a reasonably equal start in school with children from less deprived homes.
The study aimed to compare the competence of the children in day care with
that of children cared for at home, using their ability to engage with a

a new play material as a measure.

Mueller and Vandell (1980) argued that peer relationships are particularly important to the development of pre-school children's social competence. Again, if day care allowed the children more access to a sizeable group of peers than was available to children cared for at home, 2 years' experience at the day nursery would have given the day care group an advantage in social maturity. The researcher reasoned that, if the nursery children were more socially competent, this would be reflected, and could be described, in terms of some of the characteristics of their relationships with their mothers.

The particular situation in which the children and their mothers were observed, was designed by the researcher following some suggestions of Leach (1972). Leach compared the frequencies of various behaviours which she observed in 2 groups of children, a 'normal' group and a group of 'problem' children, who had difficulty in separating from their mothers. Difficulty in separating was considered by Leach to be a measure of social immaturity, and, in support of this contention, she reported that the behaviour of the problem group was similar in some respects to that of a group of 'younger normals'. Leach noted her impression that the problem children made maintaining physical contact with their mothers a priority, to the extent that they could not commit themselves to the sort of play activities which develop competence in Bruner's sense. She described such children '.....sitting beside mother with one hand resting on her knee, whilst trying to play with a puzzle with the other hand; or asking mother what to do, or to get something which the child could easily get himself'.

These remarks of Leach's suggested that an essessment could be made of children's social maturity, as reflected in their relationships with their mothers, in a situation where mother and child were observed together, and

the child was presented with some new and interesting play material.
The study, therefore, aimed to observe whether a child was able to sustain
its exploration of and play with the material, deriving sufficient support
for its activity from its mother's presence and verbal encouragement,
without having to interrupt the activity to contact her physically.

The day nursery group of children observed in this study were all
cared for at Day Nursery 1 (See Section 3). As 4 year olds, they spent
the day in Room A. They had all been coming to the day nursery since the
age of 2 (Appendix 2: table 1).

The researcher planned to identify a group of children cared for at
home, whose social environments were comparable to those of the day nursery
group. The most important difference between the environments of the 2
groups of children was then assumed to be that between day nursery and home
care. It was, therefore, proposed to argue that statistically significant
differences between the frequences of certain kinds of child-mother inter-
actions in the two groups could be attributed to the effect of this variable,
of day nursery as opposed to home care.

The researcher experienced considerable difficulty in locating a group of
eight 4 year olds who lived in sufficiently similar social environments to
those of the group at Day Nursery 1, but were being cared for at home. With
the generous co-operation of the Social Services Department of the local
authority, however, a group of children (Appendix 2: table 2) were observed
who had been referred to them as in need of a day nursery place. A place,
or the necessary transport facilities, had not been available for these
children until shortly before the date of the observation. When it had been
finally arranged for a child to go to a nursery, the researcher accompanied the
social worker on a visit to its home, before its introduction to the nursery.
The mother's permission was then asked to observe her and her child for 20 minute

in the set situation. All the mothers visited seemed to have friendly
and trusting relationships with the social worker. They were all prepared
to accept the observer as someone associated with, and vouched for, by
their social worker, and all gave permission.

The day care group (Appendex 2: table 1) were all observed at Day Nursery
1, at a time when their mothers had half an hour to spare after bringing
their children to the nursery, or when collecting them. The Officer in
Charge of Day Nursery 1 introduced the observer to the mothers of the
day care group, who seemed similarly prepared to accept her as part of an
institution they respected, and which respected them. A spare room was
also generously made available for the observation sessions, which took
place between June and September 1980.

A period of 20 minutes was fixed in which each child-mother dyad was to be
observed. It was considered that this was the longest period for which the
mothers could be asked to participate and for which the observer could
concentrate her attention sufficiently. The longest practicable observation
period was used, because a child-mother relationship was to be described.
This is a highly complex phenomenon (Hinde 1979) which, in the case of the
present study, already had a considerable history of developmental change,
since the mean age of the children was 51 months. The whole of this unknown
history contributed to the state of the relationship at the time of observ-
ation. Its state was also influenced by the current preoccupations of both the
participants, events in the home environment, the community, and the society.

The observer of such a relationship inevitably chooses an arbitrary point of
entry into it, and is usually unable to give any account, beyond the most
general, of the current social and personal contexts of the participants.

The observer's presence must also change the social context of the relationship observed, and affect its characteristics, as they are manifested during the observation period (Hinde 1979).

These problems are an acknowledged part of the method of non-participant observation. In the present study, one attempt to mitigate their effect on the data was the choice of the longest practicable observation period. It was hoped that 20 minutes would allow time for currently important features of the relationships to emerge, and for the mothers to relax in the presence of the observer.

A particular problem of the present study, was that all the children in the day care group were already familiar with the observer. Some, but not all, of the mothers in this group had also seen and spoken to the observer in the nursery before the date of the observation. On the other hand, none of the children or mothers in the home care group had ever seen the observer before.

An attempt was made to let the observation period be an interesting and pleasant occasion for the three participants. The observer explained to the mothers in both groups that she wished to observe how their children would use the play material, and indicated that one particular approach to it was not desired, but that her interest was in individual differences. She also spoke to and smiled at both child and mother, apart from during the standardised briefing for the observation session(Appendix 3).

Each mother was shown the coded data sheet used to record behaviours, and informed that items of behaviour were ticked on the sheet if they occurred. One item 'construct' (see behaviour check-list below) was decoded as an example of a behaviour to be recorded. The play material was a constructional toy; and the researcher reasoned that all the children would engage in this

behaviour spontaneously at least to some extent. The mothers would not,

therefore, feel obliged to influence their children to produce the

behaviour, because it was known to be on the checklist. On the other

hand, having been shown the data sheet, they would understand what the

observer was doing, and, it was hoped, therefore feel more at ease.

The standardised briefing ended with the words....'just behave as you would

if you and N. were playing on your own together'.

Interesting, attractive, and flexible play material was vital to this study,

since it aimed to describe the children's competence in terms of their play

attention-span (Tizard et al. 1976). No study of pre-school group play has

recorded 20 minute periods of one sustained activity in 4 year olds

(Smith and Connolly 1980); Stodolsky (1974) reported that the average length of

'activity segments' of 4 year olds was 6.5 minutes. Tizard et al, however,

argued that free activity in the pre-school group does not encourage con-

centration on one activity, and children may not make use of their full

capacity to sustain interest when in this context. The present study

included, in the checklist of behaviours to be recorded, the 2 items

'rejects play material' and 'other activity' (than engaging with the play

material) (see checklist below). The relatively long observation period,

possibly much longer than the attention span of the children, was necessitated

by the intention of the study to evaluate some aspects of the mother-child

relationships observed.

The play material chosen was considered to be attractive, interesting, and

suitable for both simple and complicated projects, according to the ambitions

of the user. It consisted of a railway layout made entirely of wood, with a

large number of straight and curved sections of track, and various kinds of

points. These linked together by means of the system used in jigsaw puzzles,

where a projection on one piece keys into an indentation in the next. There

were 2 engines, with separate trucks and coaches which could be
connected by means of large hooks and eyes, two different bridges, trees,
the components of a station, people, animals, and a ferry boat which could
carry the train. All the components were either plain pine or brightly
painted, and were packed in a box which all the children wanted to open
immediately.

After meeting the child and its mother, and the standardised briefing
session, the observer placed the box on a clear area of floor, and asked the
child: "Would you like to play with the train?" (There was a picture of a
train on the lid of the box). The observer then withdrew to a seat outside
the triangle formed by the child, its mother, and the play material, and
become occupied with the data sheets.

The behaviours of interest in this study were recorded on four data sheets
for each dyad, each of which sheets covered a period of five minutes. The
sheets were numbered 1 - 4 for each dyad, so that the sequence of behaviours
recorded during the 20 minute observation session was evident, giving a
'running commentary' record like those made in the first study.

Each data sheet was divided into sixteen columns, in each of which a part-
icular behaviour of interest was recorded with a tick when it occurred.
The sheets were also divided horizontally into rows, each of which represented
a period of 15 seconds. They were thus covered by a grid, each square of
which was divided diagonally. A tick in the top part of a square represented
a certain behaviour produced by the observed child during a certain 15-second
period of observation time; a tick in the bottom half represented behaviour
produced by the mother.

The method of recording gave both a record of the frequency of behaviours,
and of their sequence. For instance, the records showed how many questions

a child asked altogether during the observation session, and whether a
mother answered a question during the 15 second period in which it was
asked, during the next 15 seconds, or not at all.

The study employed a checklist of behaviours which were of interest, and these
were divided into three categories. The first category was of so-called
'attachment' behaviours, which were recorded in three columns. The first
behaviour was 'touch' which could be recorded for child, mother or both.
The second was 'climb/hug' which indicated that the child sat on its
mother's knee, and that she put one or both arms around it. The third was
'cry/response'.

The second category of behaviours of interest was that of 'activity'. Six
'activity' behaviours were recorded, four of which described behaviour
related to the play material. These were: 'orients to toy', 'experiments
with toy', 'construct' and 'deconstruct'. Examples of behaviours in these
categories were, taking things out of the box and looking at them; arranging
them in categories; assembling or arranging components; and taking components
apart or re-arranging them. All these behaviours were recorded for both
children and their mothers.

Two other 'activities' were also recorded: 'rejects toy' and a broad category
'other activity' which was defined as occupations unrelated to the play
material.

The final category of behaviours of interest consisted of verbal communications.
First, a broad category of behaviour 'talk'was recorded for mothers and children,
if what they said was not recorded in the other six columns in this category.

The other six columns were used to record three kinds of utterance produced
by children: 'asks questions', 'asks help', 'asks attention'; and three kinds

of utterance produced by mothers: 'makes suggestion', 'gives encourage-
ment', 'makes criticism'. If a tick appeared in the mother's space in the
first three of these columns, it indicated that she responded to her
child's request.

All the behaviours on the checklist were chosen to provide a description,
in terms of their frequency, of a child's ability to sustain its interest
in the play material, or of the relationship between a child and its mother.

In the pilot study, observation and categorisation of the social behaviour
of the children and their mothers was again the work of only one researcher,
and this gave rise to the same problem as existed in the sociability study,
that no measures of inter-observer agreement on behaviour categories could be
established.

The researcher again used categories of attachment behaviour which had been
used by other workers in the field, mainly in this case by Leach (1972) on
whose work the pilot study was based. But the categories of behaviour
defined as 'activities' (see checklist below) and the 6 varieties of utter-
ance which were distinguished within the broad category 'talk' (Smith and
Connolly 1980) were defined by the researcher for the purposes of this pilot
study. One category was, in fact, never observed. No measures of inter-
observer reliability could be established for these behaviours, nor could
results be compared to those of other studies. These problems, together
with the small numbers of children and mothers observed, made it essential that
the study be regarded only as a pilot study which might indicate some
fruitful directions for further research.

The checklist of behaviours used in the observations appears below.

CHECKLIST BEHAVIOURS FOR 'RECIPROCITY' PILOT STUDY

'ATTACHMENT' BEHAVIOURS

'Touch':   voluntary contact of hand, arm or body with hand, arm, body or head of another (See Leach 1972)

'Climb':   child rests some, or all, of its weight on mother; one or both feet lifted off the ground (See Leach 1972)

'Hug':   Child touches mother; Mother places one or both arms around child (based on Leach 1972).

'Cry':   face puckered (Blurton Jones 1967) with accompanying vocalisations.

'Respond to cry':   mother moves towards child (based on 'mother approach' category used by Blurton Jones and Leach(1972))

'ACTIVITIES'

'Orients to toy':   look at, touch, or show play material to mother/child.

'Experiments with toy: mother/child occupied with play material (excluding building or demolishing).

'Construct':   join components, or place them in relation.

'Deconstruct':   take apart components, or change their arrangement.

'Rejects toy':   turn away from or push away play material.

'Other activity':   activity not involving play material.

'UTTERANCES'

'Talk':   any utterance containing one or more recognisable words (Smith and Connolly 1980)

'Asks help':   e.g. 'Will you put this on for us?'

'Asks attention':   e.g. 'Look at this, Mam':

'Asks question:'   e.g. 'What do you do with it?'

'Gives encouragement': e.g. 'Ee, that's lovely, Donna'.

'Makes suggestion':   e.g. 'Push it a bit more that way'.

'Makes criticism':   no example observed.

SECTION 8: RESULTS OF 'RECIPROCITY' PILOT STUDY

The frequencies with which 3 categories of the children's behaviour were observed in the day care and home care groups were compared, using the Mann-Whitney 'U' test.

A significant difference was found in the frequency with which 'attachment' behaviours were observed in the 2 groups. The home care group showed significantly more of this behaviour, as defined for the purposes of this study (p = .01, N = 16, Table 12:1)

No significant difference was found in the frequencies with which 'activity' and 'verbal communication' behaviours were observed in the day care and home care groups (Table 12:1).

Effect of 'day care' condition versus 'home care' condition on frequency of 3 categories of children's behaviour during a 20 minute observation period

TABLE 12:1

Rank	Day Care	Home Care	Day Care	Home Care	Day Care	Home Care
	Child's activity score		Child's 'attachment' score		Child's verbal score	
1	81	91	15	16	105	102
2	81	83	12	15	103	91
3	80	78	3	14	91	87
4	67	67	1	13	81	85
5	45	57	1	12	78	75
6	45	52	0	10	73	72
7	36	48	0	8	71	63
8	32	35	0	4	50	58
M	58.4	63.9	4	11.5	81.5	79.1

N = 16

The Mann-Whitney 'U' test was also used to compare the frequencies with which three categories of interactions between the children and their mothers were observed in the day care and home care groups.

A significant difference was found in the frequency with which 'attachment' interactions were observed in the two groups. The home care group of children and mothers had significantly more 'attachment' interactions, as defined for the purposes of the study, than the day care group (p = .002, N = 16, Table 13:1).

No significant difference was found in the frequency with which 'activity' interactions were observed in the two groups (Table 13:1).

A significant difference was found in the frequency with which verbal exchanges between the children and their mothers were recorded, in the day and home care groups. Significantly more of these exchanges took place between the mothers and children of the day care group (p = .047, N = 16, Table 13:1)

TABLE 13:1
Effect of 'day care' condition versus 'home care' condition on frequencies of 3 types of interaction between children and mothers during a 20 minute observation period.

Rank	Day Care	Home Care	Day Care	Home Care	Day Care	Home Care
	joint activity sequences		'attachment' exchanges		verbal exchanges	
1	31	30	5	9	47	39
2	18	29	2	7	42	31
3	17	16	1	6	40	29
4	13	11	0	5	39	19
5	9	9	0	4	33	18
6	6	6	0	4	28	17
7	1	1	0	3	24	11
8	0	0	0	1	7	0
M	11.9	13	1	4.9	32.5	20.5

N =

The frequencies with which the children in the two groups asked questions
of their mothers were also compared, using the Mann-Whitney 'U' test.
No significant difference was found between the frequencies of children's
questions in the day and home care groups (p = .32, N = 16, Table 14:1).

The number of times the children in the two groups asked for help from
their mothers did not differ significantly. There were 36 requests for
help in the day care group and 50 in the home care group.

The frequency with which the mothers in the two groups made suggestions
to their children did not differ significantly (p = .39, N = 16, Table 14:1).

A significant difference was found, however, in the frequency with which
mothers gave help without being asked for it, to the children in the day and
home care groups. Mothers were more likely to help unasked in the home care
group (U = 16, P > .05: table 14:1).

TABLE 14:1

Effect of 'day care' condition versus 'home care' condition on frequencies
of 3 categories of social behaviour during a 20 minute observation period

Rank	Day Care	Home Care	Day Care	Home Care	Day Care	Home Care
	Child's questions		Mothers' suggestions		Mothers help unasked	
1	11	4	44	47	19	26
2	8	3	33	41	13	24
3	7	2	32	22	10	20
4	5	2	32	21	5	18
5	4	1	25	21	5	15
6	1	1	16	19	1	7
7	1	0	15	13	0	4
8	0	0	7	12	0	0
M	4.6	1.6	25.5	24.5	6.6	14.2

N = 1

A Mann-Whitney 'U' test to compare the mean frequency of verbal exchanges
in the day care and home care groups showed a significant difference between
the groups (U = 5: p = 0.001, see Table 15:1 below).

TABLE 15:1

Frequencies of conversational exchanges between children and mothers
in the day care and home care groups

(See p. 121 para. 3 for definition of a 'conversational exchange.')

	RANK	DAY CARE	HOME CARE
	1	168	138
	2	164	121
	3	154	104
	4	·150	95
	5	148	84
	6	127	83
	7	124	77
	8	97	64
N = 16	M	141.5	95.7

More conversation between children and mothers was recorded in the day care
than in the home care group.

SECTION 9:   DISCUSSION OF RESULTS OF 'RECIPROCITY' PILOT STUDY

The pilot study reported here was an observational study of children and their mothers during a 20 minute period in a particular situation. First, the frequencies of 3 categories of behaviour by the children were recorded, which were broadly called 'activity', 'attachment behaviour' and 'verbal communication'. Behaviours in these three categories had been previously defined as behaviours of interest in the study and had been included in the checklist. The study aimed to compare the frequencies of these behaviours recorded in 2 groups of children, one group in regular day nursery care, and one group cared for by their mothers at home.

The mothers and children (16 dyads) who were observed in the study had in common that the Social Services Department of the local authority judged them to be in need of social services support, in the form of day nursery place for the child. On this basis, it was assumed that the social environments of all the mother-child dyads were comparable.

Eight of the children observed had been cared for regularly at the day nursery for 2 years or more; and eight had not yet taken up their day nursery places. It was further assumed, for the purpose of the study, that this difference in the social environments of the children was one of major importance, and that it would have determinant effects on some aspects of their behaviour.

The social environment of any individual is complex and extensive (Harré 1974) and clearly this study did not give an adequate account of those of the children and mothers observed. At the present stage of studies of social development, however, assumptions about the social environments of children such as were made in this study are made quite

frequently. Tizard and Tizard (1974) for instance, compared various aspects of the behaviour of a group of children living in residential nurseries, with behaviours of a group of 'normal working-class children living at home'. They assumed that the 'normal working-class homes' were comparable environments, and that these environments could have determined effects on performance in tests of verbal intelligence, and on toilet training, thumb sucking, and other behaviours.

The first aim of the present study was to evaluate the effect of a years' day nursery experience on the competence of the children. This was defined in terms of a relatively high frequency of the 4 checklist behaviours which denoted engagement with the play material.

The frequency with which the 4 so-called 'activity' behaviours were observed did not differ significantly in the day care and home care groups of children. All the children observed played with the train almost con- tinuously throughout the observation period, and none of them spent any significant proportion of the time in other activity.

The study assumed that attending to and experimenting with the play material and building and rebuilding activities, sustained during the 20 minutes of the observation period would be indicative of a child's capacity for 'elaborated play' which for Bruner (1980) is a measure of competence.

Bruner (1974b) discussed his definition of this concept in a paper on the organisation of early skilled action. Like Piaget (1977), he proposed that certain basic operations are used by children in developing skills, and that abstracted, symbolic forms of the same operations underlie all intellectual development. Competence for Bruner,therefore, means a person's capacity to relative in an adaptive way to her or his physical and social environment.

During the first year of life, he argued that a child achieves competence in '5 broad enterprises': attending and perceiving, manipulating the environment, interacting with other people, locomotion and feeding. The present study aimed to describe the developing competence of 4 year olds in the first 3 of these 'broad enterprises', by giving them an opportunity for elaborated play, during which they could interact with their mothers.

Bruner argued that the development of competence by a child requires sensitive social support from adults. The child must be'....encouraged to venture (or at least not discouraged), rewarded for venturing his own acts, and sustained against distraction or premature interferences when carrying them out....The controlling motif of skill acquisition.....is opportunity to initiate and sustain action....and carry out intentions'. (1974b).

Social policy makers who argue that day nurseries should be provided in 'areas of special social need' (D.E.S./D.H.S.S. 1975), generally state that one of their functions is to offer this kind of opportunity to children, whose primary caregivers may not be able to provide it. At the time that this study was carried out, 11 of the 16 children observed were living with a single parent, and virtually all their parents had serious social problems. Bruner (1974b) noted that 'cultures of failure', which result from continued experience of poverty, cannot allow the competence of children born into them the support and encouragement it needs to develop fully.

It would not, therefore, have been unexpected to find that the children in the day care group showed more competence in terms of elaborated play sustained for a 20 minute observation period. 20 minutes is more than 3 times as long as the average attention-span recorded for 4 year olds during free

activity in a pre-school group (Smith and Connolly 1980). The present study showed, however, that all the children, both those cared for in the day nursery and those cared for at home, sustained their interest in the play material provided for 20 minutes. Only negligible frequencies of the behaviour categories 'rejects play material' and 'other activity' were recorded in either group.

This result gave an encouraging picture of the competence of this severely deprived group of 4 year olds, and supported Bruner's (1974a,b) contention that children actively promote their own cognitive development, given the opportunity. He emphasised the difference between his view of an active child, which promotes its own cognitive development with 'affective critical support from caregivers, and views which suggest that children need 'enriched' environments, in order to escape 'deprivation'. Such formulations, he pointed out, assume that children are passive, and that their development is a function of environmental stimulation.

The present study defined competence in terms of sustained engagement with play material. This was a relatively crude measure of elaborated play. The 4 categories of behaviour which denoted engagement with the play material were also broadly defined, (See Checklist, Section 7), and covered many different approaches made to it by the children who were observed. Some built very interesting and elaborate layouts, some played imaginative games with the trains, some related them to experiences they themselves had had with rail travel, some were interested in the components of the toy, and spent time sorting them into categories or playing with them separately. It appeared possible that a more detailed analysis of the children's activity might have revealed some differences in competence, in terms of the ability to elaborate play, between the day care and home care groups. In the terms of the study, however, the major conclusion which could be drawn was that all the children

had the capacity for sustained cognitive ventures, and could very much

enjoy them if given a supportive social setting.

Both Bruner (1980) and Tizard et al. (1976b) made the point that children's

cognitive capacities are rarely stretched in a free play situation. Bruner

(1980) observed that the 'best social setting for elaborated play is the

pair.....And for the older children, playing with an adult is even more

stimulating than being with another child'. Cohen and Tomlinson-Keasey

(1980) also found, in observations of children's play with peers and mothers

in the home, that the mother's presence facilitated 'sustained attention to

a play object'.

In the present study, it seemed that the presence of a child's mother,

whose interest in its activity was supported by the observer's presence,

and attractive play material over which the child had sole control, combined

to give an excellent social setting for elaborated play in 4 year olds.

This was particularly clear in an individual case.

One of the day care group was a boy referred to the nursery originally because

of non-accidental injury by his father, who was said by the psychiatric ser-

vice to be psychotic. The child's rate of activity change in the nursery was

rapid enough to be a problem, and a member of the staff often needed to give

him her whole attention in order to involve him in an activity for 5 minutes.

After one term, he was unable to continue in his infant school, and became the

youngest child to be labelled 'maladjusted' in the area. He had no difficulty,

however, in attending to the play material throughout the observation session.

'Activity' interactions of the mother-child dyad were also recorded in the

present study, in order to provide a measure of co-operative activity in the

dyad. Such an interaction was recorded if both a child and its mother mani-

fested one of the four 'activity' behaviours during the same 15 second

recording interval. No significant difference was found in the frequency with which these interactions were observed in the day and home care groups (Section 8: Table 13:1).

The frequency with which co-operative activities were observed in the mother-child dyads was low, relative to the frequency of verbal exchanges (Table 13:1). Although this was generally true of both groups,it did not apply to several individual mothers (one of whom was physically handicapped, with immobile fingers) who played with the train almost as much as their children. It seemed appropriate, however, that in general mothers of 4 year olds should have more reciprocal verbal exchanges with them, than complementary or reciprocal interactions involving activity with a toy.

The study recorded the frequency of 3 'attachment' behaviours directed by the children to their mothers during an observation session (See checklist in Section 7). The hypothesis to be investigated was, that if daily separation from their mothers had caused anxiety in the day care group of children, a higher frequency of attachment behaviours would be observed in this group, perhaps particularly when it was seen in the day nursery, where separations usually took place.

A significant difference was found,in the frequency of attachment behaviours, between the children in the day and home care groups (p = .01, N = 16, Table 12:1). But a significantly higher frequency of these behaviours was observed in the home care group.

'Attachment' interactions between mother and child were also recorded, when both showed attachment behaviours during the same 15 second recording interval. A significant difference was also found between the day and home care groups, in the frequency of these interactions, which was higher in the home care dyads (p = .002, N = 16, Table 13:1). This result indicated that the mothers of the home care children were responsive to their higher rate of attachment behaviours

and reciprocated by maintaining spatial proximity, and having physical contact with them.

A serious methodoligcal problem which arose in this study, however, made interpretation of the results difficult. The day care group were all observed in the day nursery, during the negotiations involved in locating the home care group. After the day care observations were completed it became clear that the home care group could not be observed at the nursery as originally planned, because 5 of the children were to come by community transport and their mothers would not accompany them. It was, therefore, impossible for the observation sessions, otherwise uniform, to be conducted in the same environment; the home care group were all observed at home.

This difference in the environments in which observations were made might well have affected the frequency of the children's attachment behaviours, and of attachment interactions between children and mothers. Attachment theory, however, predicts that attachment behaviour will be elicited in unfamiliar rather than in familiar environments.

It therefore seemed arguable that the relatively high frequency of attachment behaviours and interactions observed in the home care group was not necessarily attributable to the environments where the observations were made. Borduin and Henggeler (1981) in a study designed to find determinants of mother-child interaction patterns, found that experimental settings did not affect interaction, though tasks did.

Maccoby and Masters (1970) reviewing the literature on attachment behaviour, wrote: 'the scraps of information that we do have point to a decline in proximity-seeking (after 3), with attention-seeking and approval-seeking maintained at a constant level or increasing'. The findings of the present study were in agreement with this summary. Neither groups of children and mothers showed a high frequency of attachment behaviours and both showed a

relatively high frequency of verbal exchange (Table 13:1) which included much attention and approval seeking on the part of the children, and many expressions of approval and attention from their mothers.

The statistically significant difference between the day care and home care groups, in the frequency of attachment behaviours and interactions observed, must be interpreted cautiously, because the two groups were observed in different environments. It could, however, be interpreted as support for the hypothesis that day nursery experience increases social maturity, rather than the hypothesis that it increases separation anxiety, and thus attachment behaviour and interactions. Clarke-Stewart and Hevey (1981) made repeated observations of the same mother-child dyads when the children were between 12 and 30 months, and found that mother-child physical contact and proximity declined during this period, especially in children they classified as being 'securely attached'. Vaughn, Grove and Egeland (1980) found that out-of-home care did not correlate with 'anxious attachments' to the mother if started after 12 months. Day Nursery 1 did not take infants under 12 months.

Many workers have argued (Blurton Jones 1974, Mueller and Vandell 1979, Bruner 1980) that experience in a mixed age peer group is of great benefit to children's social development, because some aspects of social competence are acquired, particularly in peer relationships, and can then affect relationships with caregivers. The first study reported here also suggested that children in local authority day nurseries may derive much support from the nursery staff for their social development. It, therefore, seemed possible that the day care group in the present study had more mature relationships with their mothers. It appeared unlikely that the lower incidence of attachment behaviours in this group indicated that mother-child relationships were less close or less rewarding, because the mothers showed

a comparable level of co-operative activity with their children, and had
more verbal communication with them than was observed in the home care
group.

This study found no significant difference between the children in the
day and home care groups, in the frequency with which the behaviour cat-
egory 'utterance' was observed. (See checklist in Section 7). Table 12:1
shows a very similar 'verbal score' for both groups. But the mother-child
dyads of the day care group had a significantly higher frequency of verbal
exchanges (Table 15:1) than those of the home care group.

Verbal exchanges were defined for the purpose of this study, as occurring
when a child and its mother both made a verbal communication within a
15 second recording interval.

This finding could be attributable to the different environments in which
the 2 groups of mothers and children were observed. Hughes, Carmichael
Pinkerton and Tizard (1979) found that level of conversation between mothers
and children stayed constant from one session to another when recorded in
the home, but varied at school.

This finding implied that, although all the children directed approximately
the same amount of speech to their mothers, the mothers of those in the day
care group were significantly more likely to respond promptly when spoken
to.

Dunn (1978) reported a study which attempted to trace continuities in the
'interactive styles' of children and mothers, during the child's first and
second years. Continuity of particular behaviours was not found in this
longitudinal study, nor were long-lasting attitudes on the parts of the
participants easy to identify. Dunn nevertheless stressed the importance
of particular styles of interaction, which might characterise a child-mother

relationship. She wrote: 'In discussing these findings, it has been suggested that the experience of a caregiver whose responses are promptly contingent upon the child's initiations and requests gives the child a sense of competence and effectance, which contributes to a developing mastery of the object world'.

Dunn argued that mothers who are able to respond promptly contribute to their children's sense of competence, and it could be argued further, that the children's competence could contribute in turn to improve the mother-child relationship. The present study showed that the day care group had a higher frequency of 'conversational exchange' with their mothers than the home care group, and the researcher proposed to argue, on that basis, that their relationships were more rewarding. But Dunn did not inquire, in the study quoted, how differences in maternal responsiveness arise.

The present study argued that differences in the behaviour of the 2 groups of children could be attributable to the different conditions in which they were cared for, either at the day nursery or at home. It was as valid, therefore, to attribute differences between the two groups of mothers to the same variable: that is, the support given by the day nursery to these mothers as primary caregivers. The majority were single parents, and most lived in poverty and all under stress. Day nursery care for their children was intended not to supersede the mother-child relationship, but to support it. The finding, that the day nursery group of mothers were more responsive to their children's verbal communications, offers some evidence that day nursery care did support the mother-child relationships in this group.

In addition to making a general count of all the utterances of the mother and child dyads which were observed, the study recorded 6 particular speech acts, 3 from the mothers' speech and 3 from the childrens'. Those recorded for children were: 'asks questions', 'asks attention' and 'asks help'. Those

recorded for mothers were: 'makes suggestion', 'gives encouragement', and 'makes criticism'.

A count was made of the frequencies of these particular speech acts because the researcher proposed to argue that, for instance, a high frequency of questions by the child, which were promptly answered by its mother, would indicate 'prompt responsiveness' on a mother's part, which would contribute to her child's sense of competence (Dunn 1978). Along the same lines, it was proposed to argue that many requests for help recorded for a child would indicate a less developed sense of competence (Leach 1972). The study aimed to compare the frequency of these checklist utterances, in the day and home care groups.

No significant differences were found, however, between the frequencies of any checklist utterance in the two groups. Very low frequencies of some were observed, for example, 'asks question', and one ('makes criticism') did not occur at all during the observation sessions. This pilot study was inform-ative here, and could have led to the selection of more useful categories.

The frequency of questions asked by the children was relatively low (Table 14:1) and although the majority of the mothers usually made some verbal response to a question, it was often not classifiable as a direct answer. The finding is in agreement with those of other workers investigating working class language use Schoggen and Schoggen (1971), for instance, reported that children from poor homes are less likely to be asked questions, or given information, by care-givers.

No significant difference was found between the day and home care groups in the frequency of the children's request for help (8 as opposed to 17). This finding is consonant with the fact that both groups of children were able to be active and exploratory with the play material, and neither group showed the

separation anxiety which had led Leach's (1972) problem children to request frequent help from their mothers.

All the children observed made frequent verbal requests for attention, as expected (Maccoby and Masters 1970) and most of the mothers were generous with encouragement. No significant differences were found between the day and home care groups.

It was proposed to record criticisms made by the mothers of their children's activity, because some workers have suggested that working class mothers tend not to give constructive guidance to a child engaged in a task, but to criticise its performance after the event (Feshbach 1973). No criticisms were made at all, however, by either group of mothers observed in this study; the few criticisms observed were made by children, of their mother's activity. This finding could be attributed to the situation in which mother and child were observed. The briefing by the observer made it clear that the child was expected to play in its own way, and that no particular behaviours were considered desirable by the observer.

Instances when a mother helped her child without it asking her to do so were also recorded, and these were more than twice as frequent in the home care group, (p = .05) (Table 14:1) Help given unasked was to be interpreted as support for a hypothesis of a less mature relationship between child and mother, providing less support for a child's feeling of competence. The different environments in which the two groups were observed, however, could well have contributed to the difference found, since mothers might feel freer to move about and rearrange play material in their own homes than in the day nursery.

Some of the categories of utterance on the checklist were used relatively infrequently by the working class children and mothers observed in this study.

Moerk (1975) classified 'answers a question' as one of the more 'sophisticated' linguistic categories used by the mothers he studied with their pre-school children. Other sophisticated categories were 'guides child's action, gives explanation, and describes object and event'. He showed that 'more mature forms of interaction' used by the children were significantly correlated with the frequency with which their mothers used these more sophisticated categories.

Evidently, as Moerk also showed, children accept their caregivers' model of language use, and these models differ according to the social class of the speaker. Cazden (1972) noted that social class differences in use do not imply differences in competence; that is, although working class children like those in the present study do not ask so many questions as middle class children, they are as capable of constructing questions grammatically as their mothers are of constructing answers.

It is perhaps misleading, however, to characterise some linguistic categories as 'sophisticated', since it implies that a usage in which they are rare is improverished or restricted. The mothers and children observed in the present study did not have many question-answer exchanges; the mothers did, however, frequently make suggestions to their children (table 14) which presumably corresponded to Moerk's 'sophisticated' category 'guides child's action'. In general, a great deal of friendly talk was heard in the dyads and the incidence of this was recorded by the observer in various categories: the general category 'talk', the children's requests for attention, and the mothers'encouragement and suggestions. These were added together to make a category of verbal exchanges called 'conversational exchanges' (Section 8: table 15:1).

The frequency of conversational exchanges was significantly higher in the day care than in the home care group (p = .001, N = 16, Table 15:1). This result

must be cautiously interpreted because of the different conditions in which
the groups were observed. But there seemed no obvious reason why being in
their own homes should have caused the home care dyads to have fewer con-
versational exchanges. Hughes et al (1979) found mother-child conversation
more sustained at home than at nursery school.

The researcher proposed to interpret the frequency of these exchanges between
children and their mothers as an indication of reciprocity and mutual satis-
faction in their relationship. Such an interpretation must be problematic, in
the absence of any generally accepted theory of human relationships, but it
seems increasingly to be accepted in developmental psychology that exchange
is fundamental in relationship and communication, (Schaffer and Crook 1978,
Newson 1978, Richards 1978). Linguistic reciprocity seemed, on this basis, a
possible behavioural measure of a satisfactory relationship. Clarke-Stewart
and Hevey (1981) refer in the Study to Mahler et al. (1975) who propose that
at about 30 months of age a child enters a 'period of individuality' in which
'verbal interchange' replaces other modes of communication with the mother.

The higher frequency with which the children and mothers of the day care group
talked together could be interpreted as supporting the hypothesis that the
children in day care had more mature, less dependent, relationships with their
mothers. It could be so particularly, when related to the significantly lower
frequency of attachment interactions between the mothers and children of the day
care group. It was evident from their active engagement with the play material
during the 20 minute observation session that the children felt sufficiently
supported in their cognitive ventures by their mothers, but this support
functioned at a distance through the medium of language exchange, as was
appropriate to children of this age.

It must certainly be said, however, that while the home care group had a sig-
nificantly higher frequency of attachment interactions, and a significantly
lower frequency of conversational exchanges with their mothers than the day

care group, this did not affect their competence adversely. Interest in the play, and attention span, did not differ in the two groups of children observed. So, while it could be argued that the children in day care were more socially mature, the home care group played in a quite age-appropriate way, and did not make spatial proximity to their mothers a priority which interfered with their activity, in the way that Leach's (1972) 'problem' children had done.

As there was also a significantly lower frequency of attachment interactions between the mothers and children of the day care group, it might be possible to see this group of 4 year olds as more independent than their peers who were cared for at home. Their lower frequency of physical contact with their mothers, and higher frequency of conversation with them, could be seen as evidence that they could explore, learn, and develop cognitively on the basis of an initial secure attachment to their mothers which had not been disrupted by the separation involved in day care (Anderson 1980). In this case, their active engagement with the play material during the 20 minute observation session could be interpreted as indicating that they felt sufficiently supported in their cognitive ventures by their mothers. But this maternal support would not be seen behaviourally in terms of spatial proximity or physical contact between mother and child. Rather, a basis of secure attachment between them could be inferred from the independent exploratory behaviour of the day care group, and their ability to get emotional support from their mothers in the form of verbal exchanges (Clarke-Stewart and Hevey 1981).

As Bernal (1974) has pointed out, one of the problems of attachment theory is that behavioural measures of attachment cannot be unambiguously derived from it, particularly measures which will remain meaningful during the whole pre-school period. As she wrote, a paradoxical situation can develop in which a secure attachment is inferred from an older child's ability to be spatially distant from its mother, and from a younger child's preference for closeness.

The above interpretation of the behaviour of the children in the pilot study is therefore not the only one which could be made of the results. It would in fact be possible to argue the contrary; that the home care group showed evidence of more secure attachments to their mothers in their significantly greater frequency of observable attachment behaviour.

This theoretical problem, in conjunction with the different conditions in which the home and day care groups were observed, made it extremely difficult to arrive at any unambiguous interpretation of the results of the pilot study. Nevertheless it produced some interesting findings, and indicated some possible directions for further research.

APPENDIX ONE

GROUPS FOR SOCIABILITY STUDY

TABLE ONE: 2 YEAR OLD GIRLS

Group 2G	Date of Birth	Age in months on 1.12.80
Alice	13.11.78	24
Laura	6.12.78	24
Laura	5. 3.78	32
Lisa	4. 4.78	31
Patricia	30.10.78	25
Cindy	19.12.78	23
Stacey	29. 9.78	26 (mean = 25 mnths.)

TABLE TWO: 2 YEAR OLD BOYS

Group 2B	Date of Birth	Age in months on 1.12.80
Jason	28. 8.78	27
Barry	12. 6.78	31
Michael	22. 1.79	23
Craig	26. 5.78	32
David	3. 2.78	33
John	30.11.78	24
Osmond	9.11.78	25 (mean = 27 mnths.)

APPENDIX ONE

Groups for Sociability Study

TABLE THREE : 4 YEAR OLD GIRLS

Group 4G	Age in months on 1.8.80 *	
Deborah	61	
Sarah	56	
Victoria	45	
Justine	50	
Deborah	57	
Katherine	52	
Claire	54	(mean = 53 months)

* half-way through observation period.

TABLE FOUR: 4 YEAR OLD BOYS

Group 4B	Age in months on 1.8.1980	
Christopher	46	
Anthony	54	
Austin	57	
Aaron	52	
Ian	51	
John	50	
Stephen	49	(mean = 51 months)

APPENDIX TWO

GROUPS FOR RECIPROCITY PILOT STUDY

TABLE ONE: DAY CARE GROUP

Group DC	Age in months on 1.8.80	
Nichola	52	
Donna	50	
Julie	55	
Kevin	50	
Gary	55	
James	51	
Dean	49	
Donna	53	(mean age = 51 months)

TABLE TWO: HOME CARE GROUP

Group HC	Age in months on 1.12.80	
John	55	
Colin	52	
Lee	56	
Kelly	50	
Bridie	54	
Louise	48	
Robert	52	
Ellen	49	(mean age = 52 months)

APPENDIX THREE

STANDARDISED BRIEFING FOR PARENTS ('RECIPROCITY' PILOT STUDY)

'It's very kind of you to help, I appreciate it. I'm doing a project,

studying how different children of N's age play. I'm going to give N

this, and sit quiet over here and just watch what she/he does, for 20

minutes. I've made these charts, where I just tick off what she/he is doing,

every few seconds. Here, you see, I put a tick if she/he is joining the

pieces together. It's really fascinating, seeing the different things they

all do. You just forget about me, and just behave as if you and N were

playing on your own together'.

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