AN ETHOLOGICAL STUDY OF SOCIAL INTERACTION AMONG NURSERY SCHOOL CHILDREN

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To Silas Child

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Otherwise, I declare that this thesis was composed by myself,

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ABSTRACT

The aim of this thesis was to formulate a conceptual framework and method for an empirical study of spontaneous social interaction (verbal and non-verbal) among nursery school children. Most previous approaches have not taken account of the intentions of one or both interactants because of: (a) the methodological difficulties of observing intention, and (b) difficulties with the concept of 'intention'.

I began by applying ethological methods to describe children's social interactions, and attempted to define intention operationally.

The initiation of interactions is described as the mutual focussing of children's attention. A criterion for saying that an individual's (the initiator's) directed act was intended to get the other's (the recipient's) attention was developed in terms of overt visual attention.

To describe how interactions are maintained and terminated required an account of the recipient's actions. I compared the child's action on objects and persons, extending Piaget's notion of 'adaptedness' to describe both. This provided a method for analysing sequences of interaction into successive units consisting of acts and their adapted responses. Adapted responses have a dual function: (a) expressing an intention, and (b) initiating the next unit in an interaction sequence.

The initiator's acts were defined primarily with reference to the conventional meaning of the act and secondarily to the initiator's intention. These acts functioned to get adapted responses among groups of children of different age and experience. The results showed that one could describe an individual's social skill by looking at his performance: (a) as recipient, and (b) as initiator, of sequences in which he acts goal-directedly.

I studied the effects of age/experience and sex of the children on aspects of their social interactions with (a) peers, (b) teachers, and (c) mothers.

I argue that this work forms a descriptive base for further research on interpersonal interactions, integrating it with other approaches in the field.

CHAPTER ONE

REVIEW OF LITERATURE

INTRODUCTION

I have found many empirical studies in the literature which use the terms 'social behaviour' and 'social interaction'. Since the assumptions are unstated they give no clear idea of what the terms mean or what is implied by using them. No study refers to any conceptual framework by which its validity could be assessed. My aim in this thesis is to formulate a conceptual framework for a study of social interaction among nursery school children. To do this I found it necessary to review the literature on social behaviour and interaction in both adults and children since, as Harré asserts, "the study of the social psychology of childhood is dependent, but not wholly dependent, upon an adequate psychology of the adult world" (Harré 1974). The following is intended as an evaluation of this statement and a discussion of its implications. There are two parts:

1. An outline of several approaches towards the explanation of social behaviour in adults with a view to formulating a more adequate approach.
2. An assessment of how far child psychology depends on an adequate

adult psychology by considering the state of theory and method in the former.

In both parts of this review I pick up the threads of my argument from a number of diverse areas in the literature. All of these converge on the problems of describing and explaining social behaviour and interaction. I discuss:

A. The rationale behind the methods used in some social science studies, in order to clarify

B. the conceptual confusion about the nature of social behaviour and interaction which seems to underly these methods.

PART ONE

THE STUDY OF SOCIAL BEHAVIOUR IN ADULTS

A. METHODOLOGICAL CONSIDERATIONS

1. Interview, Questionnaire and Rating Scale Methods

One of the main tools of the social scientist is the interview. Although one can unearth a large amount of useful information, for example, about a subject's social behaviour using these methods, there are some pitfalls to be avoided in applying them. These pitfalls are inherent to a greater or lesser extent in all methods, but the interview methods are used here as an illustration. The interview data collected on social behaviour may be invalid in several different ways.

Bearing in mind that the particular type of validity required (Anastasi 1968) depends on what the investigator wishes to infer from the data, I discuss as two main categories (a) reliability and (b) validity.

(a) Reliability is largely a technical matter - poor measurement can invalidate any scientific investigation. The technique of interviewing is difficult to perfect. For example, there are a large number of studies which demonstrate the effects of the interviewer in biasing the self reports used as data in retrospective studies. The appearance and manner (Katz 1942; Judd et al 1975) or sex (Colombotos et al 1968) of the interviewer, the way he words the question (Guest 1947) and his attitude (Feldman et al 1947) have all been shown to affect the results obtained. In general, if there is likely to be a high ego involvement in the answers to the questions, or if there are social pressures concerned with the area covered by the interview, its reliability is likely to be low (Macoby and Macoby 1954).

Our discussion of the general problem of ensuring that interview data is reliable leads us to consider the investigation of the dynamics of the interview as a social interaction. Such studies may help us to achieve a better understanding of the interview process and assess the interview's reliability. For example, studies of psychotherapeutic interviews (e.g. Goldstein and Dean 1966) go beyond studies of interview bias in exploring the dynamics of this bias. Here the aim is to characterise the various techniques psychotherapists use and to gauge their effectiveness. They emphasise not so much the truth value of what the patient reports but how he reacts to the therapist's interpretation of this report. For example, if the patient sees the interpretation as an invalid assessment of his situation, he may show

resistance (Auld and White 1959). Elucidating what aspects of the interviewer's behaviour effects the change in the subject's responses might help guard against pitfalls in designing questions and administering interviews. One might use projective techniques (e.g. role-playing) and indirect questioning strategies.

One straightforward way of overcoming the reliability problem is to use questionnaires or rating scale methods which are often self-administered. Here the questions are closed rather than open- ended and the subjects may be asked to rate themselves or others on a pre-arranged scale. This often constitutes a demand for information where the choices of answer are few and the scales are based largely on the experimenter's preconceived ideas. Compared to interview data, questionnaires are easy to score and the degree of agreement among independent raters is high. However one must be cautious since this might disguise a lack of validity which may not come to light as readily as in the interview sessions. There is at least one study where a method was shown to produce reliably invalid results with a remarkable degree of consistency (Erlich and Rhinehart 1965).

(b) This brings the discussion to the concept of <u>validity</u> which is much more than a matter of technique and concerns the degree of certainty with which one can make any particular inference from the data. The sociometric methods (e.g. Moreno and Borgatta 1954), for example, consist of asking subjects questions like "who do you most like to sit next to?" or "share a room with?" and so on. Although this may be very informative about group structure and relationships at one level, it would be invalid to extrapolate from this kind of data (about aspirations) to the overt behaviour or social interactions of the group

members. Similarly the inferences from measures of attitude to behaviour may be unfounded in that people do not necessarily act on the basis of the parameters measured (Lapiere 1934; Tittle and Hill 1967).

The possible sources of invalidity of inferences based on straightforward interview or questionnaire data may be illustrated by using participant observation techniques. The interviewer becomes a member of the group he is studying (Vidich 1955; Becker and Geer 1957; Bruyn 1966). Participant observation is not adequate to replace the superior empirical rigour of the standardised interview. It is a useful and apparently necessary safeguard against asking the wrong sorts of questions.

In conclusion, there is a role for some kind of observational method for studying behaviour in social situations to validate interviews. In the next section I discuss the role of systematic direct observation by non-participant observers.

2. Experimental Methods

There is a range of overlapping areas of study which use a variety of contrived (if not artificial) social situations. Often the subject is aware of being tested in some way and the empirical observations are restricted to one aspect of the social situation.

Studying the functions of patterns of non-verbal behaviour in interactions (for example, quasi-courtship behaviour in psychiatric interviews, described by Scheflen 1965) might be at least one step further towards a description of the interaction from a straight descriptive study of normal and abnormal behaviour patterns (e.g. Grant 1965). Argyle (1969) favours this kind of experimental approach.

It is based on the idea that social performance can be analysed into separate components, each of which differs in function. For example, what components function to maintain mutual attention, and how is turn-taking in conversation regulated?

There have been a few studies of timing in social interactions - the 'rhythms of dialogue' (Jaffe and Feldstein 1970) or 'interactional synchrony' (Chapple and Arensburg 1940; Kanfer et al 1960) or 'movement co-ordination' (Kendon 1970). These studies are a means of describing the normal course of interaction. Their methods would be useful tools for detecting variations from normal under different social conditions. The description is limited in the extent to which it enables one to predict the outcome of a social interaction; one may only say that a state of interactional synchrony was established, perhaps to some empirically specifiable degree.

The implications of a study of function, of timing or of any other single aspect of social interaction remain a matter for theoretical speculation. For example, on the basis of observations of inter-individual spacing in social situations (Sommer 1967) and its relation to other aspects (e.g. eye contact and affiliation, Argyle and Dean 1966), it is possible to make inferences about their causal relationship in social interactions (e.g. Exline 1971). But there are limits to the validity of such interpretations in two respects:

1. There is an inherent assumption in these studies that the participants in a social encounter are inter-relating their performances and 'agreeing' about their roles (Argyle and Kendon 1970). This means that the research is confined to describing the process of interaction. These studies are not designed to discover anything about the

nature of social interaction itself.

2. It is unclear if looking at the function of separate components in interaction would be a valid way of describing spontaneous social interaction (i.e. outside the experimental situation). For example, it remains to be seen how the experimental findings of Ekman and his colleagues on observer's judgements of emotion by facial expression (Ekman et al 1971) relate to the interpretation of emotions by participants in social interactions. Judges seem to be limited to a broad distinction between positive and negative affect in interpreting photographs of spontaneous emotional behaviour. It is only with posed behaviour that they have evidence about specific emotions. Contextual cues seem to be important for making accurate judgements in spontaneous situations (Ekman et al 1972).

In conclusion, it is worth considering direct observational studies of spontaneous social interaction. Here we turn to animal ethology for a discussion of the methods used there for describing behaviour and analysing interactions.

3. Ethological Methods

Ethologists tend to describe a stream of ongoing behaviour of an animal purely in terms of a series of transitions from one discrete posture to another. If these transitions are an accurate representation of an animal's behaviour, then each behaviour pattern ought to be a mathematical function of elementary motor acts which are constant in form and vary together very closely in their temporal distribution. That is, ideally, we should be dealing with 'fixed action patterns'. The degree of accuracy this type of description achieves may be found

by analysing film records of the animal's behaviour (Fentress and Stilwell 1973). Description at any level entails some loss of information (Altmann 1974). Especially if the human observer is unaided by automatic techniques of recording, he is constrained by the limits of his information processing capacity to be selective in what he records of a complex and fast-changing sequence of behaviour. Often descriptions are confined to mutually exclusive categories of head and limb movements, irrespective of general body position. A more comprehensive description of complex behaviour in terms of behaviour patterns executed by the whole animal might be possible using frame-by-frame film analysis. However in higher animals whose behaviour is often highly complex, film analysis of this type would tend to produce a heterogeneous system of discrete postures, many of which might not recur even in long periods of observation. For most practical purposes this sort of description is not useful. (For further discussion of this problem, see Vowles 1975).

So there are two decisions to be made in describing behaviour:

1. Whether to describe the movement of the whole animal or parts of the animal separately, and
2. whether to record a sequence of behaviour as a single unit or as a temporal patterning of separate components.

The outcome of these decisions depends not only on the recording techniques available but more on the type of analysis required to answer a specific empirical question. Ethologists distinguish two questions which are relevant here - what is the significance of a behaviour pattern in relation to:

1. how it reflects the motivational and causal situation of the performer, and
2. how it affects the recipient when performed in a social situation?

The answer to the first question might require an extensive and accurate description of sequences of behaviour on a fine level (e.g. Delius 1969). But to answer the second question there are two requirements:

1. To describe one animal's behaviour in spatio-temporal relation to another's.
2. To identify that the recipient's behaviour is affected as a result (i.e. that social interaction has taken place). (For a discussion of the general problem of identifying communication, see Wilson 1976).

Obviously the amount of information to be processed when more than one individual is involved will be much greater. The problem is how to select what to record and what to leave out of the account without any significant loss of information in the final analysis. How do we decide non-arbitrarily and in advance of empirical knowledge what will be the significant information? The traditional ethological approach is first to gain an extensive familiarity with the behaviour of the species under study and to distinguish and describe behaviour patterns which seem significant to the observer, then on the basis of this experience to form hypotheses as to the significance of the behaviour patterns to the animals themselves (e.g. Tinbergen 1959). This work forms the basis for studies investigating the first question - individual causation. For example, the eliciting stimuli can be

demonstrated by empirical studies of behaviour patterns outside the social context in which they were first observed. Controlled experiments indicate which components are essential for eliciting the appropriate response and which are not essential (Stout and Brass 1969). Often the validity of intuitive field observation and interpretation of the function (or functions) of behaviour patterns is clarified by the analysis of its components.

The function of behaviour patterns as whole entities within a social system of interacting individuals may be seen as a different question. Ethological methods are also useful for describing some aspects of complex interactive systems. The observer chooses to record those patterns of behaviour which seem to be socially relevant in that they appear to occur in social situations and to affect the behaviour of other members of the social group. This assumption can be tested by empirical observations which may show that there are probabalistic constraints on an animal's subsequent behaviour as a result of previous group interaction (Altmann 1965, on rhesus monkeys). For this type of analysis, patterns are selected not only on the basis of their form but also on their direct relation to some aspect of the social situation in which they occur. In theory (Hinde 1972), the alternative is to catalogue all the behaviour patterns in the species' repertoire, then to identify on the one hand the particular circumstance and motivational condition under which each is observed, and on the other hand the particular response (if any) it elicits in the other individual. However it may be that in animals (and especially humans) such an approach would be too simple a view of contextual contingencies when social interaction is the focus of attention. The significance of the same pattern may vary with context; that is, for example, the nature of the performer, the attendant circumstances, and the status

and state of the recipient (reviews in Smith 1968, and Thorpe 1972).

How to relate context (however it is defined) and behaviour is a core problem in ethological studies of communication and is often seen as a question of finding a way of classifying and describing context adequately (Cullen 1972). For example, Golani (1973) makes a methodological distinction between the intrinsic and extrinsic significance of displays. Intrinsic significance is the relatedness of component events in a display configuration to one another in temporal context forwards, backwards and at the same instant in time. It is this intrinsic context-relatedness of display components that Golani's study is aimed at describing. He does not investigate extrinsic significance, defined as the relatedness of displays to such factors as the animal's motivational state or the outcome of the interaction. It remains to be seen whether a description of signals separate from overall context is necessary or desirable in the light of the kind of questions such descriptions generate.

What kinds of questions might arise out of a straight application of the methods developed in animal ethology to adult human interaction? There is an increasing amount of research being done in this field. One type is concerned with cataloguing behaviour patterns on the one hand and its context on the other hand. Here ethology can make a contribution to the classification of mental illness (Grant 1965; 1969) or in seeing human behaviour in evolutionary perspective (Eibl-Eibesfeldt 1972; van Hoof 1972). Another type of human ethological study is a description of the non-verbal context of speech behaviour in conversations (Kendon 1967; 1970). These observations may give rise to testable hypotheses, for example, about the function of non-verbal components in regulating turn-taking in conversations (Argyle 1972).

Ethologists have made no practical attempt to describe the

relation between speech and total context in human interactions. A priori, there seems to be no reason why not. An adapted form of the ethological method devised to describe social interactions in animal groups (see p.10) should be applicable to human groups. The study outlined in the next section, Interaction Process Analysis, might have been the descriptive work of an ethologist, but the method was developed independently.

4. Bales' Interaction Process Analysis (I.P.A.)

This is one attempt to describe human social interaction in groups taking account of speech and non-speech behaviour (Bales 1950; 1970). The categories of behaviour are not described in anatomical terms, but in terms of the context in which they occur. He uses both verbal and non-verbal behavioural acts as units in a functional analysis of group interaction. An act is defined as "a communication or indication, either verbal or non-verbal, which in its context may be understood by another (group) member as equivalent to a single simple sentence" (Bales 1970 p.68; word in brackets added). In different contexts, the same behaviour pattern may function differently. For example, a laugh may function as 'tension release' and fall into Category 2, or as 'deflation of another's status' and be placed in Category 12, on Bales' I.P.A. profile, depending on the context in which it occurs. Similarly, on the basis of context, he distinguishes between the initiator and recipient of each act and with this information compiles profiles on each member, representing his or her contribution to the overall group action. In this analysis of how persons communicate - who does what to whom in the process (time order) of their interaction - the study of what is said is neglected (Bales 1950). This lack of

interest in content, combined with the fact that he deals with only the immediate effect of one person's behaviour upon another, constitute the limitations of Bales' approach. In a later study Bales (1970) supplements the I.P.A. with content analyses of the speech recordings of the group sessions. These analyses are not independent of the initial I.P.A. analyses. The content analysis task is made 'much easier and less ambiguous by the interaction scoring' (Bales 1970 p.94). Perhaps it is a valid criticism that in dealing with a minimum of temporal context, the categories bear little relation to the development of ideas within the group, to negotiations and to disagreements in the long-term process. More specifically, Bales makes two unwarranted assumptions:

1. The interaction process would be self-limiting and self-defeating if there were more negative than positive reactions (Bales 1950 p.37), thus ignoring the creative possibilities of conflict in group therapy.
2. Communication is perfect; that is, 'action' is synonymous with 'interaction', which (intuitively at least) is not necessarily so.

Thus, Bales system, while providing a very useful way of describing how modes of interaction in groups reflect the personalities of individuals and showing how this can be represented, is not intended to generate ideas about how to formulate a theory to explain the interaction process in psychological terms. (I shall return to this later in discussing the application of ethological methods to studying children's behaviour, p. 20).

B. CONCEPTUAL CONSIDERATIONS

All approaches discussed so far from both social psychology and ethology make the primary distinction between the individual and his social environment. There are two approaches from a sociological viewpoint which question the necessity and desirability of this distinction.

5. Field Theory

In contrast to Bales (for example) the emphasis of the field theory approach is more on the psychological aspects of social interaction, rather than on overt behaviour (Lewin 1943). Adequate social observation must be possible, he argued, since community life is unthinkable without it. Lewin recognised that social 'facts' were important for psychology and that psychological concepts and theories had to be able to handle problems of describing and explaining dynamic interdependence in social systems (Lewin 1939). His aim was to bring together the various 'facts' without sacrificing the recognition of their individual characteristics. The social group was seen as a dynamic whole which was different from the sum of its parts. This field theoretical view is in contrast to Bales', whose method is to describe the group as the sum of the interactions of the individual members. For Lewin, as the total situation was taken into account from the beginning, his description ought to have been correct at any level, and the theory would account for both the general and the specific. Although he aimed not just at a descriptive account of the laws of social perception, and intended field theory as a practical vehicle for empirical research, his intention was not fulfilled. What he hoped would prove an

explanation of social interaction, was in effect a condensed description. Part of the reason for the failure of field theory was that Lewin did not state his system very precisely and tended to define key concepts ambiguously. His concept of 'life-space', for example, was derived from behaviour, and behaviour was defined as any change in the life-space. Lewin's writings show no way out of this circle.

6. Social Interactionism

The notion of society being made up of individuals as biological units interacting according to a system of natural laws is challenged by the social interactionist viewpoint. Mead (1934), for example, extrapolates from society to the individual and holds that the study of human group life is an essential condition for a full understanding of human nature. In her treatise on the evolution of language, de Laguna (1927) develops her argument from a similar point of view, that the primary function of speech is not for the communication of ideas, but to mediate joint action. This is parallel to the distinction between the 'ideational' and the 'interpersonal' functions of language (Halliday 1970). It is this 'joint action' (Mead's 'social act') that is seen as the fundamental unit of social systems in man and in higher animals. The symbolic interactionists ask the philosophical question: granted that the individual is a viable mediator of joint action with others of his species, then, logically, what kinds of powers must he possess? The individual's powers of symbolic interaction are seen as basic to all social phenomena. The human being must have the capacity to understand signals as well as to emit them. He must be able to use symbols reflexively, enabling him to understand and potentially to control his own actions. A parallel may be found here

with information theory as described by MacKay (1972). In practice, no such element of awareness is yet admitted in social psychological or ethological models of an individual as interactant.

The pragmatic empiricist claims not only the impossibility of using Mead's conceptual system as a basis for any scientific study, but also claims that Mead's ideas are irrelevant for science (Bales 1966). The first claim is justified. Being primarily a philosopher, Mead did not elaborate his conceptualisations in order that they might be amenable to research on his point of view. The claim that Mead's ideas are irrelevant is not justified. His philosophy demonstrates the inadequacy of a simple 'cause-effect' model to explain the individual's relationship to society (Blumer 1966). Mead would say that we will not achieve a complete explanation of human social interaction by an analysis that fails to recognise the complexity of the social situation, but he gives us little idea of how to go about it.

The conceptual system that Goffman has developed lends itself much more easily to empirical study than does Mead's. Fundamentally a social interactionist, Goffman makes a conceptually more rigorous analysis in applying himself to understanding what general properties the individual must have as an interactant. He describes interactions as the "syntactical relations among the acts of different persons mutually present to one another" (Goffman 1967 p.2). Through his conceptual analysis he is able to conclude, with Mead, but with more justification, that there is no analytically coherent single meaning to the notion of an individual (Goffman 1971). In his essay 'Role Distance' (Goffman 1961), he shows that the concept of role commonly used in social psychology is too simplistic. His analysis makes clear the distinction between 'role' shown by the acts one normally

performs in a given specific situation (e.g. the bride's role in a marriage ceremony), and what is more usefully redefined as 'style of life', since it does not necessarily imply the performance of any specific behaviours (e.g. the so-called female role). Using this dichotomy, Goffman analyses formal occasions by constructing models to explain them (e.g. Goffman 1969). His main contribution lies in his use of the concept 'role distance' to analyse more enigmatic, informal interactions. By achieving role distance an observer pretends that the interactants are acting deliberately according to systems of rules and sees how far this gets him in explaining their behaviour (e.g. 'Fun in Games' Goffman 1961).

The question is how to use this conceptual system in an empirical psychology? The intuitive appeal of Goffman's ideas suggests that people do act on the basis of these rule systems, that is, that they constitute explanations. But this is an empirical question, and it is not valid to assume, as do the 'ethnomethodologists' (e.g. Garfinkel 1967), that all adult human behaviour is convention and rule-bound. My rejection of this view is shared by Harré and Secord (1972) who elaborate Goffman's conceptualisations and make them more systematic. They draw upon the arguments of those philosophers who discuss the kind of ordinary language in which Goffman's subject matter is couched. For example, they use Austin's work (e.g. 1962) on the logic of ordinary language in ceremonies and rituals. They use a critique of Strawson's (1959) analysis to strengthen the logical force of the symbolic interactionist assertion that man is an intentional being. By bringing together contributions from psychology, philosophy and sociology, Harré and Secord formulate a new scientific methodology which they claim will put Goffman's role-rule models to empirical test. In the new methodology, the individual is regarded as responsible for his own actions

and as the primary source of information about them. It might give us information about the rules, that is, about the principles used by the participants to explain their behaviour. This will be a valuable source of hypotheses about their spontaneous behaviour, rather like participant observation techniques are in sociology (see p. 5). Asking the subject is a necessary complement to, but not a substitute for, other methodologies. We cannot describe the abilities, skills and knowledge of conventions required of an individual until we can agree on an operational definition of the nature of the task he is performing as initiator and recipient of social signals. Goffman has shown how this may be possible with conventionalised forms of social action. But what about unconventional action? If we define this only in terms of its opposition to convention we neglect the important question of how the conventional develops from the unconventional. (I shall return to this later, see p. 30). Perhaps we would achieve a more adequate understanding of adults by looking at the social world of children. This is the subject of Part Two of this chapter.

PART TWO

THE STUDY OF SOCIAL BEHAVIOUR IN CHILDREN

I have discussed the methodological and conceptual adequacy of various approaches to the study of social behaviour and interaction among adults. My next task is to assess the dependency of the social psychology of children upon an adequate (or any) adult psychology. I shall consider the special problems that childhood presents and the state of knowledge or confusion in the relevant fields.

A. METHODOLOGICAL CONSIDERATIONS

1. Interview and Rating Scale Methods

Interviews may be used successfully with children of nursery-school age (review in Yarrow 1960). It is also possible to have children rate one another on sociometric scales (McCandless and Marshall 1951) or give verbal comments about imaginary situations (Murphy 1943). However one must be cautious in conducting and interpreting these kinds of study since the child's conception and assessment of the situation may differ from an adults in unexpected ways. For example, children's reports about the same incidents are sometimes incompatible with their mother's reports (Radke 1946; Ammons and Ammons 1952), and children of nursery-school age always rated themselves as 'toughest' irrespective of how they fared in fights and so on, but their independent judgements of who was toughest among the other children were all in agreement (Omark and Edelman 1976).

Interview methods have also been used extensively to gain information from mothers about their own and their children's behaviour. This information may be unreliable if parents have reason to be reluctant to give reports on their behaviour. For example, Newson and Newson (1963) found that parents gave different answers to the same questions posed by the familiar psychologist and the health visitor. Also it is not surprising to find that parents reports are often not compatible with an observer's report of their behaviour (Goodenough 1931; McCord and McCord 1961; Fatzio 1969). Nevertheless it is possible to get around the problems (for example, leading questions and embarassment) that the interview process might entail and provide

immense amounts of valuable data about the subjective life of mothers and their aims in child rearing (e.g. Newson and Newson 1963; 1968; Sears et al 1957). These studies associate the mother's attitudes and behaviour with those of the child, for example, coldness in the mother is associated with persistent bed-wetting, feeding problems and so on (Sears et al 1957). However there is no evidence of a causal connection one way or the other. Studies of the process of mother-child interaction would be useful here. But adults and children may not even be aware of much that they do in one another's company. Besides it is unlikely that mothers or children would be able to recall their behaviour in sufficient detail for an analysis of the process of interaction during development to be undertaken on the basis of interview data alone (Richards and Bernal 1972).

We may conclude that direct observations of the behaviour of mothers and children are often necessary and more expedient. But the main issue here is not simply whether direct observation should be used in preference to self-reports or to test the validity of these reports. The more important task is to suggest how the findings from a multiplicity of sources may be pieced together within the framework of a general theory of interpersonal interaction.

2. Direct Observational and Ethological Methods

The value of developing direct observational methods was realised in the 1920s to 1940s when many useful techniques were devised for studying spontaneous social interaction in nursery-school children. Pioneered by Olsen (1929), Thomas (1929) and Arrington (1932) among others, the research was intended to provide information that would help people understand the reasons for, and propose solutions to,

problems encountered in the management of young children. The categories they used were based on teachers' and parents' preconceived ideas about what was appropriate and desirable in children's behaviour. Since these studies had a practical application the researchers were not interested in questioning the validity of the assumptions they made in using broad inferential categories as measures (reviews in Hutt and Hutt 1970; McGrew 1972).

Some ethologists (e.g. Blurton Jones 1974) claim that by using the pure ethological approach as used with animals one avoids making a prior assumptions about the causation or function of the behaviour one observes. However the observer must make some a priori assumptions in selecting items to be recorded. Even if it were methodologically possible to avoid making such assumptions this would not be in itself a cogent argument for the heuristic potential of ethology in studying social interaction among children. Smith and Connolly (1972) have expressed similar reservations about the usefulness of applying ethology in its pure form to the description and analysis of child behaviour. The technology for studying complex interactive systems is limited at present, but some ethologists seem to feel that if we allow the technology and methods to dictate our questions, we will effectively avoid the conceptual problems involved in studying more than overt behaviour (e.g. Richards 1974; Hinde 1974). It is not humanly possible to desist from being subjective (particularly with human subjects) but it is necessary to become aware of the bases of our subjective interpretations and discover operational criteria for defining inferential categories to make their use as data scientifically respectable.

Most child ethologists are interested in investigating changes in the causal organisation of behaviour and of social interaction

throughout development (Blurton Jones 1972a). However by maintaining a semblance of objectivity, they have largely avoided considering the role of intention in social interaction. To illustrate how this has happened, I discuss two areas of interest in turn: 'aggression' and 'attachment'.

The pure ethological approach to aggressive behaviour in nursery-school children (e.g. Blurton Jones 1967; McGrew 1969) is to describe on the one hand the selected categories of an individual child's movement, and on the other hand the contexts in which these occur. The subsequent factor analysis produces components representing categories of movement which generally occur together in the same temporal frame. Such an analysis is taken to confirm or refute the (previously inferred) unitary motivational basis of composite categories. For example, Blurton Jones (1972c) justifies his distinction between 'rough and tumble' play and 'aggressive' categories on the grounds that, in the factor analysis, the same constellation of (pre-selected) behaviours which occur in each category, is accompanied by the signal 'laugh' only in the former. Blurton Jones goes on to compare his findings in nursery school children to observations of young primates where some similar behaviour patterns have been described as playful (Harlow and Harlow 1965) and where 'play face' has been described in a similar context to 'laugh' in children (Loizos 1969). 'Laugh' and 'play face' appear to have a similar function - to modify the subsequent action and distinguish it as play rather than real aggression. The pure ethologist sees his role as putting human behaviour in evolutionary perspective (e.g. Eibl Eibesfeldt 1972). In evolutionary terms, there is no need to ask if the behaviour is intended or not.

In looking at the relationship between aggressive behaviour and

the social context in which it occurs one might use a modified ethological approach. The description takes into account the consequences of the behaviour. For example, Manning (1972) judges behaviour as aggressive if it sometimes evoked a reaction that implied that it was damaging. Games (for example, rough and tumble play) can sometimes result in one child getting hurt or protesting. Here the primary distinction Blurton Jones would make between 'rough and tumble' and 'aggressive' becomes a secondary one. A description taking into account the consequences of the behaviour and situations in which it occurs would have advantages in describing the process of aggressive interaction.

Research based on attachment theory would benefit from a similar shift in emphasis from the primarily biological to the social functional aspects of behaviour. As originally conceived, attachment theory was an attempt to view the mother-infant relationship in a biological framework using concepts derived from psychoanalytic theory and from animal ethology (Bowlby 1963; 1969). This has stimulated much productive research into the proximity-maintaining function of the behaviour of mother-infant pairs (e.g. Ainsworth and Wittig 1969; Anderson 1972; Clark and Clark 1976) paralleled by similar work on primates (Hinde and Spencer-Booth 1970). The bulk of experimental enquiry on humans has been made into the specificity of attachment, its onset, stability and indices (Schaffer 1963; Macoby and Feldman 1972; Coates and Anderson 1972; Ainsworth and Bell 1970). A theoretical assumption, commonly made explicitly, is that in dealing with attachment these workers are dealing with an interpersonal interactive system (Ainsworth 1969). Yet for empirical purposes there is a tendency to regard attachment as a 'thing', a condition of the organism (Schaffer

1971; Ainsworth and Bell 1970). This seems to have resulted in limiting the aim of research to finding indices of attachment which do not express the diverse meanings of the word. We need rather to attempt to look at attachment within the broader framework of the developing relationship between the child and those who care for him (Rosenthal 1973; Bernal 1974). Attachment could be defined as a characteristic of some patterns of mother-infant interaction. To make this definition a useful one demands a clear conceptual framework for defining interpersonal interaction and relationships.

A possible lead-in to the study of interpersonal interaction is to look more closely at one of the indices used in attachment studies: the behaviour of mothers and children in a 'greeting and separation' situation (Schaffer and Emerson 1964; Ainsworth and Wittig 1969). Ethologists have studied behaviour in these situations, apparently with questions about human evolution in mind. Greeting rituals are studied cross-culturally (Eibl Eibesfeldt 1972), and since greeting behaviours occur in closely similar contexts in animals (e.g. van Lawick-Goodall 1968) it is hoped that human-animal comparisons will be meaningful (Kendon and Ferber 1973). Greeting and separation rituals are considered important in the management of relations between adults (Goffman 1972), but ethologists have neglected to verify this on an empirical basis (following Goffman). Ethologists are interested in applying ethological methods to studying greeting and separation behaviours in children (e.g. Tinbergen and Tinbergen 1972). Within the theoretical context of attachment, Blurton Jones and Leach (1972) have distinguished two processes in interactions between nursery-school children and their mothers. These two processes which may be summarised as 'sociable' and 'clinging' may develop independently,

since children who cling to their mothers show as much social behaviour towards her as those who do not cling. The 'sociable' process is the one I originally intended to study.

In their study, Blurton Jones and Leach define separation as beginning from the point when the mother starts to leave and continuing till she finally leaves the nursery, and greeting as the first 'burst' of activity when she reappears. Each 'burst' probably consists of what Kendon and Ferber (1974) describe as a "distinctive exchange of gestures and utterances in which each person appears to signal the other directly and explicitly that he has been seen". They call this a 'unit' of social interaction.

The initial aim of my own study was to study greeting and separation between nursery-school children and their mothers. I hoped to describe this 'unit' more fully (as described in Chapter 2). In addition to an ethological description of behaviour (a la Blurton Jones and Leach 1972), I made a transcript of what mother and child said to one another on these occasions. I ran into two main difficulties. My first difficulty with the common conception of greeting arose in my finding that the child's signal that he had seen his mother was often not explicit as the above definition would have it, but implicit in his reply to her greeting. For example, mother and child look at each other. Mother: "Hello darling!" Child: "Can we have a lift home, can we, eh Mum?" It seemed as if, from the child's point of view, the greeting was an explicit signal that he had his mother's attention, but not one to be reciprocated.

Secondly, I found it difficult to convince myself of the validity of any simple unitary criterion for distinguishing initiator and recipient roles in some of the separation interactions. For example,

mother: "Don't I get a kiss then?" Child runs up, throws his arms round her neck and they kiss. Although the kissing was initiated by the child in this example, it was clearly not his own idea. It is obviously not helpful to use a form of ethological description which does not take speech and other aspects of immediate context into account. It is important to describe how the social interaction was initiated and how it developed as a sphere of mutual influence between mother and child.

In practice, child ethologists have not yet considered the conceptual problems (e.g. of intention) involved in operationally defining social interaction. In theory, MacKay (1972) has already pointed out that, by making a methodological distinction between goal-directed and non-goal-directed behaviour in social situations, we can begin to ask a new set of questions. For example, if one could distinguish:

1. a child acting in such a way as to get attention by accident, from
2. his acting intentionally in order to get attention,

then how does the second develop out of or on top of the first? (For discussion of this see Shotter 1973). One aim of this thesis is to make the distinction between goal-directed and non-goal-directed behaviour in a social environment. First we must consider the evidence concerning the three-year old child's ability to interpret the actions of others.

B. CONCEPTUAL CONSIDERATIONS

There is an apparent divergence of views in the literature over the extent to which the child is a social being. For example, Ainsworth et al (1971) maintain that the infant is basically social from birth. Schaffer (1971) asserts that the newborn infant is asocial, and Berger and Luckman (1967) that he is predisposed to become a full member of a social community. Few such statements are made with reference to any conceptual framework by which the issue may be clarified. No one has yet considered in detail the criterion social conditions by which they might allow that the child engages in truly social interaction with members of a social community. I propose to consider how, given the external social conditions in which a child normally finds himself, the internal constraints on his individual performance in a social situation are relevant.

3. Language Acquisition

One sense in which all would agree that a child becomes social is by acquiring language. However, in the past child language has been described independently from the social context in which it is used. The post-Chomskian (1957; 1965) era of experimental work in language development largely concentrated on the period after the emergence of syntactic structure in the child's speech (Smith and Miller 1966; Slobin 1970). The conventional form of the language based on an intuitive knowledge of the rules of syntax was seen as the end-point of the child's linguistic development. Linguists do not have access to the intuition of the native speaker-informant when studying the

grammatical competence of children, and have been engaged in what has been a fruitless search (Hymes 1971) for competence in performance. Studies of children's grammar are beset with difficulties owing to the unconventional form of the child's utterances and his ambiguous use of them.

As writings on the philosophy of spoken language point out, language is not only a matter of convention, but also a matter of intention (Grice 1957; Austin 1962; Strawson 1964). Adults seem to actively interpret the meaning of what the child does and what he intends to say by taking into account contextual information of what he is doing at the time (Brown and Bellugi 1964; Bloom 1970). The adult's interpretation may not always be correct; indeed misunderstandings occur quite often (Brown and Hanlon 1970). Certainly for the very young child it may be critically important that he is interpreted at all, since potentially these interpretations are very rich sources of information for the child's learning the conventional meanings and social implications of what he is saying and doing. Ryan (1973) has expressed a similar view more fully.

A more promising approach to studying child language follows from the introduction of the notion of 'communicative competence' (Campbell and Wales 1970), defined as the ability to produce and comprehend utterances appropriate to the context in which they are made. This kind of criticism of the application of Chomskian theory has effectively reintroduced accounts of what the child is trying to say into developmental psycholinguistic models and methods (Huxley and Ingram 1971). In theory the communicatively competent child would be able to correct misunderstandings of his own utterances by others.

4. Cognitive Egocentrism

Even when the child is at an age when he is using language of a fairly conventional form, there is some evidence of a constraint still operating that may affect his performance in a social situation. The majority of his utterances around 3-5 years seem to be of a form first described by Piaget (1926) as 'egocentric'. That is, they are held to indicate the child's cognitive inability to take account of another's point of view. Recent experimental work suggests that cognitive egocentrism is not as ubiquitous as it first appeared (e.g. Maratsos 1973; Rubin 1973; McGarrigle and Donaldson 1975). Although there is evidence in the literature to support the original observation that there is an improvement with age, there is also evidence to suggest that the child is able to take another's point of view earlier. The 3-5 year old is able to calculate what others can see (Hughes 1975) and the emotions they feel in certain situations (Borke 1971). Whereas Piaget's interest in egocentric speech was as an external manifestation of a cognitive process, Vygotsky (1962) was interested in the function of egocentric speech in guiding the child's own actions. He maintained that all forms of speech are equally 'socialised', but since he gives no clear picture of how his use of this term differs from Piaget's, he can be justly accused of using it ambiguously (Piaget 1962). The significance of Vygotsky's view here is that, contrary to what Piaget seems to have implied, the capacity for intellectual cooperation with others need not be a pre-requisite for engaging in social interaction. In any case, in situations where a group of children are free to interact spontaneously, my own observations and those of Garvey and Hogan (1973) suggest that children are capable of interpreting one another's intentions in a social context.

5. Social Function of Language

Early descriptive accounts of child language have placed it in the context of a child's total development (e.g. Leopold 1939-49). Until recently, a preoccupation with describing the nature of the cognitive constraints on the child's performance has tended to divorce speech from its social context. To become a competent member of a socio-linguistic community, the child must attain a level of communicative competence, but he must also use language appropriate to different socially defined contexts (Halliday 1970). Bernstein's sociolinguistic theory (Bernstein 1965; 1971) provides a possible explanation of the relationship between the child's linguistic performance and his becoming social. Bernstein (1971) claims that his 'restricted' and 'elaborated' codes reflect social class differences in the function of speech in social situations. Any theory about the social function of language must rest on social (particularly interpersonal) assumptions about the child's speech performance. Bernstein believes, without empirical justification, that the validity of these assumptions is manifested in the form taken by social relationships in the context of interaction and the structure of communication (Bernstein 1973).

Bernstein's performance model of sociolinguistic competence can be contrasted with Chomsky's model of linguistic competence and the Goffman/Harré and Secord role-rule models (described on pp.16-8). The latter two are theoretical accounts of a form of competence which is not manifested in performance. The models can be checked with reference to accounts that people give of their behaviour. Harré suggests (in the paper from which the quotation on p.1 was taken) that we search for evidence of the emergence of rule-governed social behaviour in the imaginative play of children. Since children of 4-7 years

only rarely play games according to agreed rules (Piaget 1951), we can conclude that in the 3-5 age range a large amount of behaviour in the social group is not rule-regulated in Harré's sense. Harré proposes using the notion of 'separate social worlds' in childhood to express this distinction. One of these worlds would be the precursor of the adult world, and another (he seems to think) would be adequately taken care of by attachment theorists working in the Bowlby tradition. His point that attachment theory does not explain all that goes on in the whole social world is well taken. However, at this stage, I doubt if Harré's proposal would be as useful a contribution to the study of social interaction in children as he claims, for two reasons:

1. As noted earlier (p.23), a similar separation of adult and child social worlds has already contributed to an impasse in the practice of research on attachment. The major task here is to find a link between the two worlds in an interpersonal theory of social interaction.
2. Following Harré, one suggested approach to studying the child's behaviour is to use the mother's interpretations (Newson and Shotter 1974). The rationale is that these must be causal (in some sense) in the development of his social identity. This may tell us something about the society into which the child is expected to grow, especially if it is a rigidly conventional one. However, it seems reasonable to claim that the mother learns from, and develops some social identity, through the child. Without making the strong claim (Trevarthen 1974) that the infant's behaviour is intentional from birth, it is still necessary to ask what is the nature of the child's contribution to the interaction. At some point we need an account of the child's behaviour independent from an account of the mother's.

SUMMARY

Each approach discussed (with the possible exception of social interactionism) suffers from the same inherent limitation. Each implies the conclusion that to fully explain successful communication, every individual must possess the same pre-established social code. Possession of a common code must be an integral part of the explanation. But we also need an account of the pragmatic aspects of social interaction - the mechanism by which the basis of mutual understanding (or the appearance of it) is built up in the process of interaction. (This is parallel to the notion of 'structure of intersubjectivity' discussed by Habermas (1970) in connection with linguistic competence). The elaboration of these concepts into a coherent framework, which includes other aspects of social competence, might help in forming a basis for an empirical analysis of social interaction in nursery-school children, which is the object of this thesis.

There are two stages in the thesis:

1. In Chapters 2, 3 and 4, I define the task which individual children undertake when they engage in social interaction, and formulate criteria for asserting that each has succeeded in performing this task. In Chapter 2, I outline the problems I encountered in observing interactions and taking speech into account. In Chapter 3, I describe the initiation of sequences of interaction in terms of one individual's acting (intentionally) to get the other's attention. In Chapter 4, I compare a child's action on objects to his action on (and interaction with) other persons. In doing so I develop a method for analysing sequences of interaction empirically.

2. In Chapters 5, 6 and 7, I use the framework provided in the previous three chapters and conduct an empirical study of nursery-school children's interactions with peers (Chapter 5), teachers (Chapter 6) and mothers (Chapter 7). These chapters contain a detailed description of nursery-school children's spontaneous interactions. As this introduction implies, I can make few comparisons with other studies of social interaction in these chapters, since I found no empirical account of social interaction at the same conceptual level. This will be taken up again in the last chapter.

CHAPTER TWO

MOTHER-CHILD GREETING AND SEPARATION

INTRODUCTION

The original aim of this study was to apply ethological methods of describing behaviour to observations of the greeting and separation of mothers and nursery-school children (as advocated by Tinbergen and Tinbergen 1972). In the long term I hoped to formulate appropriate concepts and methods for studying complex interactions among children. These were to arise partly out of the initial observations of mothers and children, and partly from watching children themselves engaged in free play.

An ethological study under a similar title, but with a different approach from the one I intended to take, has been reported by Blurton Jones and Leach (1972). Their study differed from previous research on attachment (e.g. Ainsworth 1969; Schaffer and Emerson 1964) in that they took the child's behaviour into account in assessing maternal responsiveness. But, as pointed out earlier (p.23), these authors still worked within the theoretical framework of 'attachment'. I have already discussed the conceptual limitations of attachment theory for

research in social interaction (p.24). Here I propose to discuss what this perspective must have implied for the methodological concepts used in their study and, in doing this, elucidate the methodological and conceptual consequences of my different perspective. In their view the function of behaviour at greeting and separation is in its effect on the proximity of mother and child. As a result they describe greeting as a consequence of mother arriving at nursery, and separation as a consequence of mother 'beginning to leave' (the observational criteria for which they do not make explicit). Separation and greeting incidents are initially defined, then, in relation to the mother's observed approach and withdrawal behaviour. Blurton Jones and Leach describe patterns of individual children's behaviour and then later associate these patterns with different levels of 'maternal responsiveness' by statistical correlation. They carefully avoid making inferences about the causation of the variation in the patterns they observed. Contrary to what they suggest, this is not necessarily to be found in the developmental history of the child and his family. At least partly it may be a function of mother-child interaction at the time. But by not including any data on serial changes in the behaviour of mother and child during greeting and separation incidents, they were not attempting to consider the short-term reciprocal effects of the behaviour of mother and child. Such an attempt would raise the general problem of describing complex interactions (to be discussed later). Specifically, Blurton Jones and Leach were not prepared to deal with the problems posed by interruptions in sequences of observed behaviour, and problems in deciding who initiated the sequence or the effects of other immediate social contextual factors on the interaction besides proximity, such as the speech of mother and child or the mother being 'busy'. Some

of these problems were dealt with or discussed in another paper by Leach (1972), the relevance of whose work on mother-child interaction in a free-play situation I shall discuss later.

I intended to deal with the methodological and conceptual problems involved in describing interactions. Some of these problems arose in trying to apply ethological methods in the greeting and separation context. My approach was a replication of Blurton Jones and Leach's study in so far as I recorded similar categories of non-verbal behaviour. But there were two differences:

1. I recorded the speech of mother and child where possible, and what one member of the pair was doing (mainly where he or she was looking) when the other was directing behaviour towards him or her, and
2. to avoid making a priori assumptions about the function of the behaviour observed, I identified 'greeting and separation' as defined by the situation rather than by the mother's observed behaviour. Thus a separation began when the child entered the playroom and ended when the mother finally left. A greeting incident began when the mother entered and continued until mother and child left the playroom.

Considering the speech of mother and child helped raise conceptual problems (discussed already in Chapter 1, pp.25-6) about where the interaction began and who initiated it. During this pilot study I also recognised the possible role of the teacher in initiating mother-child interaction at separation. The teacher might draw the child's attention to the mother's preparing to leave (e.g. by saying "Aren't you going to say bye-bye to Mummy?"). I had chosen to omit recording teacher's behaviour for the meantime for two reasons. First, I

focussed on mother-child dyadic interactions because, like Leach (1972), I could not see a way of dealing with the intervention of third persons. The second more obvious reason was that I was hard pressed to record the behaviour of even two persons in this situation.

MATERIALS AND METHODS

Observation Facilities

The observations were made in the Epworth Halls Nursery School, Edinburgh. All observations were made from within the playroom (for diagram see McGrew 1970). The observer stood as unobtrusively as possible at the side of the room, avoiding eye-contact, and not prolonging interactions if initiated by others (Smith and Connolly 1972). Mothers and children entered the playroom by the door from the outside passageway which led to the cloakroom and to the main front door. They were greeted by the teacher or her assistant.

Routine and Adult Supervision

The children began to arrive with their respective mothers between 9.05 and 9.30 a.m. They usually went to the cloakroom first before entering the playroom itself. The child might enter with the mother or alone. Those mothers who previous to the beginning of the study were accustomed to taking leave of their charges in the cloakroom or corridor were encouraged to do so inside the playroom, so that I could observe the separation more easily. They were informed that the observer was interested in watching children's behaviour at separation and greeting, but were not informed that their behaviour was also being

observed. Most mothers, even of children who largely ignored them, did come to the nursery playroom door before leaving and looked at the child or greeted the teacher. In the few cases where individuals had to change their routine to fit in with the observer's requirements, a trial period of observation indicated that they did so without any obvious change in their usual behaviour towards the child in this context.

Greeting was also observed from inside the playroom. Mothers were again asked to enter the playroom, a change in usual practice, but one which soon became routine. Observations from the transitional period were omitted from the final analysis. At the end of the play session, about five minutes before the mothers were due to arrive, play was stopped and the children encouraged to help tidy up. The doors remained closed until this was finished when the children were asked to sit down in a group while the teacher went to let in those mothers who had arrived.

Subjects

The subjects (see Appendix 1) were twenty 3-5 year old children and their adult caretakers. The children were from a mixture of social backgrounds (social classes 1, 2 and 3). None had been examined for or shown signs of any psychiatric or other medical disorder. All had nursery experience prior to the beginning of the study except one (Eileen Ann) and their average age was 4 years. The adults recorded were their mothers or whoever came with them in the mornings and returned for them later. This was usually the mother of each child observed, but on occasions, and in some cases, the responsibility was shared by more than one adult. There was not sufficient data on each

adult to make separate analyses worthwhile (see Appendix 2). The data was pooled for all the adults in this caretaking role for each individual child. I shall indicate where differences in the behaviour of or towards these adults might contribute to an anomalous score.

Behaviour Categories and Scoring Method

The behaviour categories are described below. Two observers watched the same interactions during two observation periods. Inter-observer reliability coefficients were calculated using the formula:

Number of agreements (A+B) divided by (number of agreements (A+B) + number seen by A only + number seen by B only).

These values are given in brackets after categories in which over seven observations were made. Mother and child were scored separately at greeting and separation. Each category was scored once if it occurred during the course of observing an individual, so that each individual could have a maximum score of twenty for each behaviour category observed. The following were the behaviour categories scored:

1. Child Behaviour:

glance (inter-observer reliability coefficient, 0.95): Orientation of the face and eyes towards mother for a second or less duration.

look (1.0): Orientation of face and eyes towards mother for more than a second's duration.

smile (0.96): Faces towards mother and smiles. Different types of smile are not distinguished (Grant 1970).

walk (1.0): The child walks towards mother.

run: The child runs towards mother.

away (1.0): The child moves away from mother. This behaviour is scored independently of whether the child later approaches the mother at separation or greeting.

play (1.0): The child begins to manipulate play materials or to talk to other children. This did not include the fumbling type of auto-manipulation (McGrew 1969), that is, it required an initial attention to play materials indicative of an 'intention' to play.

jump: Facing the mother, the child jumps up and down with both feet pushing more or less together. This is separated from skipping and from stamping with one foot at a time.

wave: The child waves his hand towards mother. The forearm is raised to near vertical, the hand open-palmed towards mother. The amount of waving movement, and whether the whole arm, or only fingers or wrist is moved varies from one individual to the next.

show (1.0): The child holds an object in front of himself away from the body and towards the mother. Mother may take the object or may look at it and talk about it, or may ignore it. Show also includes drawing the mother's attention to an object that cannot be moved (e.g. a drawing on the blackboard) and perhaps leading her towards it, talking and pointing.

pucker: Oblique eyebrows or bulging inner end of eyebrows without clear lowering of brows, with or without red face, orbicularis oculi contraction, lip retraction or squaring of the upper lip.

cry: Crying vocalisations. No distinctions are made between various forms and intensities.

talk (1.0): The child talks to mother while looking or glancing at her, or produces words whose meaning indicates that they are addressed to her.

salutation (1.0): A subcategory of talk consisting of utterances normally accepted as greetings by native speakers of the language, e.g. "Hi there", "Hello", "Bye", "See you later", etc. It does not include all classes of first utterances used at greeting, and last utterances at separation.

arm extend (1.0): The child holds one or both arms out fairly straight above the mid-line of the body towards the mother, looking at her.

kiss (1.0): The child reaches up to his mother's face with his own, lips pursed, and touches her face. Sometimes a kissing sound is heard. Mothers usually kiss their children almost simultaneously. Sometimes it is not reciprocated.

embrace (1.0): The child touches the mother with one or both hands on her arms, shoulders, neck or waist, so as to enclose some part of the mother's body. The child may exert some pressure with the arms in a 'squeeze'. Embrace is distinguished from maintain contact in that the child moves before or simultaneously with the mother to break the contact.

maintain contact (0.95): This includes such child-maintained contacts as leaning against, very close bodily proximity to, and clinging to the mother. It is distinguished from embrace by the mother moving first to break contact with the child.

take hand (1.0): The child actively takes hold of mother's hand. The mother may extend her hand towards the child or she may not. This does not include occasions when mother takes the child's hand without his cooperation.

suck: The child puts fingers into his mouth. This category includes thumb and finger sucking, biting nails, putting finger to the lips, putting hand over mouth or arm to mouth, and hand chewing.

touch (1.0): Includes any intermittent contact, or contact of short

duration, e.g. patting, stroking or tapping, in which the child is the active party. This does not include instances when the mother is the active one.

2. Mother Behaviour:

M. glance (1.0): Mother glances at child.

M. look (1.0): Mother looks at child.

M. smile (1.0): Mother smiles when looking at child, regardless of whether the child was looking at her.

M. approach (1.0): Mother moves towards the child while looking at him. This is recorded regardless of whether the child is moving or not.

M. wave: Mother waves hand towards child.

M. talk (1.0): Mother talks while looking or glancing at child and addressing her utterances to him. Occasions when the mother is talkingto the teacher and glances at the child are not included.

M. salutation (1.0): Mother produces salutatory utterances while looking at the child.

M. extend arms: Mother stretches out one or both arms towards the child, having looked or glanced, or while she is looking at the child.

M. kiss (1.0): Mother kisses child who may or may not reciprocate.

M. embrace: Mother embraces child who has embraced her, or who then does so.

M. maintain contact (0.95): Mother keeps child in contact. She may actively restrain him or may be lightly touching him. This is distinguished from M. embrace in that the child breaks, or moves to break, contact first.

M. take hand (1.0): Mother takes child's hand regardless of whether the child has proffered it.

M. groom (1.0): Mother grooms the child, e.g. wipes his face, adjusts clothes or ties shoe laces.

M. touch: Mother touches child. This does not include incidents where mother is touched by child.

M. pick up: Mother picks up the child and may hold or carry, or may put him down again.

M. slips out (1.0): Mother shows no other child-directed behaviour besides look before leaving at separation.

Recording Materials and Methods

The situation, especially at greeting, was rather a difficult one for data collection, despite the improvements made to facilitate observation of mother-child pairs. Ideally, for recording purposes, one mother should have arrived at a time, but this did not always happen and several tended to come at once. Rather than make the situation any more contrived (by organising the mothers into coming at regular well-spaced intervals, which would probably have made them more self-conscious and affected their behaviour), I tried to pre-select the children I would watch each day. This was done on the basis of a combination of factors such as who was likely to come last, who came first, and who had been absent, so that I eventually recorded twenty observations of each pair at separation and greeting, fairly evenly spaced out across the study period.

The data was collected by the observer speaking into a portable cassette tape recorder. By talking softly and supplementing the commentaries by written records, it was possible to obtain records of the behaviour of the mother and child without their hearing. These records and tapes were transcribed later.

RESULTS

The scoring of individual children and mothers on the behaviour categories observed revealed an apparent sex difference for some of the categories. These differences (see later) appear both in comparing the behaviour of girls and boys towards their respective mothers, and in comparing the mothers of girls to the mothers of boys. Significance levels ('p', indicated in brackets) were calculated using the Mann Whitney U Test (one-tailed) unless otherwise indicated.

Children at Separation

Boys tended to score higher on away than girls ($p \leq .001$), otherwise, where there are differences at separation, girls tended to score higher than boys. This was especially true of each bodily contact category - maintain contact, take hand, touch, kiss, and embrace - and also of suck and walk (all $p \leq .001$). Only two children cried at separation, both girls, one of whom had fallen on entering the playroom. My finding a low incidence of cry and pucker at separation fits in with Blurton Jones and Leach's observations of this age group of children. On the other categories, those that might loosely be classified as 'sociable', there were marginal or no significant differences (i.e. on talk, wave, salutation, smile, look, glance and show).

Mothers at Separation

Mothers of boys and of girls were not significantly different in their behaviour towards their children on glance, look, smile, approach, talk,

show and wave. Mothers of boys slip out consistently more often than mothers of girls with two exceptions, Clare C and Anna. Clare C was always brought by either one of Allison's parents who always slipped out while Clare always showed away. Anna tended to talk to the teacher on her arrival at nursery and was often reminded by her that her mother was waiting to take her leave (for an example see p.26).

Children at Greeting

At greeting there were fewer sex differences than at separation. Pucker and cry were observed once, and again the child had hurt herself. Suck, kiss and maintain contact were more often shown by girls than boys ($p \leqslant .001$). For smile and arm extend girls scored only marginally more than boys ($p \leqslant .01$).

Mothers at Greeting

Among mothers there were even fewer differences than among children. Although kiss and pick up were more often scored for girls' mothers, as at separation, the observations were restricted to only three of the mothers and their scores were again low.

DISCUSSION

As I pointed out in the introduction, my main concern is not with the data for each individual, but with looking for a way of putting these individual performances of mother and child together. Blurton Jones and Leach went some way towards this in taking the percentage number of times the child's approach was associated with the mother touching

the child as a measure of responsiveness. I suspect their choosing to associate these two particular categories was not arbitrary and was based on it being an intuitively reasonable measure of responsiveness. To me it seems equally reasonable to expect that some of the behaviour categories I observed in mothers and children (namely, smile talk, salutation, wave, kiss, and embrace) would be appropriately responded to reciprocally. (The data does not allow one to infer any other form of exchange than reciprocal). If mothers and children were generally reciprocally responsive to these behaviours, then one would expect there to be no significant difference between mothers' and children's individual scores on these categories. But most of these scores are significantly different between mothers and children. In the case of wave and kiss at greeting, the mothers as a group were unresponsive (see Table 1). Perhaps some individuals contribute to this difference more than others, but my point is a more general one about the validity of this responsiveness measure.

A more direct and more valid measure of the degree of responsiveness than the association of scores, may be found by looking at the dyadic sequence of mother-child behaviour and noting how often an act in one is followed by a response in the other. Leach (1972) used such an anlysis to compare samples of normal and problem children in their responsiveness to their mothers in a playgroup situation. She does not state that she made any a priori assumptions about the response she expected to follow each category of act, but I argue that such assumptionsare inherent in her analysis, since she does not score interactive sequences which she judges as interrupted. The observer's judgement of interruption inevitably involves her preconceptions about what response is appropriate. To take two hypothetical examples:

Table 1

Comparison of Mothers' and Children's Scores on the Same Behaviour Categories at (a) Greeting and (b) Separation

(a) Greeting

Category	Mother's Score (M) (Medians)	Children's Score (C) (Medians)	Significance Level on Mann Whitney U Test, two-tailed
smile	19	12	$p \leq .025$ M>C
talk	10	5	$p \leq .001$ M>C
salutation	10	1	$p \leq .001$ M>C
wave	0	1	$p \leq .001$ M>C
kiss	0	0.5	n.s. C>M
embrace	1	1	n.s. C>M

(b) Separation

smile	17	5	$p \leq .001$ M>C
talk	6	2	$p \leq .001$ M>C
salutation	16	2	$p \leq .001$ M>C
wave	3	1	$p \leq .001$ M>C
kiss	5	8	$p \leq .01$ C>M
embrace	2	4	n.s. C>M

the child has asked his mother a question. In one case the teacher engages the mother in conversation before she can answer the child. In the second case the mother sneezes before answering. The mother's talk to the teacher and her sneezing follow on the child's question and can be described by the observer as interruptions or inappropriate responses to the child, but this is reasonable only on the grounds of the observer's a priori expectations of what is an appropriate answer. These are rather simplistic examples, but it remains to be seen whether observers can come to agree on what is or is not an appropriate response in the more complicated circumstances I shall describe later (see Chapter 4). But the first step is to discover a conceptual and methodological basis for observers making judgements about the appropriateness or inappropriateness of behaviour in order to make their criteria for these judgements more explicit. The development of these concepts and methods for dealing with the specific problems that arise in attempting to describe interaction were not only based on my own and Leach's observations of mothers and children. Around this time I was beginning to watch social behaviour among children engaged in free play. It is in attempting to describe child-child interactions that the problems, summarised below, become more acute:

1. As discussed already, how does one choose what response is appropriate or inappropriate?
2. What criteria can one use to say that the behaviour is directed or not? Leach does not make her criteria explicit, but they seem to be defined in behavioural terms.
3. What criteria can one use to say that the directed act has been perceived and not responded to by the recipient, rather than not

perceived in the first instance (- a problem that Leach does not discuss)?

4. How does one deal with interactions involving more than one person? This is not only the problem of interruptions by third persons, as discussed above. It also includes the problems that Leach mentions of what to do when the child directs his behaviour within a group to more than one person, or when group interaction moves so fast that it is difficult to record (e.g. in a game of 'Batman').

5. How can one deal with informative and undirected behaviour that, as Leach suggests, can lead to interaction as well as does communicative, directed behaviour?

A solution to these problems lies in deciding in what sense and in what circumstances one is justified in saying that two children, or an adult and child, are engaged in social interaction. I shall be working on a solution to these problems in Chapters 3 and 4.

CHAPTER THREE

THE INITIATION OF CHILDREN'S INTERACTIONS

INTRODUCTION

To invest the term 'social interaction' with meaning (the object of this chapter) requires a structural analysis relating behaviour, social context and intention in a systematic way. The conceptual analysis below owes something to Goffman's descriptions of adult interactions (e.g. Goffman 1961; 1963). He makes the distinction between 'focussed' and 'unfocussed' interaction. There may be a parallel between this and Chance and Larsen's (1976) distinction between 'centric' and 'acentric' social systems, based on the way attention is structured within the group. An 'unfocussed' interaction is the result solely of people being in one another's presence. A 'focussed' interaction develops when the people present agree to sustain for a time a single focus of cognitive or visual attention (Goffman 1961). A focussed interaction is initiated by a process described as 'clearance' (Goffman 1963, pp 91-92). That is, one person makes an opening move (e.g. calls the other by name) which the other acknowledges (e.g. says "yes?" or turns round and looks).

The beginning of a focussed interaction is marked by one's granting the other an audience in this way. Goffman's descriptions are based on assumptions about the intentional and conventional nature of adult social behaviour. As yet, these assumptions have no empirical foundation. However, his concepts are a useful frame of reference in which to formulate an operational definition of 'focussed' social interactions among children.

I defined social interaction initially as a dyadic sequence of reciprocal overt acts between two persons such that they cooperate in mutually focussing one another within the context of the interaction. Discussion of the examples below is used to illustrate this definition and make it operational. These examples are not a representative sample and are not intended as an exhaustive list of categories.

1. Bryan walks up to Lorna, looking at her, his arms held above his head, flexing his fingers: "I'm a dinosaur, I'm a big dinosaur!" Lorna looks at him, laughs, pushing him away: "Go 'way silly dinosaur!"
2. Eileen Ann and Nial are sitting at the shop counter. Eileen Ann puts a tin on the scales, watched by Nial. The tin falls off onto the floor. Nial: "Fell out, didn't it?", glancing at Eileen Ann who replies, "That's cos it has to be empty cos a people eat a nuts."
3. Michael and Bryan are playing with water. Michael looks at Bryan and, laughing, splashes water at him. Bryan, stepping back, wipes his face: "Pfff!" Then he throws a handful back at Michael. They look at each other and laugh.
4. Angela and Eileen Ann are fitting pegs into holes. Each has a board and they share a tin of pegs which is balanced precariously at the edge of the table. It falls off and the pegs scatter over the

floor. Both look at what has happened, and burst out laughing.

5. Gordon sits at the table making something with lego. Lorna approaches and sits watching him. She says: "That's nice - got wheels!" glances at Gordon. Gordon: "Yes; 's'a train. Me mak'n a train."

6. Gordon holds up the train he has made and glances at the teacher. "Look!" Teacher looks at Gordon and his train. Gordon: "Me made a train." Teacher: "Oh yes! It's got wheels too. Does it go?"

7. Eileen Ann touches the pieces of a building game Robert is playing. Robert glances at what she is doing. "No! I need these all myself!" he says. Eileen Ann watches him for a while and then again touches a piece. "But I want to help!" to which Robert replies, "But ye cannae help - I've got to do this all myself."

The children may interact verbally or it may be a purely non-verbal interaction (3 and 4). In any case, whether speech is involved or not, each child must direct what he does or says within the context of the interaction. In these examples, one child (the initiator) either already has the other child's attention (2 and 4) or gets his attention by directing what he says or does towards him (1, 3, 5, 6 and 7). The other child (the recipient) shows he understands the meaning of what the initiator said or did by saying or doing something contextually appropriate in exchange. Which child defines the context and which directs the behaviour towards the other first within this context may vary. It is not necessarily the initiator who defines the context (as in 1, 3 and 6); it may be a spontaneous occurrence (4) or it may be defined by the recipient (2, 5 and 7). It will be apparent by now that the kind of context relevant here is an immediate

temporal one. Where social interaction is initiated in the way described above, it is directly observable by persons outside the interaction, given that they speak the same language and have a fair knowledge of the culture (for validation of classification, see p.58).

The above examples of children's interactions might also be analysed in Goffman's terms. In only one example (6) is 'clearance' apparently achieved before the main part of the interaction begins. In most others (1, 2, 3, 5 and 7) 'clearance' is implied in the recipient's response. This leaves example 4 (one of three observed throughout the study period). Perhaps by analysing a film or video-tape record one could sort out who was the initiator and who the recipient in such examples. Subtle features of the situation (e.g. in the temporal patterning of eye contact and expression of the eyes) might suggest that the initiator sought and the recipient granted 'clearance'. Yet however small the units of behaviour used, the fundamental problem of deciding whether the behaviour of one child is intended to affect a response in the other is still the same.

In discussing these matters of intention, I want to concentrate on where intention affects the type of social interaction I am observing. Used in a restricted sense, it is the 'intention' to affect someone's behaviour towards oneself. The initiator's behaviour may be behaviourally directed towards the recipient. It may be 'intended' to get the recipient's attention. One way of deciding that behaviour directed towards others is intended, is to show that it functions to get the recipient's attention. The study reported below is designed to test this.

MATERIALS AND METHODS

Play Facilities

The observations were made in Roxburgh Street Nursery, Edinburgh. This was a private nursery school run by the Department of Psychology, University of Edinburgh. The playroom (see Diagram) consisted of a rectangular area (43 x 31 feet) with an observation room enclosed by a one-way screen in one corner. The building corner, piano and Wendy house were in permanent positions. The rest of the apparatus (e.g. slide, toy-shelves, book corner, games, tables etc.) were rearranged occasionally (usually once a term). Unaccompanied children were allowed access only to the door leading to the cloakroom and then only if permission was granted by one of the staff. Otherwise they remained in the playroom. The outdoor play area was not easily accessible for small children on their own. Because of supervision difficulties, all the children were organised to go and play outdoors as a group, when the weather was suitable. During the study period this was a rare event. Out of doors, some of the same play materials were made available (e.g. sand, books and water) but the children also had the opportunity for more active games (e.g. on the climbing frame and tricycles).

Adult Supervision

Two members of staff were present - a trained nursery nurse and her assitant. The degree of supervision required by the nursery conventions differed according to the activity in which a child was engaged. During free play sessions children were not generally organised by adults or given suggestions for any particular activity.

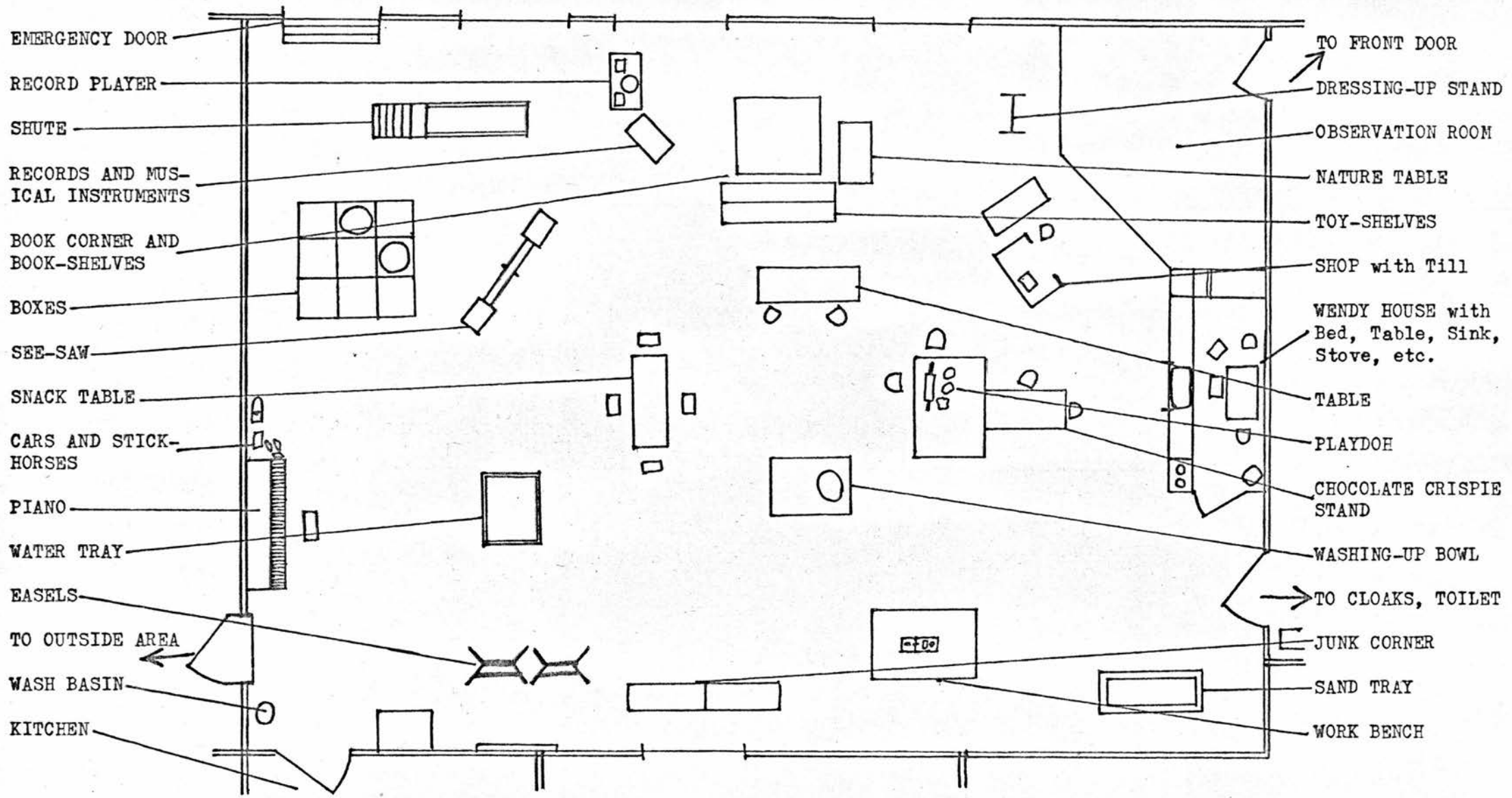

Diagram : Plan of Nursery, Roxburgh Street. (Approx. Scale : 1":6')

Nursery Routine

Free play lasted from 9.15 a.m. (when most of the children had arrived) to 10.30 a.m. There was a break during which the children had a story read to them and then sang nursery rhymes etc. After this, free play was resumed till it was time to tidy up at 11.40 a.m. From 11.45 a.m. onwards, children began to go home as parents or other adults collected them. Parents were very rarely present during free play periods, only when a child showed (or was expected to show) distress at separation. Most parents left promptly and only returned at the end of the morning.

Subjects

15 children (8 girls and 7 boys) were observed. At the midpoint of the study, the average was 4:3 (years:months) with a range between 3:2 and 5:2. (For details see Appendix 3).

Behaviour Categories

The behaviour categories recorded for each child were those directed towards other members of the social group. The criterion used for directedness was overt visual attention of one person (child scored) to another person. The categories were operationally defined (see p. 55).

Observer reliability testing was important for checking the validity of the behaviour categories. Two observers (A and B) watched the same videotaped social interactions and noted the patterns seen and heard. Coefficients were calculated (for formula, see Chapter 2, p.39). Where values are given after category definitions, they refer to these coefficients. (A few categories did not occur

frequently enough for coefficients to be calculated). For all categories observed, the scores were above the acceptable level (.90) (Hutt and Hutt 1970).

Speech utterance (.90) E.g. "What are you doing?" "I'm making a snake." "Get off; tha's mine!" "Look!", Look and calling by name are classified separately.

Calling by name (1.0) Real name, e.g. "Bryan! or in context of a game, e.g. "Dinosaur!" "Pussycat!"

Touch (1.0) Touch with part of the body or with an object (excluding accidents). Includes e.g. push, reject, kiss and embrace.

Smile (.96) Different types or intensities of smile are not distinguished.

Look (1.0) Looking at recipient from within a distance of three feet of him. The initiator may have just approached or may have been with the recipient for a longer period of time. Watch is distinguished.

Touch object (.94) Initiator touches an object, game, or part of a game that the recipient is attending to, but the initiator is usually attentive to the recipient rather than to the object he is touching.

Repetetive utterance E.g. "I want, I want, I want (teacher looks) I want to paint!" The first part of a speech utterance is repeated until the recipient attends. Repeated play noises or repetitions of people's names are not included.

Exclamation (1.0) E.g. "Uaah!" "Ouch!" "Pffoff!" Also play noises, e.g. "Bang!" "I-am-a-dalek."

Greeting (1.0) Verbal, e.g. "Hi!" "Bye-bye!"

Close orientation Orientation of the body, especially the face, close to someone else's so that it would be difficult for them not to perceive

one's presence.

Extend object (1.0) Hold out an object towards the recipient, as if to give or show.

Extend arm Hold out arm towards someone, e.g. to beckon, to wave or as if to touch.

Recording Materials and Methods

Each child was observed for one hour on any particular day, 30 minutes before 'story time' and 30 minutes after. On each separate occasion (day), each individual was observed at approximately the same times in order to minimise the possible effects of fluctuations in his or her activity rhythm (McGrew 1972) or daily routine. The observer focussed on and followed one child at a time. The children seemed to tolerate being followed quite closely in that they tended to ignore the observer and showed no obvious signs of being disturbed by the observer's presence. The observer avoided eye contact with the children and never initiated interactions with them. On the few occasions when a child tried and succeeded in initiating interaction with the observer, no attempt was made to prolong it.

Recording materials consisted of pen, stop watch and clip-board. A written record was taken on record sheets marked off in 15 second intervals. Essentially, the record was a continuous written description of one child's social interactions, specifying what particular adult or child was involved in each. Since one only knows after the event that social interaction has occurred, it was necessary to have an accurate ongoing description of behaviours and circumstances likely to lead to it happening. The behaviour categories used in the analysis (i.e. behaviour directed to others) are described above. The record

also specified other aspects of the total context (e.g. undirected behaviour) likely to prove relevant in initiating social interaction. The following is an outline illustrating the type of information recorded:

1. Speech utterances verbatim, especially those spoken when the observer expects others may hear and, more especially, those directed towards others. E.g. Michael to Eleanor: "I got an Indian hat!" Eleanor: "Where you get that?"

2. The temporal pattern of overt visual attention related to the speech of the children. E.g. Michael and Eleanor look at each other. Michael: "I got an Indian hat!" Eleanor: "Where you get that?" looking at the hat. They glance at each other. Michael: "There!" (Reliability coefficients: mutual look (1.0), mutual glance (.94)).

3. Directed non-speech behaviour. E.g. (in above example) Michael looks at Eleanor and touches her. They look at each other. Michael: "I got an Indian hat!" and shows his hat. Eleanor: "Where you get that?" looking at the hat. They glance at each other. Michael points towards the door: "There!"

4. Description of what each child is doing and attending to. E.g. Debbie making chocolate crispies. looks at two pieces of chocolate on the table. Eileen Ann, with Debbie, points to the chocolate and says "One, two!" Debbie looks at the chocolate in the pan and stirs it. Eileen Ann watches her. Debbie glances at Eileen Ann and points to a piece of chocolate: "Put that in first?" Eileen Ann: "No you don't, not yet."

Method of Analysis

The method of analysis was designed to test if the categories of behaviour recorded had a function in getting the recipient's attention. Each child could appear in his own or in other children's records as initiator or recipient. Directed behaviour in the initiator was defined above as that which is accompanied by overt visual attention. The criterion for attention in the recipient was overt visual attention towards the initiator, non-verbal compliance with a request, or a verbal reply whose context matched that of the initiator's directed behaviour. Social interaction was defined as above (p. 50). Observer agreement that a state of interaction had been initiated was high (reliability coefficient: .98). Those categories of the initiator's directed behaviour which immediately preceded attention in the recipient were noted as 'attention-getting' behaviours. Only those categories which got the attention of the recipient in instances where social interaction was subsequently initiated were scored.

RESULTS AND DISCUSSION

Since my purpose was not to 'type' individual subjects, the data was pooled for the group of subjects for each behaviour category. The results are shown in Table 2. There was a considerable range in the frequency with which these categories appeared in the attention-getting phase. In 82.5% of the social interactions observed (n = 361), the initiator's directed behaviour functioned to get the recipient's attention. The initiator's undirected behaviour may have played a part in the remaining 17.5% where the recipient's attentiveness cannot

be explained in terms of the initiator's directed behaviour. These interactions were classified as 'spontaneous' in Table 2. The following are two examples from this small proportion of social interactions:

1. David is building a tower. Keith is passing by as David's tower is about to topple. He looks at the tower, then at David who glances at Keith after catching it. David: "Cin you hold that for me a minute, Keith?" Keith holds it up while David gets another brick and puts it on top.

In this example, David is the initiator of the interaction, yet no overtly directed act of David's attracted Keith's attention. It seems to be a chance occurrence. This does not mean to say that Keith's attention is rondomly distributed among the members of the group. There may be factors (e.g. status rank, Abramovitch 1976) that can be shown to affect the probability that one individual will look at another. But this involves a different level of explanation. At the individual level, Keith may be interested in what David is doing. This is not, in itself, a very useful explanation. However, it does imply that in some cases, to explain the recipient's attention in social interaction, we may need some account of the recipient's actions and underlying intentions in relation to those of the initiator. This raises some conceptual problems (see Chapter 4).

2. Angela and Avril have been playing at stick horses. Avril: "Let's go and play on the see-saw," and they look at one another. Angela: "I know - you get on the back behind me." Avril joins Angela and they ride off round the room.

Table 2

Attention-Getting Behaviour in Child-Child Interactions

(i.e. Interactions successfully initiated)

Category of Directed Behaviour	Total
Speech utterance	109
Calling by name	51
Touch	25
"Look!"	24
Smile	20
Look	17
Touch object	12
Repetitive utterance	8
Exclamation	8
Greeting	8
Close orientation	6
Extend object	6
Extend arm	2
Watch	1 *
'Spontaneous'	64
Total Social Interactions	361

* This result may seem surprisingly small; see Chapter 5, pp.109-10 for explanation.

Here Angela initiates social interaction with Avril. She did not need to attract Avril's attention in order to do so. Avril's behaviour might be intended to get Angela's attention; it did function as attention-getting behaviour by the criteria stated above. Mutual attentiveness is a necessary but not a sufficient criterion for judging that social interaction was initiated (see p.58). Intuitively it seems reasonable to infer that Avril's attentiveness is an integral part of her attempt to initiate social interaction with Angela. In the following chapter I discuss the criteria which observers may use in coming to an agreement that a child (e.g. Angela in example 2) succeeded in initiating social interaction. This involves judgements of the 'appropriateness' of responses. By the same criteria, observers may also agree that a child (e.g. Avril in example 2) attempted but failed to initiate social interaction.

I have described how social interaction is initiated, but have yet to describe the course of the interaction and its termination. This can be achieved by defining units of successful and of failed attempts at social interaction (Chapter 4, p.71). Breaking up the sequence into units is important in two respects: first, in order to quantify social interaction in nursery school children (Chapters 5, 6 and 7) and second, conceptually. There is a conceptual inadequacy in a causal account of an individual's social action in terms of his intention or of any other attribute, emotional or cognitive. If one says an intention causes an individual to act in a particular way in certain conditions, and these conditions include the actions of other individuals, then the account becomes circular. We can alleviate the circularity by using the relation between an individual's social action and the social context (including the recipient) as the fundamental unit of analysis. This is elaborated in the following chapter.

CHAPTER FOUR

THE ROLE OF INTENTION IN SOCIAL INTERACTION

INTRODUCTION

The objective of this chapter is to assess the validity of describing social interaction in terms of one child's action on another. Can we explain a recipient's social response by the action of the initiator on him? This problem (which Piaget does not discuss, even Piaget 1932) can be illustrated by comparing:

1. the task for the child of acting on a physical object, with
2. the task of acting on another child, a complicated 'object' with psychological attributes.

In both cases 1. and 2. the goal response (i.e. the response the initiator expects to elicit from the recipient) might be operationally defined post hoc. For example, if a child intends to gain possession of an object from another child then there are several different strategies he can use - ask for it, grab it or wait till the owner's attention is distracted and then steal it. Similarly perhaps, if he intends to get an object out of a closed box, he can try to pull at

the lid, use a lever or make a hole in it. In both cases, the intended outcome, possession of the object, is the same. If he fails to attain his goal by one strategy, he may try another. His success or failure in each case may be explained partly as a function of his own physical attributes and his ability to switch to another strategy if one proves unsuccessful. But these faculties must be considered in relation to the nature of the box in one case and of the owner of the object in the other case. Ultimately, the nature of the box can be described in physical terms and so the outcome of an act upon it is easily predictable and invariant. The nature of the child who owns the object cannot be defined solely in physical terms and the outcome is thus less predictable. To be successful in acting on another child, and to gain possession of the object, the child may have to take account not only of the owner's physical strength, but his mood, intentions, ongoing activity and focus of attention. One could apply a model of motor skill (e.g. Bruner 1969) to the box problem, and a social skill model (e.g. Argyle and Kendon 1967) in the case of the ownership dispute. In the latter case, one could apply the model equally to describing the one child's skill in gaining the object, or the other child's skill in holding onto it. But to explain the outcome of their interaction one still has to find a way of relating the actions of the two children and of judging whether they intend to affect one another's behaviour.

A form of description of action useful for describing interaction is one that relates individual action to the context in which it occurs. The kind of context relevant here was discussed earlier (p. 51). Each child must adapt his actions to this context in order to interact with the other.

The use of 'adaptation' here is comparable to Piaget's use of the term in describing children's speech (Piaget 1926). The term might equally well be applied to purely non-verbal behaviour. Piaget used the term 'adapted information' to refer to statements like "That's new shoes you got on", and 'criticism' (in effect, 'negative adapted information') to refer to statements like "You don't do it that way - that's a silly way!" These could conceivably lead to dialogue or to argument. When Piaget originally defined monologue, he said the child "talks to himself as though he were thinking aloud". So far our definitions are similar. But he also said the child "does not address anyone". In the sense I use the term 'monologue', it may be addressed to someone. Monologue is speech or non-verbal behaviour which consists of one or more unadapted statements expressive of the child's own emotions, thoughts or activities and unrelated to the other person's point of view. (This is closer to Piaget's later account of egocentric speech, Piaget 1962). Such statements may be addressed (or directed) to someone or they may not. To give an example of unadapted, undirected speech: Nichola is playing in the sand; "I'm making a sand castle - big one - then have to put it on the top - right! - Now! There!" etc. But the child may address someone using the same form of utterance: Gordon to Lorna, who is just passing by: "Me making a sand castle, Lorna." No action of Lorna's at the time indicated that she had a current interest in what Gordon was doing. She was not watching him, she had not asked him what he was doing, she herself was not even playing in the sand.

By defining egocentric speech (monologue) in this way, we can see the sense in which Vygotsky was justified in saying that both 'egocentric' and 'communicative' speech are primarily social (see

Chapter 1, p.29). Although they may have different cognitive functions, they may also have a common function in initiating social interaction. Unadapted statements, even those not addressed to anyone (i.e. not in this sense 'intended' for anyone in particular) may function to involve the child in dialogue with another person. The following example is an illustration of this:

Elspeth and Debbie are in the Wendy house, Debbie dressing a doll and Elspeth clashing pots and pans around and talking to herself: "There - now - I don't know - I have to do everything! - Now where are you, teapot?" She looks in the cupboard. Debbie: "Here it is, Mummy!" and shows her. Elspeth: "Oh! Thank you dear - now -" and she continues talking to herself.

The same kind of consequence, affecting another person's actions, can also be obtained directly. For example, here is a situation analagous to the last example, where someone is looking for something:

Garry is washing up the chocolate pan and spoon at the basin. Eileen Ann watches him, awaiting her own turn to use them. Garry: "Ah tell you what ..." breaks off, looking round, "Where's the towel?" Eileen Ann, holding out to him from behind the basin: "Here you are, dumbdumb-head!" Garry laughs, takes the towel from her.

Up till now, in the examples, only two children have been involved. How do I describe conversations that involve more than two in a group of children? When two are already engaged in dialogue, another child can join in by adapting his statement or behaviour to those of one of the speakers. For example:

Stephan and Gert are talking about Santa Claus. Stephan: "I got a train" addressed to Gert, who replies: "Oh! I got a fort." Paul, who has been playing nearby: "So did I." Gert looks towards Paul; "Yes," he says, "Like mine, isn't it?"

Although Gert and Stephan are engaged in dialogue, their statements being mutually adapted, their dialogue as a whole remains unadapted with reference to Paul, until Paul makes his first contribution. So that at first, from Paul's point of view, this dialogue is a monologue.

I have considered how undirected acts may have a role in initiating social interaction. In doing so, I have described the possible role of the recipient in defining the context of the interaction. The recipient has a further role in responding appropriately. I described (Chapter 3, p.60) how an initiator may fail to get an appropriate response, and pointed out the importance of taking both the initiator's and the recipient's points of view into account. There are at least two explanations for why a child might not respond. He may not have heard or understood what was said, or he may have been intent on doing something else. Even in these circumstances, he might still give a response. For example:

1. Maureen is sitting on the rocking-horse and Debbie is trying to get on behind her. Maureen: "There - sit on that," indicating the seat behind her. Debbie tries again. Maureen: "Just have to end up on the seat," and faces the front. Debbie stops: "What did you say?" Maureen turns round to Debbie again: "What?" and turns back. Debbie: "What did you say?"

If a child asks for an utterance to be repeated or clarified, it seems reasonable to suppose that she had not heard or understood it properly in the first place. However she picked up that the other intended her to hear something if not exactly what she intended her to hear. In such cases, the criterion of overt visual attention of recipient to initiator was still considered valid.

2. Eileen Ann is playing in the sand. Gert is sitting on a toy train: "Eileen Ann, will you push me?" Eileen Ann: "No." Gert: "Why not?" Eileen Ann: "Cos I'm doing something else - can you not see that?"

Eileen Ann's refusal seems as appropriate as an acceptance would be. Yet it was probably not the response Gert intended to elicit. We might say that Eileen Ann's response was negatively adapted to Gert's request. Her refusal did not elicit a negatively adapted response from Gert, but sometimes such a refusal may initiate an argument, e.g. Cara puts a peg into Stewart's peg board. Stewart: "No! Go away!" Cara: "No!" Stewart: "Yes!" and pushes her. Cara: "No!" and so on.

In examples 1. and 2. above, the children are responding negatively to the intended meaning of the initiator's utterance. Utterances also have conventional meanings. Responding appropriately may sometimes be a matter of adapting to another person's point of view but, at other times, a matter of using a conventionally appropriate reply. In some circumstances mutual understanding of intention may not be necessary for social interaction. These are circumstances in which the conventional (utterance) meaning and the intended (utterer's) meaning are different. For example:

1. Eileen Ann is doing a jigsaw puzzle and Stewart is helping. Eileen Ann nods towards two jigsaw pieces: "Gimme that." Stewart picks up one piece and hands it out to her. She says: "No, not that one, that other one, please." Stewart: "Oh!" and puts the first one down, picks up the other and gives it to her.

Eileen Ann implied that she wanted a piece of jigsaw. She did not specify that she wanted a particular one. Stewart responded appropriately by giving her a piece. Eileen Ann initiated social interaction on the first attempt, although she only succeeded in carrying through her original full intention on the second attempt.

2. Richard and Maureen are in the Wendy house. Richard: "Have you got a dog?" Maureen: "No, I haven't got a dog." Richard: "I haven't got a dog." Maureen: "You mean a <u>real</u> dog?" Richard: "Real dog in the house." Maureen: "You mean a <u>real</u> house?" Richard: "When I have a dog in the house, then..." Maureen breaks in: "I don't know what you're talking about!"

In a sense the two children seem to be talking at different levels and from their own points of view. Maureen is attempting to find out if Richard is talking about a 'real' (or pretend) situation. Richard answers her first question appropriately. But generally he behaves as if he did not understand the purpose of her questions, and he does not answer the second. Yet until then they are engaged in social interaction.

I have already noted (Chapter 1, p. 15) that language has more than one function. It is not only for affecting the actions of other

persons (the 'interpersonal function', Halliday 1970), although this is the function with which this study is primarily concerned. Halliday described another "basic" function of language - "for the expression of 'content', that is, of the speaker's experience of the real world, including the inner world of his own consciousness" (the 'ideational function', ibid, p.143). In some cases the ideational function may serve an interpersonal function. For example, taking the two utterances quoted above (Eileen Ann's command, "Gimme that", in example 1, and Richard's statement, "I haven't got a dog", in example 2), it is conventionally acceptable for the hearer to question what the speaker intended by his expression, the 'content' of his utterance. The question may be asked implicitly (and perhaps unintentionally, e.g. by Stewart in example 1), or explicitly and intentionally (e.g. by Maureen in example 2). If successful in clarifying the speaker's intention, then the hearer may choose to respond appropriately, or he may not.

Summary

To be an initiator of the first unit of a sequence of interaction a child must direct his act (at least behaviourally) towards the recipient (as described in Chapter 3). In this introduction I have discussed how an act may be classified as adapted or unadapted. Taking another person's point of view, and giving an appropriate response, are not necessary pre-conditions for social interaction. The fulfillment of a social intention is limited by the recipient's interpretation and action. One can take some account of the recipient's contribution by accepting an adapted, rather than an appropriate, response as an adequate criterion for social interaction. In other

words, instead of defining the outcome of an individual's action as attaining a long-term, perhaps inaccessible, goal (e.g. clarification of Richard's meaning in example 2, or gaining the object in a dispute), one might describe his action as intended to get an adapted response as a short-term or sub-goal. If this approach is valid, one could describe a sequence of social interaction in terms of units, each consisting of an act and its adapted response, which may function as a further directed act, and so on. Any child's action in a social situation, directed or undirected, adapted or unadapted, may be used by another child in initiating social interaction or continuing it.

In practice, the aim of this chapter is to clarify the role of an individual's intention in social interaction at the above level of description. The first step is to develop and validate a classification of directed acts and adapted responses. Within each unit, one can take account of the context of the act at the same instant in time and for a preceding period. However, for the empirical purpose outlined below, it is necessary to make a sharp methodological distinction between the structure of the act and its social function in getting an adapted response.

Using this description, we may assess the adequacy of explaining the recipient's adapted response in terms of either the skill of the initiator acting upon him, or the recipient's skill in interpreting the initiator's action. If either account is adequate, then the proportion of acts getting adapted responses should vary with the social skill of those involved in the interaction. Assuming that individuals become more socially skilled with experience (or age), then we can expect increasing levels of adapted responsiveness in the series of interactions of:

1. Children on their first day at nursery,
2. Children with some nursery experience, and
3. Their teachers.

MATERIALS AND METHODS

Play Facilities, Adult Supervision, Routine

As described in Chapter 3 (pp.53-4).

Subjects

The subjects were 19 children and their teachers. Of the children, 9 (5 girls and 4 boys) were newcomers to the nursery school group. According to the usual school routine, they were introduced singly over a period of one term. The average age of these children was 2:9. Two of them (ages 2:10 and 4:4) had prior experience in other nurseries. The remaining 10 children (5 girls and 5 boys) were original members of the nursery group into which the newcomers were introduced. Their average age at the midpoint of the study was 3:10 and they had an average of one year prior experience in this nursery. (For details see Appendix 4).

Behaviour Categories, Recording Materials

As described in Chapter 3 (pp.54-7).

Recording Method

(See also Chapter 3). Each child was observed for one hour - each of the original group of children for six ten-minute intervals over

Table 3

Observer Agreement Coefficients, Demonstrating the Importance of Context. (x = coefficients of agreement; n = number of acts).

List (of utterances): cannot include context, or non-verbal categories.

Category	Agreement on List		Agreement on Videotape	
	x	n	x	n
command	1.00	33	0.94	16
implied command	0.37	14	1.00	12
desire	1.00	10	1.00	10
polite request	0.52	14	1.00	11
request for repetition	1.00	3	1.00	4
play suggestion	1.00	2	1.00	3
question	0.90	38	1.00	16
appendant question	1.00	15	1.00	4
objective statement	0.12	17	1.00	16
unadapted statement	0.57	36	1.00	11
plan	0.75	7	1.00	8
adapted information	0.66	54	0.97	35
criticism	0.76	43	0.95	19
salutation	1.00	5	1.00	4
adapted behaviour			0.98	46
negative adapted behaviour			0.96	26
show give			1.00	27
no response			1.00	20
unadapted behaviour			0.95	20
hostile unadapted behaviour			1.00	20
joke			1.00	13

a period of seven weeks; newcomers for one hour during their first day at nursery. One teacher was observed for half an hour each day for eight days. Teachers also appeared on children's records as initiator or as recipient in interactions with whoever was being observed.

Method of Analysis

The analysis involved two steps:

1. The classification of speech and non-speech acts and responses to these acts (see pp.73-80).

Because we are interested in the social function of speech, commands, questions and requests are obviously included. For statements and responses, the major distinction is between adapted and unadapted acts. Here, the classification is similar to Piaget's classification of 'sociocentric' and 'egocentric' speech (Piaget 1926, pp.9-11). The two systems differ in that (a) both speech and non-speech acts are recorded, (b) all acts are classified primarily as directed towards others, and (c) Piaget's classification was based mainly on the intentions of the speaker and bore no explicit relation to the previous action or interpretation of the hearer. For example, with describing adapted information, Piaget stated that the child told the hearer "something that will interest him and influence his action". Piaget does not specify, a priori, why he thought the hearer would be interested. I took account of the hearer's ongoing activity when classifying an act as adapted or unadapted.

The recipient's interpretation of an intended act was judged by his overt response to it. This might be an adapted response or an

unadapted response. The criteria for adapted versus unadapted (or, in most cases, no response) was assigned by the observer. For definitions of speech and non-speech acts, and descriptions of possible responses to each, see pp.73-80.

Context is important for the classification of these acts and responses. The validity of the observer's interpretations was tested using two methods. First, two observers analysed a list of 300 speech utterances recorded during observations of the nursery group. Second, the observers viewed the same videotaped social interactions and classified speech and non-speech behaviour in the context of an ongoing social interaction. On each test, coefficients of observer agreement were calculated (as shown on p.39). Table 3 shows the results. When speech utterances were abstracted from their original social context (in the list of the first test) levels of observer agreement were low in some cases. However, using the videotape, observers attained acceptable levels of agreement on all aspects of the classification.

2. Analysis of Social Interaction.

A unit of social interaction was scored when one child, A, performed an adapted or unadapted act towards another, B, and elicited an adapted response (A.R.) from B (i.e. A initiated social interaction with B). Although it may not be behaviourally directed towards A, B's response is directed towards (intended for) A in the same sense that it is an interpretation of A's action. The outcome of B's act may be an adapted response (A.R.) from A (i.e. B initiates social interaction with A). In a sequence of social interaction, the roles of initiator and recipient may be switched from one unit to the next. The sequence is ended when one child makes an unadapted response -

usually no response - to the other's act. Only when the recipient has clearly perceived the initiator's act (i.e. the initiator gained or already had the recipient's attention), but failed to make an A.R., does one score 'no response'. Instances where the recipient was not given an opportunity to reply through an interruption by a third person were not scored.

The validity of these interpretations has already been discussed. The observer's efficiency in performing the whole process of recording, classifying and analysing the children's social behaviour was tested. The observer videotaped the social behaviour of a group of children. The vision and sound were monitored so that the observer could take a written record of the children's behaviour and social interactions as they were being taped. Both the videotape transcription and the written record were analysed and the results compared. The coefficient of concordance between the two analyses was 0.85 (n = 128).

The next section is a list of categories of directed acts and their adapted responses (A.R.s), i.e. categories of interaction.

Classification and Description of Interactions

Command: A demand for overt immediate action, e.g. "Come here," (adapted response, A.R.: e.g. "What for?"; comply; "Wait a minute"; "No!"). Does not include "Look!" and "See!" classified separately as show; "Stop it!" and "Don't..." statements in cases where the recipient has already desisted (see criticism); or statements such as "Wait a minute" or "Hold on" made in response to a command (see plan).

Implied command: Comprehension may require shared knowledge of a cultural norm or code (e.g. a nursery rule), e.g. Teacher pointing to a discarded cardigan: "Now - we don't leave it lying on the floor,"

(A.R.: e.g. pick it up; "You do it!"). The implied command may test the relationship between initiator and recipient, e.g. "I think..." and "I wouldn't...". It may be distinguished from adapted information and criticism using the context of preceding or co-occurring events (e.g. the initiator's facial expression, gestures, tone of voice). It may be distinguished from a statement (unadapted or adapted) by observing the initiator's behaviour following the response to his utterance, by noting that the recipient's compliance evokes (e.g.) "Well done" or "Thanks" or a smile, and that his refusal to comply evokes (e.g.) criticism or a command.

Statement of desire: Most frequent form of implied command, e.g. "I want to paint," (A.R.: e.g. "OK - get a pinny then"); "Need some paste," (A.R.: e.g. "There isn't any more"; "Hold on"; "Can't - I need it all"; "Please?").

Polite request: Requests showing consideration of the recipient's right to refuse, e.g. "May I..." and "Can I..." and all requests including "Please" (A.R.: e.g. "Yes"; "No"; "Not now"). "Can you..." type of utterances without "Please" are classified as implied commands or questions.

Request for repetition: E.g. "Eh?"; "What?"; "Pardon?" Might be a request for the recipient either to repeat an utterance the initiator did not hear, or to make another attempt to communicate something the initiator misunderstood. ("What do you mean?" or "What did you say?" - i.e. questions - are excluded). These two possibilities may not be distinguished unless (a) the repetition of an utterance evokes a response like "Yes, but what do you mean?", or (b) an amendment to the original utterance elicits (e.g.) "That's not what you said before". Otherwise, repetition, clarification of the original utterance or

"Never mind!" are considered equally appropriate responses.

Play suggestion: Statements in the form "Let's..." and "..., shall we?" (A.R.: e.g. comply; "Just a minute"; "No!"; "I be captain - OK?").

Question: Question forms requiring factual information (i.e. excludes play suggestions, implied commands, polite requests and appendant questions), e.g. "What are you doing?" (A.R.: e.g. "I'm making crispies"); "Whe's'at go?" (A.R.: e.g. "In there" and show; "I don't know"; "Ask teacher").

Appendant question: Requiring confirmation of a statement. Usually in the form of a statement with the question tagged on at the end, e.g. "Something isn't it?" (A.R.: e.g. nod head; "No"; "Yes"); "I'll get some more, OK?" (A.R.: e.g. "Right! Get some big red ones for the top"). Can take the form, e.g. "Sure you're my friend" or "Aren't you silly?" Excludes "..., shall we?" (see play suggestion).

Unadapted statement: Statements unadapted to the recipient's action (or focus of attention) immediately before the initiator speaks. Two sub-categories can be distinguished:

1. Self-oriented statements, i.e. about himself, his interests and actions, e.g. "I not feelin's very well" (A.R.: e.g. "Better call a doctor"; pick up phone "Hello - doctor? Somebody's sick"); "I got new shoes on" (A.R.: e.g. "I got slippers on"; "Did yer mummy buy them for you?"); "I makin' a snake" (A.R.: e.g. "I make a snake as well").
2. Relationship statements, i.e. about a present or past relationship between initiator and recipient, e.g. "I'm mummy and you're daddy" (A.R.: e.g. "No, I'm the big brother"; "OK"); "You're my friend" (A.R.: e.g. "Yes"; smile; "And he's not, eh no?"); "I saw your house" (A.R.: e.g. "So?"; "I saw yours").

Objective statement: Unadapted statements about objects, events, the appearance of other people or of the recipient. The initiator may be holding the object or pointing at it, but he does not refer to it explicitly in relation to himself. The recipient may be in physical contact with the object (e.g. wearing it, leaning against it, tripping over it) but is not looking at it when the initiator makes his statement, e.g. "That boy's being naughty" (A.R.: e.g. "Who?"; "He better not come in a house then"); "It's snowing" (A.R.: e.g. "So it is"; "When I was in...and it was snowing and..."); "There's a cup" (A.R.: e.g. "Yes"; "No, stupid, 'sa jug!"); "You got new shoes on" (A.R.: e.g. "Uhuh. Got them yesterday").

Plan: Statement of initiator's plan or intention which involves himself in relation to the recipient, e.g. "We'll get you a piece of paper in a minute" (A.R.: e.g. "OK"; "I'll get it"); "I'll be daddy and you be mummy" (A.R.: e.g. "No, I want to be the daddy"). Includes promises and 'command' forms like "Wait a minute" or "Hold on" when the recipient need not change his behaviour in order to comply (A.R.: e.g. "All right"; "But I want it now!"). Statements of intention which do not involve the recipient, e.g. "I'm going to play in the sand", are classified as unadapted statements (self-oriented).

Hostile unadapted statement: Unadapted statements usually made with gestures, facial expressions or in a tone of voice which indicate that the initiator might intend to cause distress in, or protest from, the recipient. It may be intended as a joke (q.v.), e.g. "I don't like you, bleah!" (A.R.: e.g. "Don't care!"; "I like you"); "You're only a little boy!" (A.R.: e.g. "I'm big!"; cry; tongue out). If said in response to recipient's previous action, classified as criticism.

Adapted information: The child adapts his utterance to the recipient's

point of view and informs him of something that might interest him because it concerns:

1. what the recipient just said or did, but which was not directed to the initiator, e.g. Eileen Ann (after Brian says to Clare: "I'm making a snake"): "So am I" (A.R.: e.g. "Mine's bigger"); Lorna (who is watching Debbie doing a jigsaw puzzle): "That's the bus driver" (A.R.: e.g. "Oh!"; "No, it's the bus"),
2. an action or statement the recipient directed to the initiator, e.g. an answer to a question; a statement about something the recipient is showing the initiator,
3. the initiator's unadapted and undirected action spontaneously attended to by the recipient(- this is very infrequent, see Chapter 5, p.110).

Criticism: Of the same character as adapted information, but negative. It may be expected to provoke argument (reciprocal criticism) or justification by the recipient of his own actions or statements (adapted information), e.g. "That's not how you do it - that' a silly way!" (A.R.: e.g. "Shut up! I doin' it!"; "How, then?"); "It's naughty -shouldn't hit people!" (A.R.: e.g. "I know!" and smile; "Sorry - didn't mean to"). Criticism need not be hostile, e.g. (watching child on on climbing frame): "Careful you don't fall!"

Salutation: E.g. "Hiya!"; "Good morning!" (A.R.: e.g. "Hello!"; "Good morning, Elspeth!"); "Bye bye"; "See ya" (A.R.: e.g. "Bye bye"; "See ya").

Give: Hold out object towards recipient, perhaps saying (e.g.): "Take that" or "Here you are" (A.R.: e.g. take; "Don't want one").

Show: Hold out object towards recipient or point to an object, event

or person, perhaps saying (e.g.) "Look..." or "See..." (A.R.: e.g. look at thing shown; "I seen it!").

Unadapted behaviour: Of same character as unadapted statement or command, but non-verbal. There are two sub-categories:

1. Smile: All types of smile and laugh, upper smile most frequent.
2. Display: Included here are:

(a) Presentation of the self in a play role, e.g. as a cat (A.R.: e.g. "Go 'way; not playing that!"; "Come on, pussy-cat!").

(b) A substitute for a verbal command, e.g. to beckon (A.R.: e.g. to approach; "What for?"; "No!"); knock on the Wendy house door (A.R.: e.g. open door; "Can't come in!"); hold hand out (A.R.: e.g. take hand; "No!" putting hands behind back).

(c) A non-verbal salutation, e.g. wave (A.R.: e.g. wave).

(d) A non-verbal statement of intention, e.g. put hand out as if to touch other child, or object (A.R.: e.g. "Stop it!"; "Don't you dare!"; laugh).

(e) Touch, e.g. touch hand (A.R.: e.g. take hand); embrace; kiss (A.R.: e.g. reciprocate; protest).

(f) Touch object in recipient's possession or part of a game for which he requires all the pieces, e.g. pick up and suck a piece of the recipient's jigsaw puzzle (A.R.: e.g. "Leave that alone; I need it!"); touch the centre of a steering wheel the recipient is holding (A.R.: e.g. "That's the hooter"; "Gerroff!"). In contrast to adapted behaviour, the act of touching is unrelated to the recipient's use of the object at that time (other than his holding it and, perhaps, looking at it.

Hostile unadapted behaviour: Of the same character as hostile unad-

unadapted statements, but non-verbal. Three sub-categories are distinguished:

1. Hostile display: Displays which appear most often in agonistic or quasi-agonistic interactions. They sometimes express negative affect. They may be intended to cause distress or protest, but may be intended as a joke (q.v.) or part of a fantasy game, e.g. shake fist; beat up; tongue out; "Bang!"; throw sand; "I-am-a-dalek" (A.R.: e.g. protest; reciprocate; criticism; tell teacher; cry; smile or laugh).

2. Hostile touch: Of same character as 1, but involving physical contact, e.g. hit; kick; push; strangle; pull hair; stab with pretend knife (A.R.: e.g. protest; etc).

3. Hostile touch object, e.g. hit object; kick object in recipient's possession (A.R.: e.g. "Get off!"; "Leave that alone").

Adapted behaviour: Of the same character as adapted information, but mainly non-verbal. (It may be accompanied by speech which is usually self-directed). There are two sub-categories:

1. Smile: Initiator smiles in response to recipient's action or statement (not necessarily directed towards initiator), (A.R.: e.g. smile; "That funny, eh?"; "S'not funny, you!").

2. Assist: Included here are:

(a) Compliance with a request (A.R.: e.g. smile; "Thank you"; "Good girl"); imitation of a display (A.R.: e.g. smile; adapted information; "Copy cat!"); give when recipient has requested something.

(b) Touch, e.g. touch recipient in compliance with a request;

groom when recipient has solicited by a display or is trying to do it himself; push when recipient is at top of the chute (A.R.: e.g. "Thanks"; "Leave me alone!"; smile; "I want to do it myself").

(c) Touch object, e.g. touch an object in compliance with a request; cooperate in pushing something in the same direction as the recipient; help to put a piece of jigsaw in recipient's puzzle (A.R.: e.g. "Oh that's it"; "Hey! I doing that!"; laugh or smile).

Negative adapted behaviour: Of the same character as criticism, but mainly non-verbal. As with adapted behaviour assist (above), negative assist includes:

(a) Non-compliance with a command, implied command or plan, etc.

(b) Touch, e.g. touch after being requested not to.

(c) Touch object, e.g. touch object after being asked not to; take something from recipient.

Joke: Sub-category for all directed acts except unadapted behaviour: smile when the act is performed with a smile or laugh (A.R.: e.g. smile or laugh; "I don't think that's very funny").

RESULTS AND DISCUSSION

Measures of adapted responsiveness (R) in interactions between children (C=C), and among children and teachers (T=C), were taken as follows. For all directed acts (the total number observed and in each category separately), I calculated the proportion of the total number of observed units (n) in which the acts elicited adapted responses. The C=C totals can be broken down into the original group interacting among

themselves (O=O) and with newcomers (O=N) either as initiator (O-N) or recipient (N-O). Similarly, in the T=C totals, teachers can act as initiators (T-C) or recipients (C-T) in interactions with children. From the children's records teachers are scored in interactions with newcomers or original group children as initiators (T-N and T-O) or recipients (N-T and O-T).

I consider two aspects of the results here. Results from this and a similar study are discussed in Chapters 5 and 6.

1. General Responsiveness in Interactions

(a) Child-Child Interaction (see Table 4(a))

(i) When only the original group of children were involved (O=O) the level of responsiveness was greater than when they interacted with newcomers (O=N) ($U = 12$, $p \leqslant .01$, Mann Whitney U test, two-tailed (MWU 2t)).

(ii) Newcomers were less responsive as recipients (O-N) than original group children as recipients (N-O). This difference is not significant. However, the responsiveness of the original group children in interactions with members of their own group (O=O) was significantly greater than the responsiveness of newcomers in interactions with the original group (O=N) ($U = 15$, $p < .05$, MWU 2t). Within the newcomer group, the three older children scored higher than the others.

(b) Teacher-Child Interaction (see Table 4(b))

(i) When teachers initiated interactions with newcomers (T=N), the responsiveness was less than when they initiated interactions with the original group of children (T=O).

(ii) As recipients, teachers were equally responsive to the original group (O-T) and newcomers (N-T).

Table 4

General Responsiveness in Interactions.

(C = Child; T = Teacher; O = Original group children; N = Newcomers; R = Adapted responsiveness; n = Total number of interactions.)

(a) Child-Child Interaction

(i)	O=O	O=N	(ii)	N-O	O-N
R	0.755	0.536		0.656	0.500
n	1437	463		181	282

(b) Teacher-Child Interaction

(i)	T=N	T=O	(ii)	N-T	O-T
R	0.594	0.846		0.875	0.833
n	162	65		59	64

(c) Teacher-Child and Child-Child Interaction

(i)	T=C	C=C	(ii)	T-C	C-T
R	0.818	0.684		0.714	0.948
n	1198	1900		669	529

Note: R expressed as median of group scores.

(c) Comparison of Teacher-Child and Child-Child Interaction (Table 4(c))

(i) When teachers interact with children (T=C) the level of responsiveness was greater than when only children were involved (C=C) (U = 70, n.s., MWU 2t; T = 0, $p \leqslant .01$, Wilcoxon test, two-tailed (W 2t)).

(ii) As recipients, teachers were more responsive than children (C-T versus T-C) (U = 0, $p \leqslant .002$, MWU 2t; T = 0, $p \leqslant .01$, W 2t).

These results show differences in the responsiveness score depending on the amount of nursery school experience (or age) of the participants. These differences were reflected in the individual's performance as recipient rather than the degree of responsiveness he achieved as initiator.

That one can explain social interaction more adequately by looking at the recipient's performance more than that of the initiator raises an important general issue. The finding can be seen as a consequence of the method of observation and the level of analysis used. This can be illustrated by referring to the original example (p.61). One child, A, attempts to gain an object from another child, B. A might use physical force. If B is holding the object, A's action in grabbing it will have a physical effect (e.g. B's hand moving). A's gaining the object obviously entails B's losing it and hence the interruption of whatever B was doing with it. At this stage there is no evidence for saying, for example, that by acting passively B allowed A to take the object. From an observer's point of view (and perhaps A's as well), unless or until B shows some overt adapted response (e.g. protests, attempts to snatch it back or criticises A), the object's changing hands seems adequately described as a result of A acting on B. A's success in gaining the object may depend on his skill in social

interaction. A may or may not give an adapted response to B's reaction by changing his strategy (e.g. promising to give it back later or arguing he has a right to it). The analysis described above (pp. 72-3) splits this sequence of social interaction into two units. In the first, A is the initiator and B the recipient. In the second unit, the roles are reversed. At this level of analysis it is not surprising that A and B's experience (and perhaps their skill) is more evident in their performance as recipient than as initiator. The recipient's action has two functions: (a) as a reaction to the initiator's act, and (b) as part of the initiation of a further unit of interaction.

In conclusion, when we are dealing with single units of interaction as defined above, we cannot explain the recipient's action simply in terms of the initiator's action on him. The next section deals with the relation between the recipient's and initiator's actions in more detail, by looking at his responsiveness to different categories of act.

2. Categories of Interaction

(a) Child-Child Interaction

For most categories of directed act the original group of children tended to be more responsive than newcomers. If the samples had been larger this might have been statistically significant for questions (12 out of 12 interactions for O children versus 14 out of 20 for N), objective statements (8/12 vs 3/12) and criticism (8/12 vs 5/22). However, newcomers tended to respond to the original group's play suggestions (3/3 vs 8/9), polite requests (6/6 vs 3/4), commands (23/30 vs 5/9) and implied commands (6/6 vs 4/6) as much or more than the original group respond to theirs.

Original group children tended to respond less to commands from newcomers than from their own group (5/9 vs 88/102) as well as polite requests (3/4 vs 20/21) and implied commands (4/6 vs 28/36), although none of these differences are statistically significant. The original group tended to answer more of the newcomers' questions than those from their own group (12/12 vs 54/69).

In summary, although the original group children tended not to respond to newcomers' orders, they tended to respond to their questions, perhaps about what they were doing or about the nursery environment.

(b) Teacher-Child Interaction

Children were slightly less responsive than teachers to objective statements (1/8 vs 37/41), criticism (1/19 vs 8/8) and slightly less for appendant questions (11/37 vs 8/8). Teachers were less responsive than children only for jokes (0/14 vs 5/5).

This might be because the child was doing something the teacher found unacceptable (e.g. potentially dangerous) or the teacher did not understand the joke. While she may criticise the child for his action, or comment on it, she did not smile or laugh.

Children were more responsive to teachers than to other children for unadapted behaviour: display (20/20 vs 90/191). This might be because children's displays were usually in play (e.g. pretending to be a cat), while most teacher's displays were not (e.g. holding out an apron for the child to put his arms in). For criticism, children were more responsive to other children than to teachers (31/50 vs 1/19).

Children may be less likely to argue with the teacher than with their peers. Children were slightly more responsive to other children's unadapted behaviour: smile (9/19 vs 0/11); The teacher tended to smile when she saw a child looking at her. Her smile may be to give 'clearance' (see p.49), or offer the child reassurance, but he may be too intent on formulating what he has to say, or in no mood to smile back. When one child smiled at another, his look and smile would often function to get the other child's attention and lead to further friendly interaction.

The above are taken as examples of children and teachers tending not to respond to some categories of act where there is an apparent conflict between responding appropriately and expressing their own intention. We can consider the points of view of initiator and recipient separately. From the initiator's point of view, the recipient can resolve the conflict by giving an adapted response (see p.68). For example, he may say "No!" to a command or "That's not funny!" to a joke. In the short term, these adapted responses have the same consequence for the initiator as no response would have, in that only part of his intention is fulfilled. In the longer term, the recipient's overt reaction is a source of information as to how or whether his act has been interpreted. From the recipient's point of view, not responding may have a purpose. For example, his not responding to criticism may be his way of avoiding an argument. However, argument is not an inevitable consequence of responding to criticism. The skill in social interaction as defined here (as 'cooperation') involved acting so as to give an adapted response to another as well as to fulfill one's own intention.

CONCLUSION

In the last three chapters, I have developed an operational definition of social interaction for use in the study of nursery school children. The following three chapters describe Child-Child (Chapter 5), Child-Teacher (Chapter 6) and Child-Mother (Chapter 7) interactions.

CHAPTER FIVE

CHILD-CHILD INTERACTION

INTRODUCTION

This chapter is an account of my study of peer interaction in nursery school children. The object is to make broad generalisations about the effects of sex and age (or nursery experience) of the initiator and recipient on aspects of their interaction, and not to assess individual children. The study includes cross-sectional and longitudinal data on new children entering the nursery. No empirical distinction has been made between age at entry and prior nursery (or similar) experience. The children might be older than average or have prior experience or both. Consequently the terms older/younger and experienced/inexperienced may be used interchangably in the text. For the longitudinal study, which included inexperienced and experienced subjects, as much data as possible was collected for each child throughout his new nursery career.

The aspects of social interaction considered below are:

1. Frequency of Interactions. This consists of data on successful interactions (i.e. acts which get adapted responses) and attempted

interactions (i.e. all directed acts including those which do not get adapted responses, but excluding those which do not get the recipient's attention).

2. Responsiveness. (I.e. the proportion of attempted interactions which were successful in getting adapted responses).

I discuss 1 and 2 for interactions overall and for each separate category of interaction. There are four main sections which include cross-sectional and longitudinal data:

1. Age/Experience Differences (p.90)
2. Sex and Age/Experience Differences (p.95)
3. Social Interactions Between Same and Opposite Sex Pairs (p.99)
4. Attention-Getting Phase of Interactions (p.109)

In most of this chapter, I have not made any distinction between the initiation of the first unit of a sequence of interaction and units within the sequence. This distinction is made only superficially in the final section (4.) of the results.

MATERIALS AND METHODS

Play Facilities, Adult Supervision, Nursery Routine.

As described in Chapter 3 (pp.53-4).

Subjects

For details of the original group of ten children, also referred to

in this study, see Chapter 4, p.70. Twenty-eight newcomers (14 girls and 14 boys) were observed on the first five days of their nursery experience for an hour each day. The average age at entry was 3:6 (3:7 for girls and 3:4 for boys). Nine of this group (6 girls and 3 boys) were older than average on their first day. Five of this older group (3 girls and 2 boys) and one of the younger group (a boy aged 2:10) had previous experience in a nursery or play group. Thus the older experienced group consisted of eleven children (6 girls and 5 boys) whose average age was 4:3 (4:6 for girls and 4:0 for boys). For further details see Appendix 5.

For the longitudinal study each child was observed on his or her first five days of nursery experience, at six weeks, and thereafter at twelve-week intervals. These intervals were calculated excluding absences due to, for example, holidays or illness. I attempted to observe each of the 28 newcomers throughout their nursery experience. However, many of the children either left before the end of the study period (i.e. withdrawn by their parents or started school), or arrived too late to be included in the longitudinal study. Fewer girls joined the nursery than boys. Consequently the longitudinal group data was largely restricted to observations of ten children (3 girls and 7 boys). These children were observed on their first three days (Period 1) and on three subsequent days (Period 2) (i.e. at 6 weeks, 18 weeks and 30 weeks).

Behaviour Categories, Recording Materials and Methods

As described in Chapter 3 (pp.54-7) and Chapter 4 (pp.70-1).

Method of Analysis, Categories of Interaction

As described in Chapter 4 (pp.71-80).

Statistics and Presentation of Results

The results consist of data on:

1. Frequencies of Interaction: Results for groups of children are expressed below either as means or total frequencies. The significance of differences between groups of children was tested using one of two tests - the Mann Whitney U test applied to (a) sex differences, and (b) age/experience differences in the cross-sectional study, or the Wilcoxon Matched Pairs Signed Ranks test (abbreviated in the text to Wilcoxon test), used to test the significance of (a) changes in frequency of interactions of subjects in the longitudinal study, and (b) differences in the performance of the same subjects as initiators and recipients.

2. Levels of (Adapted) Responsiveness: These were measured as shown in Chapter 4 (p.80).

The results were calculated as a proportion, i.e. number of adapted responses / total number of attempts at interaction. This is expressed in the text as a coefficient, so no score exceeds 1.00. I applied either the Mann Whitney U test or the Wilcoxon test where appropriate and possible. All results are expressed as medians.

RESULTS

1. Age/Experience Differences

These are discussed (a) overall, and (b) for each category of interaction separately.

(a) Overall Frequency of Interactions and Responsiveness

On Days 1, 2, 3 and 4 in the nursery, newcomers with previous experience initiated more units of interaction and were recipients in more units than inexperienced newcomers. On Day 5, at 6 weeks and up to 42 weeks, previous nursery experience seemed to give children no advantage. Table 5 illustrates this. The numbers represent the mean scores for experienced versus inexperienced newcomers. The significance of the differences was tested using the Mann Whitney U test, two-tailed; the U and significance levels, p, are given in the table.

A similar result was found in the longitudinal study of ten children. The number of interactions in which the newcomers were involved increased from the first period of observation to the second. For newcomers as initiators (21 to 77.5) and recipients (33 to 98), the increases were significant (both with a value of $T = 0$, $p \leq .01$, Wilcoxon test, two-tailed). These differences could be because:

1. Experienced children were more responsive and get more responses than inexperienced ones, and
2. More attempted interactions involved experienced children than inexperienced ones.

The results support both of these hypotheses:

(i) Children with previous experience were more responsive as recipients than inexperienced ones on Day 1 (median scores of responsiveness, 0.658 vs 0.556, $U = 45$, $p \leq .05$), Day 2 (0.630 vs 0.520, $U = 46$, $p \leq .05$) and Day 3 (0.771 vs 0.434, $U = 24$, $p \leq .002$) (all Mann Whitney U test, two-

Table 5

Differences Between Experienced and Inexperienced Newcomers' Median Scores for Interactions as Initiator and Recipient over Time. (See text for explanation)

Days	Initiator				Recipient			
	Exp.	Inexp.	U	p<	Exp.	Inexp.	U	p<
1	24.0	7.0	26	.002	24.0	13.0	33	.02
2	30.0	8.3	33	.02	29.0	12.0	45	.05
3	23.0	6.0	30	.002	28.0	9.0	12	.002
4	30.0	6.0	20	.002	24.0	11.0	30	.02
5	20.0	17.0		n.s.	20.0	21.0		n.s.
6 to 42 wks.	25.0	23.0		n.s.	25.0	26.0		n.s.

tailed). The difference is almost significant on Day 4 but not on Day 5 or later.

(ii) Experienced children tended to be responded to slightly more often than inexperienced ones, but this is significant only on Day 3 (0.749 vs 0.710, U = 41, $p \leq .05$, Mann Whitney U test, two-tailed).

(iii) In the longitudinal study, the children became more responsive as recipients (0.559 vs 0.728, T = 0, $p \leq .01$, Wilcoxon test) and also tended to get more responses as initiators (0.608 vs 0.718, T = 11, n.s., Wilcoxon test).

(iv) The number of interactions attempted with newcomers was significantly greater for those with experience only when newcomers were recipients and only on Day 1 (38 vs 21, U = 49, $p \leq .05$, MWU test, two-tailed).

(v) The effect of experience on attempted interactions was more marked in the longitudinal data. The group showed a significant increase in attempts from the first three day observation period to the second. This was so for newcomers as initiators (44.5 to 113) and recipients (79 to 145) (both T = 0, $p \leq .01$, Wilcoxon test, two-tailed).

These results suggest that experienced children (a) respond more to those interactions attempted with them, and (b) initiate and receive more attempts at interaction than inexperienced children.

It is interesting that the ratio of interactions initiated by newcomers to those received by newcomers varied with the experience of those involved. The number initiated by experienced newcomers was not significantly different from the number received (27.5 vs 23). However, the inexperienced newcomers received significantly more than they initiated (total for Days 1-3, 26 vs 14.5, $p \leq .002$, Wilcoxon

test, two-tailed). A similar experience effect was noted in the longitudinal study. When first observed, newcomers received significantly more interactions than they initiated (36 vs 25, T = 0, $p \leqslant .01$, Wilcoxon test, two-tailed). This difference was not found when the children were observed later on in their nursery career (100 vs 95). This tendency for children to initiate less than they receive was apparent despite the tendency for inexperienced children to be less responsive than the experienced ones.

In conclusion, an overall picture emerges from these observations. Newcomers tend not to make attempts at social interaction and tend not to respond to such attempts from other children. That is, they avoid social interaction in the first few days. Newcomers who have experience of a nursery group, or are older than average, show less avoidance of social interaction than those without experience. As found in Chapter 4, experience had a more marked effect on children's success as recipients than as initiators.

(b) Categories of Interaction: Frequency and Responsiveness

As initiators, experienced newcomers scored more than inexperienced ones on all categories. The responsiveness of other children to experienced newcomers' commands was significantly greater than their responsiveness to those of inexperienced children (0.846 vs 0.640, U = 6, p = .037, Mann Whitney U test, two-tailed).

In all other categories the trend was in the same direction but not significant. In effect, not responding is similar to refusing to comply with a command. I got the impression that a look was the more likely reaction to a younger child, whereas an outright refusal

and criticism were the more likely form of non-compliance if an older newcomer attempted to order about an established group member.

As recipients, experienced newcomers scored more than inexperienced ones on all categories. The responsiveness of experienced newcomers was greater for questions (0.667 vs 0.571, U = 62, n.q.s. (not quite significant), Mann Whitney U test, two-tailed), adapted information (0.412 vs 0.357, U = 50, p .05, MWU 2t), unadapted behaviour: smile (0.465 vs 0.250, U = 59, n.q.s., MWU 2t), and negative adapted behaviour (0.846 vs 0.482, U = 23, p .001, MWU 2t). In the other categories experienced children tended to score more than inexperienced ones except in appendant questions where inexperienced children were slightly more responsive than experienced ones (0.643 vs 0.333, U = 51, $p \leq .05$, MWU test, two-tailed). Younger, inexperienced newcomers seemed more likely to confirm what group members said and (rarely) to disagree. Older newcomers tended not to reply to appendant questions, perhaps to avoid argument.

In the longitudinal study the group show increases in the number of interactions for all categories except desire, which decreases, but not significantly. (This result is discussed more fully later, p.124). Two children in particular tended to use this form of implied command in their first few days, but it seemed to drop out later, perhaps because they tended to get no response or failed to get their way or gave in to suggestions to say "please".

In conclusion, these results demonstrate differences in the relationship between nursery group members depending on whether they are established members, experienced newcomers or inexperienced ones.

2. Sex and Age/Experience Differences

As in section 1, these are discussed (a) overall, and (b) for each category of interaction separately.

(a) Overall Frequency of Interactions and Responsiveness

There were no significant differences in frequency of interactions engaged in by boys and girls (experienced or not).

For responsiveness there was no sex difference among newcomers in interactions where they were the initiators (girls, 0.704; boys, 0.686). As recipients the girl newcomers tended to be more responsive than the boys (0.626 versus 0.587). In the experienced newcomer group, girls tended to gain more responses than boys in interactions initiated with other children (0.764 versus 0.678) and these experienced girls were slightly more responsive as recipients than experienced boys (0.728 vs 0.579, U = 5, p = .041, MWU test, two-tailed). In the inexperienced newcomer group, there was no significant sex difference (girls, 0.525; boys, 0.564). Only the experienced group seemed to contribute to the sex difference in responsiveness. But as the experienced girls were on average six months older than the experienced boys (4:6 vs 4:0), the difference might be an age effect. There are several indications that the apparent sex difference may not be simply due to a difference in age.

(i) In the inexperienced group where there was no sex difference in responsiveness, the girls were on average three months younger than the boys (2:10 vs 3:1).

(ii) In the original group of children who had similar nursery experience, the boys were not significantly different in responsiveness

from the girls (average ages: girls, 3:9 and boys 3:11).

(iii) In the longitudinal study, all seven boys increased in responsiveness as initiator and recipient after some experience in the group.

(iv) The experienced girls in the cross-sectional study were not significantly different in responsiveness from the boys in the longitudinal study, after the latter had gained some experience. Compared to the boys at this stage, the girls were eight months older (girls, 4:6 and boys, 3:10).

(v) For girls, age and responsiveness as recipient were positively and significantly correlated ($r_s = 0.697$, $p \leq .01$, Spearman Rank Correlation test).

In summary, these comparisons between boys and girls suggest that having had prior experience or being older on entry into the nursery may be an advantage for girls, but not for boys. Experience in the present nursery group may be a factor influencing boys interactions. The next two sections are an attempt to describe what kind of experience nursery entry is for boys and girls. There is no a priori reason why it should be the same for both.

(b) Categories of Interaction: Frequency and Responsiveness

These are discussed under two headings: (i) Experience differences among boys and girls, and (ii) Sex differences.

(i) Age/Experience Differences among Boys and Girls

In both sex groups, the older/experienced newcomers tended to score more than the younger/inexperienced ones in all categories of interaction, except possibly desire (see p.94).

Experienced girls were more responsive than inexperienced ones to all categories of act, particularly questions (0.833 vs 0.494, U = 1, $p \leq .001$, MWU test, two-tailed), adapted information (0.549 vs 0.307, U = 6, $p \leq .01$, MWU test, two-tailed), negative adapted behaviour (0.769 vs 0.415, U = 7, p = .015, MWU test, two-tailed). Thus, older/experienced newcomer girls were more likely to be drawn into conversations or disputes than younger/inexperienced ones.

Experienced boys were slightly more responsive than inexperienced ones to negative adapted behaviour (0.909 vs 0.600, U = 3, p = 0.009, MWU, two-tailed). This means that older/experienced boys are more likely than younger/inexperienced ones to react if, for example, their game is disrupted. There were no other significant experience effects among boys.

In summary, we again find that prior experience in nursery has more effect on girls' interactions than boys'.

(ii) Sex Differences

(1) Frequency of Interactions

The following sex differences in frequency of interactions were statistically significant. Newcomer girls received more unadapted behaviour: smile than newcomer boys (2.5 vs 1, U = 48, $p \leq .05$, Mann Whitney U test, two-tailed). They also received more polite requests than newcomer boys (2.5 vs 2, U = 47, $p \leq .02$, Mann Whitney U test, two-tailed). There is not enough data to ascertain if polite requests substitute for other forms of 'order'.

Newcomer boys received more appendant questions than newcomer

girls (2.5 vs 1, U = 27, $p \leq .002$, Mann Whitney U test, two-tailed). This follows partly from boys being more responsive than girls to appendant questions (see p.98), but also more are attempted with boys (78 vs 41). Newcomer boys also asked more appendant questions than newcomer girls (1 vs 0, U = 36, $p \leq .02$, Mann Whitney U test, two-tailed). In the original group data, boys were involved in more of these interactions than girls (22 vs 10). It seems to be a characteristic of boys' interactions that the participants occasionally reaffirm what they are doing together. So, for example, "This is a fishing boat, isn't it?"; "We're playing together, aren't we?"; "Got to put it in there, haven't you not?"

(2) Responsiveness

Girls scored slightly more than boys in their responsiveness to adapted information (0.394 vs 0.366, U = 74, n.s., MWU test, two-tailed). The experienced girls were significantly more responsive than experienced boys to adapted information (0.546 vs 0.365, U = 5, p = .041, MWU test, two-tailed). For inexperienced children there was no sex difference. Thus, the girls' advantage over the boys discussed earlier (p. 96) is reflected most in their being more likely than boys to get involved in conversation.

Although boys were generally less responsive than girls, one result goes against this trend.

Boys scored more than girls in responsiveness to appendant questions (0.535 vs 0.333, U = 55, $p \leq .05$, MWU test, two-tailed). Boys tended to respond to (often to agree with) what other children asked them to confirm. This was discussed earlier (p.98).

3. Social Interaction in Same and Opposite Sex Pairs

This is discussed under four headings: (a) Overall frequency, (b) Newcomers' responsiveness to nursery group members, (c) Responsiveness of nursery group members to newcomers, and (d) Aggression and joking.

(a) Overall Frequency of Interactions

Newcomer boys initiated more interactions with boys in the group than with the girls. This was significant over totals for Days 1, 2, 3, 4 and 5 (38.5 vs 21.5, $T = 15.5$, $p \leq .02$, Wilcoxon test, two-tailed). Later in the children's nursery experience and among the original group of children, boys still tended to interact more with boys than girls, but the differences were not statistically significant.

Over the same five day period, newcomer boys also received significantly more from boys than girls (53 vs 30, $T = 15$, $p \leq .02$, Wilcoxon test, two-tailed).

On their first five days in nursery, newcomer girls initiated as many interactions with boys as girls (29 with boys vs 31.5 with girls). They also received as many from boys as from girls (37 from boys vs 38 from girls). These differences were not statistically significant.

(b) Newcomers' Responsiveness to Nursery Group Members

As expected from the results of the last section, newcomer boys were

significantly more responsive to the boys than to the girls in the group over Days 1-5 (0.600 vs 0.542, T = 8, $p < .01$, Wilcoxon test, two-tailed (W 2t)). Both experienced and inexperienced boys tended to be more responsive to boys than girls (experienced boys: 0.606 vs 0.571, U = 5, n.q.s., MWU test 2t; T = 1, insufficient data for Wilcoxon test; inexperienced boys, 0.600 vs 0.483, T = 3, $p < .02$, W 2t; U = 28, n.s., MWU 2t).

Newcomer girls were only slightly more responsive to girls than to boys (0.585 vs 0.562). Of these, the experienced girls were slightly more responsive to girls than boys (0.751 vs 0.691), as were the inexperienced girls (0.535 vs 0.507).

In summary, from this and the preceding section on frequency of interactions, (a), a tendency to interact more with the same sex was found only among boys, and then only in the first few days in nursery. Later on in their nursery career there was no strong tendency either way, although boys still tended to interact more with other boys.

(c) Responsiveness of Nursery Group Members to Newcomers

Overall, the girls in the group were less responsive than the boys to newcomer boys' attempts to interact (0.630 vs 0.748, T = 22, n.q.s., Wilcoxon test, two-tailed).

There was no significant sex difference in the group's responsiveness to newcomer girls. The low responsiveness of girls to newcomer boys was specific to the older/experienced boys. Girls in the nursery group were slightly less responsive to the experienced newcomer boys than the boys were (0.628 vs 0.652).

The girls were also significantly less responsive to the boys than to the girls in the experienced newcomer group (0.628 vs 0.714, U = 3, p = .015, MWU 2t).

These findings are repeated in other results:

(i) In the longitudinal data, at the second observation period, girls were significantly less responsive to newcomer boys than boys were (0.733 vs 0.652, T = 2, $p < .05$, Wilcoxon test, two-tailed).

(ii) Comparing boys in the longitudinal study in Period 1 to Period 2, responsiveness of nursery group boys to each of the newcomers increases. However, in interactions with the girls in the nursery group, only the younger/inexperienced boys tend to get more responses than before. The older/experienced boys got fewer responses from girls than they did at first.

Girls' low responsiveness to newcomer boys may be related to other findings on hostile and negative adapted categories:

(i) Nursery group girls initiate more total hostile and negative adapted interactions with newcomer boys than they receive from them (5.5 vs 1, T = 12.5, $p \leq .02$, Wilcoxon test, two-tailed). There were no significant differences for any of the other same/opposite sex pairs.

(ii) The girls were slightly more responsive to negative adapted behaviour from newcomer boys than were the boys in the group (see later, p.104).

The results indicate that girls were less responsive to newcomers than boys. At first this seems surprising in view of previous suggestions that girls 'attended' more to newcomers (McGrew 1972). The only findings that fit in with this impression are:

(i) On Day 1 only, girls initiate more interactions with newcomers than they receive from them (for newcomer boys: 3 vs 4, T = 7, $p \leqslant .05$, Wilcoxon test, two-tailed; for newcomer girls: 5 vs 7, T = 9.5, $p \leqslant .01$, Wilcoxon test, two-tailed). Boys initiate as much as they receive from newcomers.

(ii) Girls show more unadapted behaviour: smile towards newcomers than boys do (interactions attempted with newcomer boys: 3, vs girls: 4, T = 72, $p \leqslant .05$, Wilcoxon test, two-tailed). From p. 97, one can infer that these are mostly towards newcomer girls. Even so, newcomers are slightly (not significantly) more responsive to smiles from boys.

To summarise, girls, like teachers (see p.123), initiate more interactions with newcomers than they receive from them, but after the first day this tails off. Girls also smile at newcomers more than boys do, but are not as successful in getting responses. If the newcomer is a boy, the girls in the nursery group may be more aggressive towards him than one would expect.

I got the impression that, although girls showed more interest in newcomers and might try to 'mother' them as McGrew (1972) describes, the newcomer did not always welcome their 'mothering'. For example, newcomers, especially boys, rejected their kisses or embraces and refused to be 'the baby' in games of 'houses'. It is tempting to spec-

speculate that girls' aggression towards newcomer boys is related to the latter's aversion to 'mothering' of this kind.

(d) Aggression and Joking

The only significant differences in categories of interaction for same/opposite sex pairs involved 'aggression' and 'aggressive jokes'. 'Aggression' is used here as a composite category of unadapted hostile and negative adapted acts (defined pp.76-80). I found no sex differences in the frequency of aggressive acts or responsiveness to these acts. This was so for children as initiators and recipients at all stages of their nursery experience. These findings agree with most other studies of children's aggression that take verbal aggression into account (Feshbach 1946; Manning 1972). However, I found that in interactions between children of the same and opposite sex, there are differences in aggressive interactions.

Newcomers directed more aggressive acts (in their first five days) towards boys than girls (for newcomer girls: 6.5 vs 2 , $T = 9.5$, $p \leq .02$, Wilcoxon test, two-tailed; for newcomer boys: 3 vs 2 , $T = 8$, $p \leq .05$, Wilcoxon test, two-tailed). There were no significant differences in the number of aggressive acts received by newcomers, but both sexes also tended to receive more from boys than girls (newcomer girls: 8 vs 6 ; newcomer boys: 7 vs 5.5). Thus the boys in the nursery group were involved more than girls in aggressive interactions with newcomers. In the original group data, the boys also tended to be involved in more aggressive interactions than girls. Of the 125 aggressive interactions observed in the group, 48 involved boys only, 54 were between boys and girls, and 23 involved girls only. This suggests that boys were usually involved in more aggressive interactions

than girls and the difference was not simply due to the presence of newcomers.

Each category of aggressive interaction is considered in turn. Newcomer boys received more negative adapted behaviour from boys than girls (2 vs 1, T = 8.5, $p \leq .05$, Wilcoxon test, two-tailed). Newcomer girls received as much from girls as boys. These results are not surprising in view of the earlier finding that newcomer boys tended to interact more with boys and newcomer girls did not (p.99).

Newcomer boys initiated more negative adapted behaviour with boys than girls (2.5 vs 1). This was not statistically significant because:

(i) Girls were slightly more responsive to negative adapted behaviour from newcomer boys than boys were (0.679 vs 0.487, U = 51, $p < .05$, MWU test, two-tailed), and

(ii) There was no significant sex difference in the number of attempts newcomers made with boys and girls (1 vs 1).

Newcomer girls also initiated more negative adapted behaviour with boys than girls (3 vs 1, T = 3, $p \leq .01$, Wilcoxon test, two-tailed). The direction of the difference is predictable since more aggressive interactions were initiated with boys than girls.

It is interesting that newcomer boys initiated less negative adapted behaviour than newcomer girls in interactions with boys (3 vs 1, U = 51, $p \leq .05$, Mann Whitney U test, two-tailed), whereas in interactions with girls both newcomer groups scored the same. The younger boys, in particular, scored less in this category. There are two further points related to this:

(i) This is one of the categories - in the cross-sectional data, the only one (see p.97) - on which age/experience has a significant positive effect on the frequency of newcomer boys' interactions.
(ii) In the original group data, the boys initiated as many negative adapted interactions as girls.

In summary, in the younger/inexperienced group, newcomer girls initiated more negative adapted behaviour with the boys in the nursery group than newcomer boys did. This difference is not found among children with nursery experience/older age. When children disobey commands or disrupt games (for example), they may intend it as a joke and not simply intend to harm the recipient. This is discussed further on pp.107-9. One might interpret these results in terms such as girls being less timid or more socially mature than boys when they first enter nursery, but (a) these interpretations add little to our understanding of the relationships between the children, and (b) the results described below for unadapted hostile behaviour suggest that the picture is not as simple as these statements would suggest.

Both sexes received more unadapted hostile behaviour from boys than girls (newcomer girls: 2 vs 1, $T = 0$, $p \leqslant .02$, Wilcoxon test, two-tailed; newcomer boys: 2 vs 1, $T = 10.5$, $p \leqslant .05$, Wilcoxon test, two-tailed). Newcomers were equally responsive to boys and girls for this category. The differences were due to the number of attempts boys in the group made with newcomers compared with those made by girls. As initiators, newcomer boys also scored significantly more interactions with boys than girls (2 vs 0, $T = 0$, $p \leqslant .01$, Wilcoxon test, two-tailed) but newcomer girls only showed a tendency to initiate more with boys

(1 vs 1). It is interesting that newcomer boys tended to initiate more than they received with boys (1.5 vs 1) while girls received almost as much as they initiated (1 vs 1) and interacted less than boys in this category.

Thus, the results for newcomer boys initiating unadapted hostile behaviour are reminiscent of those for newcomer girls initiating negative adapted behaviour. These two categories may:

(a) be seen as two styles of aggression in which boys and girls specialise, and
(b) imply that there are more sequences of interaction when girls are involved.

This discussion continues on p.113.

There were no sex differences in the frequencies of the two verbal categories, criticism and unadapted hostile statements. However, the only categories to which newcomer boys tended to be more responsive to girls than boys were the verbal aggressive ones. The differences were small (for criticism: 0.337 vs 0.400, U = 16, n.q.s., MWU test, two-tailed; for unadapted hostile statements: 0.062 vs 0.500).

These results may reflect a possible difference between boys and girls in their use of verbal aggressive acts towards newcomers. Boys may not give the recipient the opportunity to reply to their criticism before they attempt another interaction (a) with the same child, or (b) with another one. For example:

(a) Keith and Bryan are playing in the sand. Bryan to Keith: "That's my spade!" and grabs hold of it as Keith glances at him. Keith:

"Hoy! Off!", pulling it back.

(b) Richard to Raymond: "You're a dokydirl!", turns to Elspeth: "He's a silly dokydirl, isn't he?"

A small proportion of all acts were intended as jokes (i.e. accompanied by smiling or laughing). No significant sex differences were found for any aspect of non-aggressive jokes - only for aggressive ones. The results are similar to those for the aggressive categories:

(i) Newcomer girls initiated more aggressive jokes with boys than newcomer boys did (1 vs 0, $U = 35$, $p \leq .02$, Mann Whitney U test, two-tailed).

(ii) They also initiated more aggressive jokes with boys than they received (1 vs 0, $T = 14$, $p \leq .05$, Wilcoxon test, two-tailed), whereas newcomer boys tended to initiate less than they received from boys (9 vs 19).

(iii) In the cross-sectional data, all of the successful newcomer boys' jokes were made by experienced/older children. Two younger/inexperienced boys attempted jokes, but were taken seriously (see discussion p.108). In the girls' newcomer group, both experienced and inexperienced children were involved.

(iv) The longitudinal data show that boys increased their scores as initiators (1 to 2) and recipients (1 to 2, $T = 0$, $p \leq .05$, Wilcoxon test, two-tailed).

(v) In the original group, there were no sex differences as initiator (girls, 1 ; boys, 1) or recipient (girls, 1 ; boys, 1).

These results indicate that newcomer girls tend to have aggressive

joking interactions with boys in the nursery group. Newcomer boys do not get involved in as many of these interactions till later in their nursery experience or unless they are already experienced or older on entry into nursery. We have already seen that newcomer girls initiate a slightly higher proportion of their aggression as jokes than newcomer boys (0.250 vs 0.155, U = 40, $p < .05$, MWU test, two-tailed). This may mean that newcomer boys more often intend to harm the recipient when they use aggressive acts. However, I also got the impression that newcomer boys are less skilled at making jokes or are more likely to be taken seriously. Two examples of unsuccessful jokes illustrate this:

(a) In his first ten minutes in the nursery, Stefan has not yet interacted with another child. He runs up to Gordon and jumps, laughing, and throws him to the floor. They wrestle, Stefan still laughing. Stefan is hurt and runs to the Wendy house, holding his head. Gordon watches and follows. Stefan: "You hurt me!" Gordon: "No I didnae. Just only bumptahead on a floor." Stefan: "No...!" Gordon: "You're only a wee boy - shouldnae fight big ones. Bumptahead. OK? You play..."
(b) Bryan, playing by himself in the sand, throws it at other children as they approach and laughs. Michael, the first, laughs until he gets some in his eyes and runs to teacher. Robert raises his fist: "You watch it!" Allison: "Stop throwing sand!" Teacher interrupts: "Mustn't throw sand, Bryan. See - it gets in the other children's eyes and it hurts." Bryan leaves to play in the Wendy house.

In both instances, newcomer boys use unadapted hostile acts and seem to intend them as jokes. But they are not necessarily received as

such. Initiating a successful aggressive joke probably demands an accurate judgement of the recipient's mood and point of view - perhaps more for aggressive acts than other categories of act.

4. The Attention-Getting Phase of Interactions

Children from different age/experience or sex groups may differ in the way they become attentive at the beginning of an interaction. The adapted categories are particularly interesting in this respect. Within the category adapted there are three types of act, classified according to the way in which the dyad is focussed immediately before the adapted act is performed by the initiator:

(a) Type A: The recipient is attending to what the initiator is doing (e.g. watching him do a jigsaw puzzle).
(b) Type B: The recipient's behaviour is not directed towards the initiator. The initiator acts in order to get the recipient's attention (e.g. the recipient is making a jigsaw puzzle or talking to a third person).
(c) Type C: The recipient's attention is already directed towards the initiator as part of a directed act towards him (e.g. the recipient has just asked the initiator a question).

Type A also differs from Types B and C in that the initiator may be talking about his own activity and not necessarily about the recipient's (i.e. he may not refer to the fact that the recipient is watching him). However, he may say, e.g. "Stop watching me!" or "I'm not letting you see my picture" and cover it up. That the initiator is usually talking about his own activity may be partly why children's responsiveness

to Type A is low (11/40) compared to Type B (325/648) and Type C (658/996). Children's responsiveness to Type C is significantly greater than to Type B (0.647 vs 0.531, U = 198, p = .00016, MWU, two-tailed). It seems to be a simpler task for children to help maintain a sequence of interaction once it has begun, than to begin a new one which in the case of Type B entails getting each other's attention.

Types A, B and C are discussed in turn in relation to (i) age/experience differences, and (ii) sex differences. The scores in brackets are for attempted interactions expressed as medians.

(a) Type A

(i) Age/Experience Differences

The older/experienced group of newcomers attempted Type A significantly more than the younger/inexperienced group (0.5 vs 0, U=5, $p \leq .002$, Mann Whitney U test, two-tailed). As a group, newcomers initiated significantly less Type A than they received (0.5 vs 2, T = 7, $p \leq .01$, Wilcoxon test, two-tailed). The longitudinal data show a decrease in the number of Type A received (1 to 0, T = 0, $p \leq .01$, Wilcoxon test, two-tailed), and an increase (but not significant) in the number of Type A initiated (2 to 4). These observations suggest that younger children were observed (more often than older ones) watching and being informed about what other children were doing. When not interacting the older newcomers did not seem to attract other children's attention more than the younger ones did. It depended on what the child was doing. Younger children might attract attention if they cried or if they did something unconventional (e.g. painted over someone else's picture). Older children might attract attention if they played noisy games, or imaginative ones, by themselves or in a group. Also older

children are perhaps more likely to talk about what they are doing, and/or are more likely to be aware they are being watched.

(ii) Sex Differences

Newcomer boys received Type A significantly more than girls (3 vs 1, $U = 41$, $p \leq .02$, Mann Whitney U test, two-tailed). Newcomer boys often seemed to devote their full attention to watching other children, particularly groups of older boys. Newcomer girls (when not interacting) tended to play alone more than boys and to watch other children in shorter bouts or while doing something else.

(b) Type B

(i) Age/Experience Differences

Older/experienced newcomers did not score significantly more than younger ones as initiator or recipient. But in the longitudinal study, all children increased their scores as initiator (6 to 8, $T = 0$, $p \leq .01$, Wilcoxon test, two-tailed). This implies that, although there is variation between individuals, each child is consistent in his performance.

Newcomers received more Type B than they initiated (13 vs 8, $T = 16$, $p \leq .02$, Wilcoxon test, two-tailed). This means newcomers' activities were more likely to be commented on by other children rather than the reverse.

There were no significant differences in the frequency of these acts between experienced and inexperienced newcomers as initiator or recipient. However, as recipients, experienced newcomers were significantly more responsive than inexperienced ones (for girls: 0.683 vs 0.223, $U = 2$, $p = .001$, MWU 2t; for boys: 0.500 vs 0.333, $U = 8$,

n.q.s., MWU test, two-tailed). This means that experienced children were more likely to talk about their activities to group members who show an interest and comment on them.

(ii) Sex Differences

There were no significant sex differences in Type B adapted acts.

(c) Type C

(i) Age/Experience Differences

Older/experienced newcomers scored more than younger/inexperienced ones as initiator (median scores 18 vs 9, U = 40, $p \leq .02$, Mann Whitney U test, two-tailed) and recipient (27 vs 8, U = 27, $p \leq .02$, Mann Whitney U test, two-tailed). Experienced children tended to be more responsive than inexperienced ones to nursery group members (0.690 vs 0.543). But the responsiveness of group members to both groups of newcomers is similar (0.667 vs 0.726). Thus, older/experienced children tended to get engaged in sequences of interaction than younger/inexperienced ones by initiating more second and subsequent units and being more responsive in units initiated by their partners.

(ii) Sex Differences

Girls tended to score more than boys as initiator (10 vs 9) and recipient (9 vs 8), but these differences were not statistically significant. For responsiveness the only significant differences were:

(i) Experienced girls were more responsive than inexperienced ones (0.778 vs 0.700, U = 8, p = .037, MWU 2t). Thus,

the effect of experience reported above applies to girls not boys.
(ii) Experienced girls were more responsive than experienced boys (0.778 vs 0.568, U = 3, p = .015, MWU 2t).

In conclusion, once engaged in interaction with a nursery group member, newcomer girls (especially those with prior experience) were more likely than boys to continue interacting by responding and initiating more.

DISCUSSION

The findings of this chapter may be interpreted as direct evidence that girls are more socially skilled, or reach social maturity earlier, than boys (as previously speculated by, for example, Blurton Jones 1972; Tizard et al 1976). However, this interpretation is useful only if some account of other aspects of the children's play and relationships are included in the notion of 'social skill' or 'social maturity'. For example:

1. Solitary Play

Newcomer boys and girls (especially the younger ones) choose different activities independently of other children's attempts to direct their actions. My impressions were:

(a) that boys tended to watch other children playing. This may indicate boys' interest in other children or their games, but does not indicate their readiness to interact (p.95).

(b) girls also watched others, but tended to play alone more (e.g. paint, jigsaws). Their play may define the context for interactions initiated by other children (described p. 51).

2. Social Partners and Social Play

The kinds of social play in which newcomer girls and boys (especially older ones) engage may make different demands on their skills. There are several indications that boys are attempting more difficult tasks in their social interactions than girls.

(a) Social Partners: I found that newcomer boys (older and younger ones) choose to interact more with other boys more than with girls by attempting more interactions with boys and being more responsive to them (p. 99). Overall, boys were involved in aggressive interactions more often than girls (p.103). But in the newcomer group, the younger boys attempted fewer aggressive interactions than the younger girls. (p.105). In particular, newcomer boys scored less for negative adapted behaviour, meaning that they are less often involved in sequences of aggressive interaction than girls are. Younger newcomer boys tended to perform intermittent acts of aggression, usually when others were playing games such as cowboys and indians. The newcomer might shoot or stab someone who had not been shooting at him, or someone who had not even been taking part in the game, and run away (i.e. his act would be classified as negative adapted behaviour). Most of the newcomer girls' aggressive acts were intended as jokes and were received as such by the boys in the group. However, there was a slight tendency for the young boys' aggressive acts to be taken seriously, even if intended as jokes. On the one hand, young boys may

be less skilled at initiating jokes (e.g. choosing the right moment, ensuring that his joking intention was perceived). On the other hand, boys in the group may take a more serious view of aggression in newcomers if they are boys. It is worth noting that well-defined dominance hierarchies are more common among boys than girls (Omark and Edelman 1976). Status rank seems a more important aspect of boys' nursery experience than that of girls. This may affect boys' interactions in nursery through their attentiveness to higher ranking children (Chance and Larsen 1976), distracting their attention from play materials (see p.113) and teachers (see later, p.130).

(b) Social Play: Tizard et al (1976) reported sex differences in children's symbolic play - boys tended to combine play materials in ways not set out nor often intended by the staff, whereas girls' symbolic play usually involved dramatic impersonations. This seemed to be so in the group of children I studied. For example, one group of boys pretended to build a houseboat and fish and swim around in the sea, while girls usually played houses or dressed up to go shopping. Intuitively, it seemed more difficult for newcomers (particularly younger ones) to join in boys' games because:

1. To take an active part, the newcomer might have to interpret the intention (often not made explicit) of the child or children organising it if he is not to get hurt or be excluded from the game. This would be easier if the ideas involved in the game were part of every child's experience as they seem to be in girls' games.
2. There is often an opportunity in girls' games to play a passive role, for example as the baby of the family or as an onlooker. However, in boys' games, a passive participant would get in the way - younger

children were often told they could not play because of this, or because they were "only wee boys". This might explain why younger boys were particularly responsive when other boys asked appendant questions such as "This is a good house-boat, isn't it?" (p.94).

Older boys may not have the same difficulties in understanding the games, but they may have other difficulties in interacting with the boys in the group. We already noted the findings concerning status rank among boys and girls. Older newcomer boys seemed to have more difficulties in maintaining interactions with boys of their own age than older newcomer girls had in interacting with girls of the same age group. My impressions were that initially both sexes interacted with high ranking children of their own sex, but on the second or third day this tended to break down, apparently because the hosts felt their position in the nursery was being challenged by the newcomer who no longer followed their lead and ordered them around. What happened then differed between boys and girls. Among boys these disagreements might lead to a fight. In the long term the host tended to ignore the newcomer (not even look at him when he attempted to interact) and exclude him from his games. The newcomer tended to react by making repeated attempts to interact with his friend (e.g. ask questions about what he was doing), but the newcomer also spent periods alone watching other children, not playing and not responding to other (usually younger) children who attempted to interact (e.g. invite him to play). When the girls disagreed, this often led to long arguments, for example, "Any way, she's not <u>your</u> friend", "Yes she is", "No, she was my friend afore ever you came", "So?", "Well, I won't ask you to my party", "Don't care", and so on. Perhaps this sex difference is related to differences in the children's level of

verbal development. There is evidence that boys develop more slowly than girls (Hutt 1972). However, it is unclear if or how test performance is related to performance in social interactions. Perhaps boys are better advised to pretend they are less advanced than they are in order to interact more with established members of the nursery group. As noted already (p.97), experienced boys were less responsive to other boys' appendant questions - perhaps they disagree but are reluctant to say so.

In conclusion, it would not be useful at this stage to conclude that girls are more socially skilled than boys. It would be more useful to attempt to describe the tasks boys and girls undertake in the nursery. Part of a child's skill may be in his ability to choose those tasks which are within his capabilities and avoid those which demand more or different capabilities. In the next chapter, I describe how teachers may assist the children in this.

CHAPTER SIX

TEACHER-CHILD INTERACTION

INTRODUCTION

Most previous research on nursery school education has been concerned with investigating the products, not the processes, of education (e.g. Stanley 1972). Even the research on processes has been confined to discussing the teacher's effect on cognitive or language development since researchers lack reliable and adequate methods for studying social development (Tizard et al 1976). The object here is to describe some aspects of children's interactions with teachers in the nursery. This study is an extension of part of Chapter 4 and was run parallel to the study of child-child interaction described in Chapter 5. Teacher-child interaction was investigated in two ways:

A. By looking at how children's interaction with teachers varied with age/nursery experience and sex of the children in cross-sectional and longitudinal studies, and

B. By focussing on two teachers and observing the first few days of their (the teachers') introduction into an already established nursery group.

Within each section (A and B), I discuss (i) the frequency of interactions, and (ii) responsiveness, (a) overall, and (b) for each category of interaction separately, as in Chapter 5.

MATERIALS AND METHODS

Play Facilities, Nursery Routine, Behaviour Categories, Recording Materials and Methods, Method of Analysis, Categories of Interaction, Statistics and Presentation of Results

As for Chapter 5 (pp.88-90).

Adult Supervision

The children were supervised by two female members of staff - a trained nursery nurse and her assistant (children called them 'teachers'). Supervision varied according to the child's choice of activity either playing alone or while interacting (with peers).

(a) Playing alone: For example, to paint or play in the water the child required an apron which he could not usually tie or untie by himself; to make a chocolate crispie, an adult had to light the candles; to have a record put on or taken off the turntable, also required the teacher's assistance. In these routine matters the child might appeal for help or the teacher might anticipate this appeal and approach to assist or offer her assistance. If a child did not appeal to her or someone else, the teacher would intervene only:

(i) if a child was in practical difficulties (e.g. trying to saw through

an impossibly thick piece of wood),

(ii) if a child seemed too young to manage on his own (e.g. a three year old about to attempt a jigsaw designed for four year olds), or

(iii) if a child (particularly a newcomer) seemed aimless and unoccupied.

(b) Interacting: When children were interacting, the teacher would only intervene:

(i) if they were doing something potentially dangerous (e.g. one child waving a hammer above his head),

(ii) if one child was showing signs of distress (e.g. after prolonged teasing, or

(iii) if they were breaking a nursery rule (e.g. running round the tables playing cowboys and indians).

Subjects

There was one change in trained staff during the study period, and a succession of four temporary assistants (over five months) before a permanent new assistant was appointed. I observed the introduction of the two permanent staff members over their first eight days for half an hour each day.

The bulk of the teacher-child data comes from the children's records which were taken as described in Chapters 4 and 5 (for details refer to pp.88-90 as well as for further references). Here the data was pooled for all the teachers involved because there was not enough data on each to discuss them separately.

RESULTS AND DISCUSSION

A. TEACHER-CHILD INTERACTIONS

The results for teacher-child interactions are presented in two sections (as for child-child interactions, sections 1 and 2, Chapter 5, p.88):

1. Effects of Age/Experience of Child
2. Effects of Sex and Age/Experience of Child

Under these headings I discuss (i) frequency of interactions, and (ii) responsiveness, (a) overall, and (b) for each category of interaction separately.

1. Effects of Age/Experience of Child

(a) Overall

(i) Frequency

Previous research suggests (Blurton Jones 1972) that during his nursery career a child shifts from interacting with teachers to interacting more with other children. This is based on the observed effect of nursery experience/age of the child on the amount he interacted with teachers relative to the amount he interacted with children (T/C ratio). I found that older/experienced newcomers had a smaller T/C ratio than younger/inexperienced ones in the interactions they initiated (0.22 vs 1.60, $U = 38$, $p \leq .02$, Mann Whitney U test, two-tailed). Also when children were recipients, the T/C ratio was smaller for experienced then inexperienced children (0.35 vs 1.58, $U = 29$, $p \leq .002$, Mann Whitney U test, two-tailed). The longitudinal study showed that the children's T/C ratio significantly decreased as initiator

(medians 1.48 to 0.30, T = 7, $p \leqslant .05$, Wilcoxon test, two-tailed) and recipient (0.66 to 0.30, T = 0, $p \leqslant .01$, Wilcoxon test, two-tailed).

These results suggest two possibilities:

1. that children become less responsive to teachers with experience in the nursery. This is unlikely (see later, p.124).
2. that children shift from interacting with teachers to interacting more with peers. This seems the more likely explanation (Blurton Jones 1972).

However, I also found that experienced newcomers tended to interact more with teachers than do inexperienced ones. This was so for children as initiators (medians, experienced children: 48 vs inexperienced: 34) but not as recipient (31 vs 44) . A similar trend was found in the longitudinal data - the number of interactions initiated with teachers increased significantly (20.5 to 49, T = 5, $p \leqslant .05$, Wilcoxon test, two-tailed), but the number of interactions teachers initiated with children did not increase significantly (30 to 31). These results suggest that the shift in interactions from teachers to peers was not due to a decrease in the number of interactions children initiated with teachers (although the type of interaction might change, see p.124). The change in T/C ratio is due to:

1. the relatively large increase in peer interaction reported earlier (Chapter 5, p. 91), and perhaps
2. teachers tending to leave the initiative more to children as they get more experienced/older.

The second possibility may be examined more directly by looking at

changes in the initiator/recipient ratio with age/experience of the child.

In their first five days, inexperienced newcomers received more from teachers than they initiated (110 vs 89, T = 17, $p \leq .01$, Wilcoxon test, two-tailed). Experienced newcomers tended to initiate more than they received (43 vs 41.5). In the longitudinal study, children shifted slightly from receiveing more than they initiated (28 vs 25.5), to initiating more than they received (50 vs 42). These results have at least two possible interpretations:

1. As already noted (p.110), inexperienced newcomers interacted less with other children and simply watched more. They might look aimless and unoccupied. Teachers would approach and perhaps ask the child if he was all right, tell him the name of the child he was watching and what he was doing, and suggest and show him things he might play with by himself. If the newcomer was already playing alone or interacting with other children, teachers tended to leave the initiative in interacting more to the child. When she did initiate interactions they would probably be brief unless the child prolonged it (for example, by asking a question) and would more likely be adapted to what the child was doing than unadapted (see later section on categories of interaction with teacher, p.124).
2. Some of the above results would be predicted by (a) teachers being less responsive to experienced than to inexperienced children, and (b) experienced children being less responsive to teachers than were inexperienced ones. The next section demonstrates that this was not the case.

(ii) Responsiveness

Experienced newcomers tended to be more responsive to teachers than inexperienced newcomers were (0.739 vs 0.594, U = 73, n.s., Wilcoxon test, two-tailed). The longitudinal data show an increase in children's responsiveness to teachers (median scores, 0.545 to 0.728, T = 0, $p \leqslant .05$, Wilcoxon test, two-tailed). But teachers' responsiveness to children did not change with the experience/age of the child (in the cross-sectional or the longitudinal study). In all cases, teachers were more responsive to children than children were to teachers.

Thus the shift in interactions from teachers to other children was not achieved by teachers and children becoming less responsive to one another.

(b) Categories of Interaction

(i) Frequency

Newcomers with prior experience or older initiated less desire (1 vs 5, U = 38, $p \leqslant .01$, Mann Whitney Utest, two-tailed). A similar result was found in child-child interactions (p. 94). Other children tended to respond less to desire than other forms of demand. However, teachers often encouraged the children to say "please" when they put their demands in the form "I want" or "I need". This seemed to have some long term effect since in the longitudinal study children tended to initiate slightly less desire to teachers after some nursery experience (3 to 2, T = 10.5, n.s., Wilcoxon test, two-tailed), and slightly more polite requests (1 to 1.5).

In the longitudinal study, children initiated more adapted information later in their nursery career (3 to 10, T = 1, $p \leqslant .01$,

Wilcoxon test, two-tailed). During this period, children began to comment more on their shared tasks with teachers and tended to respond more to teachers' comments and questions (see below, p.126).

Children received less show at Period 2 than at Period 1 (3 to 1.5, T=2, $p \leq .01$, Wilcoxon test, two-tailed) and more adapted behaviour: assist (1 to 3, T = 5, $p \leq .02$, Wilcoxon test, two-tailed). Obviously, now that the nursery was familiar to the children, there was less need for the teacher to show them things. Instead the child was more likely to be already occupied when the teacher approached and more likely to ask for help.

The most striking aspect of teacher-child interaction is its assymetry. In general, teachers tended to be the initiator more often than the recipient (see p.123), but not in all categories of interaction. Most of the following need no further comment. (The Wilcoxon test, two-tailed, was used to test the significance of these differences).

Teachers initiated more than children on request for repetition (3 vs 0, T = 0, $p \leq .01$), command (25 vs 1, T = 0, $p \leq .01$), implied command (12.5 vs 1, T = 0, $p \leq .01$), question (26.5 vs 8, T = 29, $p \leq .01$), appendant question (5 vs 0, T = 0, $p \leq .01$), give (5 vs 2, T = 42.5, $p \leq .01$), show (20 vs 13, T = 86.5, $p \leq .05$), and plan (1 vs 0, T = 0, $p \leq .01$).

Children initiated more than teachers on desire (7 vs 2, T = 0, $p \leq .01$), unadapted statement (9 vs 0, T = 0, $p \leq .01$), objective statement (6 vs 0, T = 1, $p \leq .01$), polite request (3 vs 1, T = 22.5, $p \leq .01$), and adapted information (18 vs 6, T = 0, $p \leq .01$).

The categories question and adapted information, and the relationship between them, require further comment:

1. The teachers' score for adapted information (86) does not match that for children's questions (106). Teachers responded to children's questions but often followed up with question or appendant question of their own and so tried to keep the conversation going. Hence, teachers scored more questions than children (325 vs 106). But, on the other hand,

2. Children often gave a monosyllabic response (typically "Yes") to teachers' questions. The child's reply was scored as adapted information, but it gave little scope for the teacher to make further comment on the same subject. Consequently children scored more adapted information than teachers.

The age/experience of the child was found to affect only one category, show. In the longitudinal study, teachers initiated more show than children in the first few days (3.5 vs 3). Later in their nursery career children initiated more than teachers (5 vs 1.5, T = 1.5, $p \leqslant .01$, Wilcoxon test, two-tailed). In the cross-sectional study, there was no such age/experience effects. This is not surprising if one considers that experienced newcomers were as unfamiliar with their new nursery environment as inexperienced ones.

(ii) Responsiveness

Older/experienced newcomers tended to be more responsive to teachers' questions (0.813 vs 0.600, U = 58, n.q.s., MWU test, two-tailed) and adapted information (0.300 vs 0.111, U = 67, n.s., MWU test, two-tailed). In the longitudinal study, the only significant increase in responsiveness was for adapted information (medians 0.147 to 0.445, T = 5, $p \leqslant .05$, W 2t) This

means that experienced children engaged in conversation with teachers more than inexperienced ones did.

As expected, there was no variation in teachers' responsiveness to any category of act according to the child's experience or age.

2. Effects of Sex and Age/Experience of the Child

(a) Overall

(i) Frequency

Previous research suggest that girls interact more with teachers than boys do (Blurton Jones 1972). Among newcomers I found the sex difference in frequency of interactions was only significant for the experienced group of children as initiators (medians, experienced girls: 65.5 vs experienced boys: 17.0, U = 4, p = .026, Mann Whitney U test, two-tailed). Also, in the original group of children (see Chapter 4), girls tended to interact more with teachers than boys but not significantly more (as initiators: 4 vs 3; as recipients: 5 vs 3). Similarly, prior nursery experience had little effect on the teacher-child interactions of either sex. As initiators, experienced girls tended to score more than inexperienced ones (medians, experienced girls: 65.5 vs inexperienced girls: 55.0), whereas boys tended in the opposite direction (17.0 vs 32.0). However, any age/experience effect may be overshadowed by the large inter-individual variation in frequency of interactions with teachers. The following two comparisons use each subject as his or her own control:

1. Both sexes tended to initiate as much (or more) than they received if they were experienced children (median scores, girls: 65.5 vs 64.5; boys: 17.0 vs 16.0). If inexperienced, girls and boys both tended

to receive more than they initiated (median scores, girls: 55.0 vs 66.5; boys: 32.0 vs 36.0).

2. Experience/age had an effect on the T/C ratio of both sexes. Experienced girls had a slightly lower T/C ratio than experienced ones as initiator (0.550 vs 2.19, U = 12, p = .071, Mann Whitney U test, two-tailed) and recipient (0.530 vs 2.56, U = 11, p = .054, Mann Whitney U test, two-tailed). For boys the T/C ratio was again significantly lower for experienced than inexperienced children as initiator (0.210 vs 1.08, U = 6, $p < .05$, Mann Whitney U test, two-tailed) and recipient (0.350 vs 1.21, U = 1, $p < .002$, Mann Whitney U test, two-tailed). In the longitudinal study the T/C ratio decreased for boys as initiator (1.36 to 0.36, T = 2, n.s., Wilcoxon test, two-tailed) and recipient (0.58 to 0.34, T = 0, $p < .05$, Wilcoxon test, two-tailed). The girls also decreased as initiators (1.67 to 0.36) and recipients (1.50 to 0.23; sample too small for statistical analysis).

In summary, these results indicate that age/experience had an effect on both boys' and girls' interactions with teachers. Older/experienced children:

1. take or are given more of the initiative, and

2. have a higher proportion of their interactions with peers

(ii) Responsiveness

Blurton Jones has speculated that:

(a) the kinds of responses teachers made to children were less rewarding for boys than girls, and
(b) owing to a difference in their interests, boys and teachers achieved fewer responses of any kind from each other than girls and teachers.

I found that, overall, teachers were equally responsive to boys and girls, and that their responsiveness did not vary with the experience of the child. However, newcomer boys were significantly less responsive to teachers than newcomer girls were (0.758 vs 0.570, U = 49, $p \leq .05$, MWU test, two-tailed). Also, newcomer girls with prior experience were significantly more responsive to teachers than those without (0.774 vs 0.697, U = 10, p = .041, MWU test, two-tailed), but prior experience had no effect on the responsiveness of newcomer boys. These results suggest that interacting with teachers is less interesting and perhaps less rewarding for boys than girls. However, the following results cast doubt on this interpretation:

(i) In the longitudinal study, boys became significantly more responsive to teachers (0.541 to 0.761, T = 1, $p \leq .05$, Wilcoxon test, two-tailed).
(ii) In the original group data (Chapter 4), there were no significant sex differences and boys tended to be more responsive to teachers than girls (0.833 vs 0.683) (see also boys' responsiveness to teachers individually, p.134). Thus, boys' responsiveness to teachers compared

unfavourably with girls' only in the beginning of their nursery career. It seems unlikely that teachers' attempts to interact with boys are intrinsically less rewarding for boys than girls although they may be of a different type (e.g. more verbal, see later, p.132).

That boys share fewer interests with teachers (see below) would account for their interacting less frequently. However, it does not account for boys being less responsive to teachers than girls, unless their interests conflict. The teacher would then interrupt rather than assist the boy in what he was doing, that is, her act would be unadapted or negative adapted rather than adapted to the child's actions (for definitions of these terms, see p.75). Now the questions are

1. Do newcomer boys receive more unadapted and negative adapted acts from teachers?
2. Do newcomer girls receive more adapted acts than boys?

1. The interests of boys (even newcomers) differ from those of girls. Boys run about more (McGrew 1972) and play more rough and tumble games (Blurton Jones 1967). Thus boys tend to choose activities which do not require the teacher's assistance and in which she does not usually take part. In my study, teachers tended to interrupt boys' games only briefly to set limits (i.e. for example, to tell them not to run around tables or that they were shouting too loudly). Limiting his actions in itself would not necessitate interrupting a boy's game. (Both sexes reply to almost all teachers' <u>commands, implied commands</u> etc.). But to reply to the teacher's criticism, the boy might have to stop what he was doing. I found that newcomer boys received more <u>criticism</u> in their first five days than newcomer girls (total group

scores, boys: 24 vs girls: 12) and were less responsive to it (0.292 vs 0.417). However, this is a small effect and would not account for much of the overall sex difference in responsiveness to teachers.

When not engaged in the activities described above, newcomer boys often simply watched other children (see p.111). Teachers were likely to attempt interaction with boys at these times. Although she might refer in passing to the children he was watching, she mainly tried to interest him in playing with toys. Boys made few attempts to prolong the interaction (see p.129) and, when the teacher left him to continue playing, the boy often resumed watching other children instead. Thus (a) some of the teacher's initial attempts to interact were unadapted to the boy's current activity, and (b) it was difficult to maintain his attention throughout the sequence of interaction.

2. Girls' activities differed from boys' in two respects:

(a) they tended to remain stationary and play with toys (Smith and Connolly 1972) and paint (Clark, Wyon and Richards 1969).

(b) Girls watched other children in shorter bouts (of a few seconds) and continued to play their games.

These two differences mean that when the teacher initiated interactions with girls, it was more often to give practical assistance or to make comments adapted to the child's current activity.

In conclusion, we might find an explanation of the sex difference in newcomers' responsiveness to teachers in their attentiveness to and interaction with other children.

(b) Categories of Interaction

(i) Frequency

We noted that newcomer girls tended to interact more frequently with teachers than newcomer boys did (p.127). This overall result is reflected only in some of the individual categories of interaction. Girls initiated more than boys for give (1 vs 0, U = 29, $p \leq .002$, Mann Whitney U test, two-tailed), show (7.5 vs 2.5, U= 32, $p \leq .002$, Mann Whitney U test, two-tailed), unadapted behaviour:display (1 vs 0, U = 32, $p \leq .002$, Mann Whitney U test, two-tailed), adapted behaviour: assist (9.5 vs 0.5, U= 31, $p \leq .002$, Mann Whitney U test, two-tailed) and questions (2.5 vs 0, U = 32, $p \leq .002$, Mann Whitney U test, two-tailed). Girls received more than boys for adapted information (4 vs 1, U = 5, $p \leq .05$, Mann Whitney U test, two-tailed), polite requests (1 vs 0, U = 21, $p \leq .001$, Mann Whitney U test, two-tailed), unadapted behaviour: display (1 vs 0, U = 32, $p \leq .002$, Mann Whitney U test, two-tailed), plan (1 vs 0, U = 34, $p \leq .02$, Mann Whitney U test, two-tailed) and adapted behaviour: assist (5.5 vs 0, U = 32, $p \leq .002$, Mann Whitney U test, two-tailed).

One would expect girls to score more for these categories than boys, considering girls spend more time playing with materials (e.g. painting and doing jigsaw puzzles).

(ii) Responsiveness

Teachers were equally responsive to girls and boys for all categories. Girls tended to be more responsive to teachers than boys did, but only significantly more for adapted information (0.197 vs 0.118, U = 51, $p \leq .05$, MWU 2t) and questions (0.819 vs 0.500, U = 38, $p \leq .02$, MWU 2t). This means that boys were less likely to enter into conversation with

teachers and less likely to prolong it if they did. With experience in the nursery, the boys' responsiveness to adapted information from teachers increased (0.173 to 0.500), and their responsiveness to questions also tended to increase (0.597 to 0.705).

This may be related to girls' higher level of verbal development compared to boys' at this age.

B. INTRODUCTION OF TEACHERS : COMPARISON OF THEIR INTERACTIONS WITH CHILDREN

As described on p.120, the opportunity arose to observe the introduction of two new teachers to the nursery. The first was a trained nursery nurse (T1) and the second her assistant (T2) who arrived 20 working weeks later. There is an obvious difference in status between these two teachers. I proposed to show how this was reflected in their interactions with the children.

(a) Overall

(i) Frequency

There was no significant difference between the nursery teacher and her assistant in the total number of interactions they had with children (as initiator or recipient) in the first eight days after they arrived.

(ii) Responsiveness

Children were more responsive to T1 than to T2 (0.818 vs 0.694, $T = 1$, $p \leq .02$, Wilcoxon test, two-tailed). This is discussed later in the section on categories

of interaction (p.126). There was no difference between T1 and T2's responsiveness to children (T1: 0.943 vs T2: 0.948).

(b) Effects of Sex of Child

(i) Frequency

T1 initiated as many interactions with girls as boys (20 and 21) and received as many from girls as boys (21 and 21). However, T2 initiated more with boys than girls (15 vs 29, $U = 6$, $p \leq .002$, Mann Whitney U test, two-tailed), although she did not receive significantly more from boys (boys: 22 and girls: 20). This seemed to be a general effect across all categories of interaction, although none of the differences were statistically significant.

T2 spent some time during her first few days simply looking around and watching. T1 was preoccupied with running the nursery and assisting the children in their activities in her first few days. T2 had more opportunity to initiate interactions with boys with whom teachers do not normally share many interests (see p.130).

(ii) Responsiveness

Boys tended to be more responsive to both T1 and T2 than girls (T1: 0.809 vs 0.753; T2: 0.728 vs 0.393). This supports the suggestion made earlier (p.130) that teachers' responses are as rewarding for boys as girls.

T1 and T2 did not differ in their responsiveness to children, but both sexes were slightly more responsive to T1 than T2 (boys: 0.809 vs 0.722; girls: 0.753 vs 0.393). This may be associated with differences in the type of interactions the two teachers had with the children.

(c) Categories of Interaction

(i) Frequency

T1 and T2 differed slightly in the type of interaction they had with children. T1 scored more than T2 for adapted behaviour: assist as initiator (19.5 vs 6.5, U=9, p = .007, Mann Whitney U test, two-tailed; T = 5, n.s., Wilcoxon test, two-tailed) and recipient (4.5 vs 0.5, U=6, p = .002, Mann Whitney U test, two-tailed; T = 0, $p \leq .01$, Wilcoxon test, two-tailed). T1 also received more unadapted behaviour: display from the children (3 vs 1.5, U = 10, $p \leq .001$, Mann Whitney U test, two-tailed; T = 4, n.s., Wilcoxon test, two-tailed). This indicates how T1's interactions involved more cooperative activity and teaching children how to do things.

T2 scored more than T1 in initiating show (4.5 vs 3, U = 12, p = .019, Mann Whitney U test, two-tailed) and receiving show from the children (6 vs 3.5, U = 3, p = .001, Mann Whitney U test, two-tailed). She also made more requests for repetition (1.5 vs 0, U = 6, p = .002, Mann Whitney U test, two-tailed; T = 0, $p \leq .01$, Wilcoxon test, two-tailed), attempted more questions (16 vs 9.5, T = 0, $p \leq .01$, Wilcoxon test, two-tailed) and received more implied commands from the children than T1 had (1.5 vs 0, U = 8, p = .005, Mann Whitney U test, two-tailed). These results suggest that T2 tended to be guided by the children rather than involve them in new activities as T1 had done. This is a difference one would expect between a nursery teacher and her assistant; T1's task was to make an impression on the nursery from the beginning, whereas T2's task was to fit into an already existing pattern.

T2 initiated more adapted behaviour: smile (1 vs 0, U = 0, p = .001, Mann Whitney U test, two-tailed; T = 0, $p \leq .05$, Wilcoxon test, two-tailed) and received more unadapted behaviour: smile (1 vs 0,

U = 0, p = .001, Mann Whitney U test, two-tailed) and jokes (1 vs 0, U = 0, p = .001, Mann Whitney U test, two-tailed; T = 0, $p \leqslant .05$, Wilcoxon test, two-tailed). T2 may have had more opportunity to joke and smile with the children than T1 since she was less involved in the practical details of running the nursery (see also p.135). However, the following results on responsiveness for T1 and T2 suggest that this explanation may be too simple.

(ii) Responsiveness

Children tended to be more responsive to T1 than to T2 for almost all categories although none of the differences were statistically significant. Children tended to be more responsive to T2 than T1 only for criticism (0.292 vs 0.111). T2's interactions with the children were not generally more negative than T1's, but children seemed to question the authority of the assistant more than that of the head teacher.

The only difference between T1 and T2 for responsiveness to children which approached significance was for jokes. T2 scored slightly more than T1 (0.700 vs 0)

T1 seemed to take a more serious view than T2 of everything the children did. This would be an important aspect of a teacher's interaction with children if she is to establish a position of authority in the group. Having established this position it might be possible for the teacher to enter into 'joking' interactions with children without losing her authority.

CONCLUSION

This study has two main contributions to make to research on social interactions between teachers and children.

A. It illustrates the interdependence of teacher-child interactions and the child's choice of activities. I showed that age/experience and sex differences in children's interactions with teachers could be explained as a consequence of differences in their interactions with peers and the kinds of activities they choose. In any case, the differences were not due to teachers being less responsive to one group of children than another. In principle, the teacher's role in free-play periods is not to direct the children's play activities, but to facilitate the performance of the activities children choose for themselves (within limits). Thus she responds to virtually all the children's attempts to interact and initiates interactions herself when the child is or is likely to be in difficulties (e.g. he is crying or has not found the solution to a puzzle), but she also intervenes if the child is abusing nursery equipment or other children.

B. I have outlined a basic methodological framework for describing and comparing the styles of individual teachers (or the roles they take on in their interactions with children). It would be interesting, for example, to use this method to compare (a) teachers in a free-play nursery with teachers in a more structured setting, and (b) male teachers with female ones, especially in their interactions with boys. Perhaps boys would be encouraged to choose more of the same activities as girls in order to interact with male staff.

CHAPTER SEVEN

MOTHER-CHILD INTERACTION

INTRODUCTION

This chapter contains:

1. A comparison of mothers and teachers in interactions with children;
2. An investigation into the effects of the sex of the child on:

(a) the ratio of interactions initiated to those received (the I/R ratio) in mother-child pairs, and
(b) the mutual responsiveness of mothers and children.

As in Chapter 5, I am not here concerned with individual differences, but with making broad generalisations about mother-child interactions. The study is an extension and improvement on the one described in Chapter 2 in two respects:

1. The conditions for observing interactions between mothers and children were improved (see materials and methods below), and
2. I used the methods of observation and analysis of the data developed in Chapters 3 and 4.

MATERIALS AND METHODS

Subjects

The data was pooled from the records of thirty children (10 girls and 20 boys). All were observed with their mothers (or whoever took care of them out of the nursery) in the 'greeting and separation' situation (as described in Chapter 2, p.37). Children were observed for varying periods of time depending on how long the mother stayed in the nursery before she left (alone or with the child). The children had been subjects in the studies reported earlier and are listed together in Appendix 6 with their approximate age at the time they were observed.

A small amount of data on sequences of interaction was collected during the study described in Chapter 2. This was used for analysis here. Much of the data on these original records was not amenable to the analysis used here, as the method was developed largely after these records had been taken. Therefore the data was supplemented by a further study of mother-child interaction. This time I improved the conditions of observation. Mothers were encouraged to come into the playroom and collect their children as soon as they arrived, rather than wait outside (see p.36 for description of previous routine). Thus the children were often still engaged in free play when their mothers arrived. This change brought two advantages:

1. Mothers and children tended to interact inside the playroom more than before.
2. Mothers arrived at different times so that I was able to record more mother-child pairs every morning.

The subjects for this study were obviously a self-selected sample biassed towards those mothers who came early, left late and interacted with their children more. This was admissable considering the main purpose of the study was to compare mother-child and teacher-child interaction - the mothers' interest in nursery school children would compare more favourably with the teachers'. The data for teacher-child interactions is taken from Chapter 4 (pp. 81-5).

As the amount of observation time varied from one mother-child pair to the next, it was not possible to compare frequencies of interactions. However, relative measures of interaction frequency, using each subject as his own control, were taken (i.e. I/R ratio). The bulk of the data is on responsiveness in mother-child and teacher-child interactions.

Play Facilities, Nursery Routine, Behaviour Categories, Recording Materials and Methods, Method of Analysis, Categories of Interaction, Statistics and Presentation of Results, and Supervision

Apart from the details above, these were as for Chapter 5 (pp.88-90), and (where appropriate) for Chapter 2 (pp.37-43).

RESULTS AND DISCUSSION

1. Comparison of Teacher-Child and Mother-Child Interactions

Overall, mothers were less responsive to children than teachers were (0.823 vs 0.969, U = 85, p = .00016, MWU test, two-tailed). Mothers and teachers may each be otherwise engaged (e.g. talking to someone else) when a child attempts interaction. Teachers usually responded

to the child with, for example, "Hold on" or "Be there in a minute". Mothers tended not to respond at all. The children were competing mainly with other children for the teacher's time and attention, but with adults (mothers of other children and the teachers) for their mother's time. Even so, I observed that it was the teacher who dealt with interruptions in their conversation, not the mother herself - the teacher sometimes asked a child to wait till she and his mother had finished talking, and might suggest what he could do in the meantime.

The above observation seemed to be a general effect across all categories. However, mothers scored markedly less than teachers for only two categories:

(i) unadapted statements (0.500 vs 0.961)

If a mother is busy, she is particularly less likely to break off to respond to her child while he is talking about his own activities.

(ii) aggressive acts (as defined on p.103) (0.273 vs 1.000).

Sometimes a mother may not respond to her child's aggressive acts, perhaps because she feels her only alternative would be to make an issue out of it in public.

Overall, children were less responsive to their mothers than to teachers (0.556 vs 0.714, U = 234, p = .0003, MWU test, two-tailed). They were less responsive especially to mothers':

(i) unadapted behaviour: display (0.633 vs 1.000).

In teacher-child interactions the teacher was

usually dressing the child in an apron so he could play in the water or paint. Mothers were almost always having their children put on outdoor clothes to go home. Often children seemed reluctant to leave the nursery and would delay by, for example, showing their mothers how they could jump, instead of putting their coats on.

(ii) questions (0.519 vs 0.769).

Many of the mothers' questions were unadapted to what the child was doing at the time (e.g. "Had a nice time today?") or were related to going home (e.g. "Where did we put your coat?"; "Do you want to take your picture home?") and the child may have been less able, or reluctant, to respond.

However, children were more responsive to their mothers' smiles than to teachers' (0.579 vs 0).

This may reflect a difference in the children's relationship with their mothers and with the teachers, but it may be a consequence of the situation in which each was observed - mothers greeting (or, less often, separating from) their children, and teachers interacting with the children during free play time. There is no element of surprise at seeing the teacher. However, when their mothers arrive, the children's smiles may express their delight at having their expectation (that she would arrive) confirmed.

2. Effects of Sex Differences in Mother-Child Interactions

Two aspects are noted here:

(i) Initiator/Recipient ratio: Boys and girls both initiated as many interactions with their mothers as they received from them.

(ii) There were no sex differences in children's responsiveness to their mothers, although boys tended to be more responsive than girls (0.578 vs 0.556). Mothers were equally responsive to boys and girls 0.750; 0.750).

These results suggest that although boys score more than girls for leaving their mothers' sides (see Chapter 2, p.44 - boys scored more for away than girls) meaning they probably interact with mothers less than girls, there are no sex differences in the quality of their interactions with their mothers.

In conclusion, this study illustrates the potential usefulness of this approach for studying mother-child interactions.

CHAPTER EIGHT

SUMMARY AND GENERAL DISCUSSION

My intention in this thesis was to formulate a coherent conceptual framework and method for an empirical study of spontaneous social interaction among nursery school children. The purpose of this chapter is to discuss how this might be integrated with other areas of research.

In Chapter 1 I pointed out the methodological and conceptual ommissions of various approaches to the study of social interaction among adults and children. The major criticism was that previous studies did not take account of the intentions of one or both of the individuals involved in the interactions. I argued that this was due to:

1. The methodological difficulties of observing individual's intentions,
2. A lack of conceptual clarity about the nature of intention and its role in the explanation of individual action and social interaction.

In Chapter 2 I described a pilot study in the course of which I encountered problems inherent in applying ethological methods of describing behaviour to describing children's interactions. The study

was essentially a replication of one by Blurton Jones and Leach (1972) of greeting and separation between mothers and nursery school children. However, I attempted to take the speech of mother and child into account, hoping to be able to find a way of analysing verbal and non-verbal interactions. In theory, there seemed to be no reason why one could not define intention operationally.

In Chapter 3 I described the initiation of interactions. In the first place this involved the mutual focussing of the children's attention. I validated a criterion for saying that an individual's directed act (i.e. one which was accompanied by overt visual attention) was intended to get the other's attention at the beginning of an interaction sequence by testing if this was its function. I found that in the majority of cases (82.5%) an account of one individual's (the initiator's) actions seemed adequate to explain the other's (the recipient's) attentiveness at the beginning of a sequence of interaction. In the other 17.5% one had to take the recipient's actions into account. As far as the initiation of interactions is concerned this might be regarded as a small and insignificant proportion. However, I still had to describe how sequences of interaction were maintained and how they were terminated. This would require an account of the recipient's actions.

In Chapter 4 the recipient's role in interaction was investigated in detail. I began by comparing the child's action on objects to his actions on persons and extended Piaget's notion of 'adaptation' to describe both. This led to the development of a method for analysing sequences of interactions into successive units consisting of acts and their adapted responses. These adapted responses could have a dual function:

1. in expressing an individual's intention, and

2. as an act initiating the next unit in a sequence of interaction.

The categories of initiator's act were defined primarily with reference to the conventional meaning of the utterance or gesture and only secondarily to the intention of the initiator. I tested if these acts functioned to get adapted responses from the recipient when initiated and received by different age/experience groups of children and adults. The results demonstrated that (at this level at least) one would achieve a more adequate description of an individual's social skill by looking at his performance as recipient in sequences of interaction and not just his performance as the initiator of sequences in which he is acting in order to attain his goal.

Chapters 5, 6 and 7 contained results on a molecular level concerning the effects of age/experience and sex of the children on some aspects of their social interactions with peers, teachers and mothers. This work forms a descriptive base for further research on social interaction, as discussed at the end of each of these chapters.

There is no overall conclusion to be drawn from this research. Its function is to demonstrate empirically the importance of including the concept of intention in a theoretical account of social interaction and relationships. The formulation of such a theory is necessarily a long-term project. However, in the short-term, I suggest how my approach may be integrated with other descriptive accounts of inter-individual relationships.

For example, Chance and Larsen (1976) have put forward one account of inter-individual relationships and social structure. Their notion of 'attention structures' originated from observations of non-

human primates, but is being applied to human social groups, particularly nursery school children (Hold 1976; Abramovich 1976). These workers argue and demonstrate empirically that the attention paid by the subordinate individuals to the dominants in the group reflects the relationships between the group members (e.g. status rank and inter-individual spacing). For the purposes of inter-group comparisons this may prove a more useful way of describing social structure than one which scores what the individuals do together (i.e. the content of their interactions).

I have pointed out that attention structures describe a different level of relationships to the one discussed in this thesis (see p.59). However, it seems reasonable to suggest that at some point each would benefit from taking some account of the other. One application of my work might be to study the relationship between the children's social interactions (as described above) and the way their attention is structured within the group. However, on theoretical grounds, I am not convinced that this would be a very profound or worthwhile undertaking. From my point of view, the interesting aspect of attention structures as a theory is that it highlights the importance of taking some account of the subordinate's contribution to social interactions and relationships. This is in sympathy with my account of the recipient's role in social interactions (see Chapter 4). The proponents of attention structure devalue this theoretical contribution by their insistence that attention is the determining factor in social relationships. It is difficult to see what they hope to gain by this (see also Hinde 1976a). For example, although their theory is based on the psychological concept of attention, they make no attempt to explain social relationships in psychological terms. Thus attention

structure theorists have little to say about the individuals involved. These are portrayed simply as mechanisms for determining the social structure of the group. I suggest that what is neede is an analysis of psychological concepts (attention, intention, emotion and so on) with a view to determining the kind of theory to which they are appropriate. This might be labelled, a priori, an 'interpersonal' theory of relationships.

There is some debate in the literature about whether such a theory would constitute a scientific explanation of human social behaviour. There are persuasive arguments for the scientific status of a model of social behaviour based on the concept of the 'person' (Harré and Secord 1972; Israel and Tajfel 1972; Shotter 1973). There are equally persuasive arguments that the realm of the personal is not amenable to scientific study (MacMurray 1957; 1961). There seems little to be gained here by entering this debate. Instead I describe what we might gain in practical terms by moving in the general direction of an interpersonal theory of relationships, leaving aside the question of its scientific status.

One approach relevant to this discussion is the social skill model used by Argyle and his associates (Trower et al 1978). This model is based on the idea that some forms of mental disorder are caused or exacerbated by a lack of social competence, and can be cured or alleviated by means of training in social skills. Argyle and coworkers describe these basic social skills (e.g. getting information, meshing, greetings and partings, asserting skills) and seem to be able to provide effective training in these areas. These workers make the reasonable claim that their approach also has implications for the training of individuals in the special social skills required, for

example, by psychotherapists and interviewers. There seems to be a close link here between this social skill model and the approach described in this thesis. Each may be interpreted as an attempt to define the task(s) individuals face in their dealings with one another. I defined one task for individual children interacting with other individuals as adapting their actions to those of other individuals as well as fulfilling their own intentions (Chapter 4 pp.61-9). I measured their performance at this task. As already indicated, the results could be interpreted in two ways:

1. In terms of social skill differences (pp.113-7) (e.g. between girl and boy newcomers to nursery; older and younger children; teachers and children). This might lead one to speculate and research into, for example, (a) what factors in boys' and girls' upbringing might be associated with this sex difference in how they cope with entry into nursery, and (b) what interventions by the teachers might be associated with newcomer boys reaching the same level of social skill as their girl contemporaries after some nursery experience. (This is discussed in Chapter 6 pp.127-31).

It seems that while a social skills approach may generate interesting and important questions in the practical field, it gives one little scope for achieving a greater understanding of interpersonal relationships.

2. My results might also be interpreted in terms of differences between boys and girls at some other level of description; for example, differences in their play interests or the hierarchical structure of their relationships (discussed pp.113-7). This might lead one into a discussion of theories (mainly psychoanalytic and psychodynamic) which

claim to 'explain' sex differences in children's play (e.g. that boys tend to build towers out of bricks, while girls build houses, Erikson 1977). From the point of view of the scientific study of interpersonal relationships, such theorising seems rather premature.

This is a view shared by Hinde (1976a). My approach has a great deal in common with the one he has been developing recently (Hinde 1976a and b; Hinde and Stevenson-Hinde 1976). He states that the first stage in the scientific study of relationships should be one of description and classification. He also agress that our long-term aim of a comprehensive theory is beyond our grasp, and he proposes we formulate more limited objectives (Hinde 1976a). The methodological approach he puts forward is a 'strict behavioural' one (Hinde and Stevenson-Hinde 1976): that is, one which seeks to define relationships operationally. He recognises that we need some means of guiding our selection of phenomena for description and it seems reasonable to him that we do not discard as preliminary guidelines the qualities we notice in everyday life. It seemed reasonable to me to postulate that people have intentions which other people help, or make it difficult for, them to fulfill. This is the phenomenon I have tried to describe among nursery school children. One might summarise the possible methodological contribution my approach makes to Hinde's as follows: we might want to translate talk about 'intersubjectivity' or 'affection', not only into talk about (a) 'behavioural meshing' (Hinde and Simpson 1975) as Hinde suggests (Hinde and Stevenson-Hinde 1976), but also about (b) 'mutual adaptedness of behaviour'. Both (a) and (b) can be reduced to operational terms.

If one accepts that the description at the level of social inter-

interaction put forward in this thesis is within the realms of science, then this has conceptual consequences for Hinde's approach. The hierarchical conceptual framework he presents (Hinde 1976b) involves three levels: interactions, relationships (described by the content, quality and patterning of interactions) and structure (described by the content, quality and patterning of relationships). In future, as Hinde himself hints (Hinde and Stevenson-Hinde 1976), we ought to have more to say about the building blocks of our theoretical structure - that is, about the nature of interactions, especially in the sphere of human relationships.

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APPENDIX 1.

Subjects - Chapter 2.

Subject	Age	No.of Sibs.	Birth Order	Parent's Occupation
Allison	4:8	2	2	Restaurant Owner
Anna	4:7	1	2	Art Teacher
Avril	4:2	1	2	Bus Conducter
Christine	4:7	1	2	Doctor
Clare B.	3:4	2	3	Bank Clerk
Clare C.	4:8	2	2	Doctor
David *	4:10	1	1	Bookmaker
Douglas	4:2	1	2	General Storekeeper
Eileen Ann	2:11	1	2	Clerical Worker
Elizabeth	4:11	1	1	Building Site Agent
Gordon	3:5	1	2	Printer
Jennie	4:1	1	1	Scientific Assistant
Jeremy	3:10	2	2	Research Worker
John Paul	4:7	3	4	Cable Layer
Keith D.	3:1	1	2	Civil Servant
Lorna	4:2	1	1	Truck Driver
Mark +	3:2	3	3 =	Accountant
Michael +	3:2	3	3 =	Accountant
Robert *	4:0	1	1	Bookmaker
Simon	3:6	2	2	Civil Servant

* Brothers; + Twins

APPENDIX 2

Subjects - Chapter 2. Number of Times Mother Herself Involved

	Subjects	Times Mother was Caretaker	
		Greeting	Separation
Girls	Allison	4	5
	Anna	18	20
	Avril	19	13
	Christine	17	20
	Clare B.	15	16
	Clare C.	20	0
	Eileen Ann	14	20
	Elizabeth	20	20
	Jennie	19	19
	Lorna	18	20
Boys	David	20	20
	Douglas	15	15
	Gordon	14	16
	Jeremy	20	20
	John Paul	19	20
	Keith D.	18	19
	Mark	18	20
	Michael	18	20
	Robert	20	20
	Simon	11	18

APPENDIX 3

Subjects - Chapter 3. See Appendix 1 for other details.

Subjects	Age	Nursery Experience
Allison	5:1	1:0
Anna	4:10	1:0
Avril	3:6	0:8
Christine	4:10	0:8
Clare B.	3:8	0:9
Clare C.	5:0	1:0
David	5:2	1:0
Douglas	4:6	1:0
Eileen Ann	3:2	0:5
Gordon	3:9	0:9
John Paul	4:11	1:0
Keith D.	3:5	0:8
Lorna	3:7	0:8
Robert	4:4	1:0
Simon	3:10	0:9

APPENDIX 4

Subjects - Chapter 4. For other details, see Appendix 1 (Original group) and Appendix 5 (Newcomer group).

Newcomer Group	Age	Original Group	Age
Angela A.	4:1	Avril	3:10
Bryan	2:10	Clare B.	4:0
Catrina	4:4	Eileen Ann	3:7
Elspeth	2:9	Gordon	4:1
Gary	3:9	Jennie	3:9
Julie	2:8	Keith D.	3:9
Keith H.	3:2	Lorna	3:10
Nicholas	2:9	Mark	3:10
Stefan	2:11	Michael	3:10
		Simon	4:2

APPENDIX 5

Subjects - Chapters 5 and 6.

Subject	Age	No.of Sibs.	Birth Order	Parent's Occupation
Angela A. *	4:1	0	1	
Angela B. *	4:10	4	5	Lorry Driver
Beverley	2:10	0	1	Typist
Bryan *	2:10	2	2	Office Manager
Cara	2:10	1	1	Lecturer
Catrina *	4:4	0	1	Lecturer
Debbie	2:9	0	1	Joiner
Eleanor +	2:9	1	2	Policeman
Elspeth	2:9	0	1	Lecturer
Frances	3:1	1	2	
Gary *	3:9	3	4	Shopkeeper
Gert	3:4	1	3	Chef
Gordon + *	4:10	1	1	Policeman
Jimmy *	5:0	1	2	
John	2:9	2	2	Doctor
Julie	2:8	1	2	Representative
Kate	3:1	0	1	Lecturer
Keith H.	3:2	0	1	
Maureen *	4:7	3	3	Lecturer
Nial *	3:8	1	1	Student
Nichola *	4:11	1	1	Policeman
Nicholas	2:9	2	2	Lecturer
Paul	3:1	1	2	Motor Mechanic
Richard	3:3	3	4	Engineer
Shabir	2:9	0	1	Restaurant Owner
Shanaaz *	4:6	6	7	Shop Assistant
Stefan	2:11	0	1	Postman
Stuart	3:0	3	3	Doctor

* With prior nursery experience or older than average on entry.

+ Brother and sister.

APPENDIX 6

Subjects - Chapter 7. See other Appendices for other details.

Subjects	Age	Subjects	Age
Allison	4:8	John Paul	4:7
Anna	4:7	Julie	3:4
Avril	4:2	Keith D.	3:1
Bryan	3:9	Keith H.	4:0
Christine	4:7	Lorna	4:2
Clare B.	3:4	Mark	3:2
Clare C.	4:8	Michael	3:2
David	4:10	Niall	3:10
Douglas	4:2	Nicholas	3:8
Eileen Ann	2:11	Paul	2:10
Gary	4:4	Richard	3:2
Gordon	3:5	Robert	4:0
Jennie	4:1	Shabir	2:10
Jimmy	5:1	Simon	3:6
John	3:1	Stefan	3:3
Average Age	4:0		