The Interaction of the Handicapped Child with his Mother: a Study of Different Diagnostic Groups in a Standard Choice Situation

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by

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Abstract

The interaction during a standard toy choosing situation of a group of 10 autistic children, each together with his mother, was compared with that of a group of 10 physically handicapped children with their mothers, 10 emotionally disturbed children with their mothers, and 10 subnormal children with their mothers.

Bales' interaction process analysis was employed for recording the interaction observed, and significant differences between the autistic and other groups were found. These differences supported hypotheses derived from the literature on mother-child interaction in autism and schizophrenia.

The reliability and implications of the findings are discussed, together with the value of the approach used.

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A. Introduction

The study reported here is concerned with comparing the nature of the interaction observed between autistic children and their mothers, with the interaction observed between differently handicapped children and their mothers.

The study was undertaken in order to gather further information to bear on the hypotheses about the psychogenic causation of autism. A critism often directed against these hypotheses, is that any abnormal mother-child or family interaction found around autistic children is the result of the presence of a severely handicapped child in the family. The interaction around autistic children cannot, therefore, be considered in isolation and in this study, mother-child interaction, both in itself and as representative of family interaction, has been observed for a group of autistic children and three groups of children with other handicaps; emotional disturbance, subnormality, physical handicaps. The variable of handicaps should thus be controlled.

The observation of actual ongoing interaction was considered the most profitable method for gathering the required information.

Thus the literature concerning autism and theories about its causation, observations about interaction in the families of children with autism and with the possibly related condition of schizophrenia, and studies on the interaction between differently handicapped children, and their mothers, has all been reviewed as relevant to the subject matter of the research which is reported later in the thesis.

B. Review of the Literature

1. Childhood or Infantile Autism

In 1951 a paper published in America by Fabian & Holden states "Arguments for hereditary, somatogenic, or psychogenic origin of childhood schizophrenia are also repetitions of older debates on the etiology of schizophrenia in adults". This appears to reflect the present position in Britain, where varieties and mixtures of the three views mentioned are disputed and debated.

At least some of the lack of agreement appears due to confusion over terms, while some appears due to the biases of individuals influencing their perception of people and histories, and leading to differences of emphasis in reporting. For example Rutter (1965) reports that the placement of autistic children in schools where they have much individual teaching, and attention to their social and emotional needs, and "the presence of persons who could provide a stable and understanding relation with the child", are both factors which have an important influence on outcome. Yet Rutter does not take these findings to mean that psychotherapy and by implication attention to remedying poorly developed interpersonal relationship patterns, can be of value for autistic children (although he does say that "the child's emotional relationship may be fundamental in determining whether or not he is able to overcome his handicaps". Whereas Despert (1951) reports as part of the psychotherapeutic process, the improvement of the schizophrenic like symptoms of the younger sister of an autistic brother, when she was cared for by a nursemaid.

In many instances the data and information presented as supporting the views of one approach could be

taken as supporting the views of another, depending on the emphasis dictated by the outlook of the reporter.

Returning to Rutter's paper mentioned above, the finding that a number of autistic children in his follow-up study had become ill following a traumatic event was discounted as evidence for the importance of psychogenic factors in the aetiology, partly because some of the traumatic events had been hospitalisation for an illness in which the possibility of encephalitis could not be ruled out, and partly because the onset of autism had followed a traumatic event in as many children showing evidence of brain disease, as children not showing such evidence. The latter point is, of course, only significant for people who consider that brain disease is relevant to the aetiology of the condition.

As in all fields of psychiatry, the importance of the aetiology of a condition is mainly in its effects on the approaches to treatment of that condition. In general people favour a more medical or manipulative approach to the treatment of illnesses considered to result from genetic or organic factors, and a more psychodynamic approach to those considered to result from psychological factors. However, it is not necessary for approach to treatment to follow presumed aetiology in this way, and much of the most helpful treatment must occur when all aspects of an illness are dealt with, (for example in epilepsy, drugs to control fits and psychotherapy, possibly of a supportive type only, directed towards all the psychological stress caused by the illness). In the field of autism, it is workers who accept a genetic or organic primary cause for the illness, and yet direct some of their efforts towards helping the children in one of

the areas of most marked difficulty, namely interpersonal relations, who are most rare, so too are workers believing in psychogenesis, yet aiming to help autistic children to organise incoming stimuli and master speech.

If it were not for personal biases affecting the interpretations, it would seem that many of the workers in the field of autism are observing very similar phenomena. Possibly concentration on careful unbiased observation rather than an emphasis on theory building is what is most called for at present.

a. Diagnosis

Before considering the various views about autism some discussion of the criteria for the diagnosis is of value since in most cases writer's views depend on experience with children who are considered autistic by the writer concerned, yet not all writers appear to be using the same criteria.

Since Kanner's paper "Autistic Disturbances of Affective Contact" (1943) which first described the syndrome as a syndrome, later named by Kanner (1944) as "Early Infantile Autism", various writers (for example Rimland (1965)) have identified earlier accounts of children as referring to the same syndrome. However, Kanner (1957) was the first to differentiate it out as a separate entity. He stresses in the children "a disability to relate themselves in the ordinary way to people and situations from the beginning of life" as being present in all cases. Other features are, difficulty or inability to acquire language in some cases, and lack of its use to convey meaning to others in usual ways, where language is acquired; an "anxiously obsessive desire for the maintenance of sameness that nobody, but the child

himself may disrupt on rare occasions, "good relations to objects", which are handled with skill in fine motor movements; treating people or parts of a person as objects rather than people; possession of very intelligent faces and good intellectual abilities (shown often by a very good memory), although usually at same time considered retarded; possession of highly intelligent, obsessive and usually emotionally cold parents.

The American followers of Kanner have emphasised the two primary and pathognomonic features of the condition, which are "extreme self-isolation" and an "anxious and obsessive desire for maintenance of sameness" (Eisenberg & Kanner (1956)). The rarity of the condition has also been emphasised (Rimland (1965)); Kanner (1957) reports having seen 150 autistic children in the 14 years since his first report on 11 children. This group of workers also carefully distinguish the autistic child from the retarded child and the brain-damaged child, although recognising that autistic phenomena may be observed in these two other conditions, (Eisenberg & Kanner (1956)).

From the literature, it appears that not all workers in America are using Kanner's criteria. For example, Knobloch & Grant (1961) selected as autistic 40 children out of 1,000 referred to them, while Bettleheim (1967) in his recent book presents in full three case histories, all of children who appear to have become psychotic between the ages of $1\frac{1}{2}$ - $2\frac{1}{2}$ years, and he argues that the observable onset of infantile autism is often not until the second year. In this book Bettleheim, from his observations of autistic children, disagrees with many of Kanner's diagnostic

features. Further evidence of the use of varying diagnostic criteria for the condition in America is presented by Rimland (above).

In England, where there is perhaps less emphasis on infantile autism as a separate diagnostic category, Rutter (1967) has emphasised the importance of age of onset for distinguishing between Kanner's early infantile autism and other forms of childhood schizophrenia. In general Rutter follows Kanner's diagnostic criteria. Since 1961,when the working party set up under Creak (1961) as chairman, published its "Nine points" which were intended to serve as diagnostic criteria for "the schizophrenic syndrome in childhood", many workers have relied on these nine criteria for diagnosing autism. Rutter (1967) assumes that these criteria refer to Kanner's early infantile autism, although the working party were considering "the schizophrenic syndrome in childhood", a term agreed upon to cover both "psychosis in childhood" and "childhood schizophrenia", and Creak herself appears to use the word "autistic" as an adjective (1969).

The "nine points" refer to severe impairment of emotional relationships with people; unawareness of personal identity; preoccupation with particular objects or certain of their characteristics without regard to their accepted function; resistance to change in the environment; abnormal perceptual experience (where no indications of organic abnormality are present); acute, excessive and seemingly illogical anxiety; disorders of speech, which may have been lost or never acquired; abnormal motor behaviour; intellectual retardation with islets of average to above average ability.

It has been suggested, however, that these nine points have been interpreted differently by different people (Rutter (1967) referring to Creak (1964)), and they are critisised by O'Gorman (1967) amongst others. The nine points were an attempt to describe the phenomena most often occurring in the syndrome, but O'Gorman discusses how some of the descriptions are not sufficiently precise because they imply a particular understanding of the causes of the phenomena. He suggests a revision of the "nine points".

b. Autism and Childhood Schizophrenia

O'Gorman in his book, appears to be equating childhood schizophrenia with autism and to be taking Creak's "nine points" as referring to childhood schizophrenia as a whole, and not just to autism, in contrast to Rutter.

This raises the important question in the area of the diagnosis of autism. Besides O'Gorman and Creak, Goldfarb (1961) also writes about childhood schizophrenia as a whole without separating out autism as an entity. These writers, however, appear to be describing a condition similar to Kanner's early infantile autism in at least some of the children they have worked with.

Mahler (1952) distinguishes between "autistic infantile psychosis" and "symbiotic infantile psychosis", the former group being the same as Kanner's early infantile autism; Bender (1959) writes about the whole field of childhood schizophrenia but states that in her classification of the field into "pseudodefective", "pseudoneurotic", "pseudopsychopathic", "psychotic forms or episodes" and "pseudonormal" types, the "pseudodefective" type is "more or less the Kanner infantile autism syndrome".

Other writers (for example Kanner, Rutter,

Bettleheim) use the term early infantile autism to describe a more or less clearly defined sub group of the overall condition of childhood schizophrenia or childhood psychosis.

c. Range of views on aetiology and nature of early infantile autism.

Views on aetiology range through the sociogenic ideas of Jules Henry and the psychogenic views of Bettleheim to ideas of organic impairment (for example Rutter, Bender), and of genetic causes (for example Kanner).

Views on the nature of the condition range from those considering it a disturbance of affective contact (Kanner, Bettleheim) to those considering it a reaction to organic impairment (Bender, Rutter).

Thus, as already mentioned Lauretta Bender considers early infantile autism to be similar to one of her subdivisions of childhood schizophrenia, the pseudo-defective type. Bender's (1959) view of childhood schizophrenia is that it is "a genetically determined maturational disturbance in integrative functions underlying behaviour, with a primary embryonic plasticity in all behaviour areas and a nuclear anxiety which calls forth the great variety of defences determined by the individual personality type, the severity and time of onset of the illness, environmental and interpersonal relationships, therapy, the various developmental epochs, severe illness, and many other life experiences". She adds that "schizophrenia has been viewed as a lifelong process but a psychosis occurs only when other more satisfactory defenses fail".

Bender's view of childhood schizophrenia (with one category being similar to Kanner's autism) is one of the

most comprehensive. In a paper in 1947 based on experience with more than 100 cases over 10 years, she describes most of the features which later writers have noted and expanded upon. She says that the psychological problems which appear are appropriate to the age of onset; that anxiety, resulting from the threat to the personality by the schizophrenic process, is the central point in the early stages; that the way the individual deals with the anxiety influences the symptom formation; that "all of the normal mechanisms of early childhood will be used as points of fixation in childhood schizophrenia. They will be exaggerated by repetition, by finding expressions in various forms, by condensing with other mechanisms,and carried into later periods of development". Bender also points out that "some children with a deep anxiety due to disturbances in interpersonal relationships may react with profound biological disturbance and repressive behaviour akin to the schizophrenic. The common feature is the anxiety and the fact that the developing child is a biological social entity with only a certain number of ways of reacting to life traumas and always reacts holistically whether the trauma arise internally or externally, or at whatever point in the developmental curve. Schizophrenia adds nothing to childhood experiences or behaviour which an otherwise normal child might not also be capable of under some other condition". Thus she points out that schizophrenic symptoms can occur in children for reasons other than those which she considers are the cause of genuine childhood schizophrenia. Similarly Bender presents her view (Bender 1959) that

autistic thinking and actions can occur in children with "many different types of pathology in their genes, brains, perceptual organs or social relationships". Thus she sees autism or autistic behaviour as a reaction to many different disorganisations which cause anxiety in a child, and as not necessarily implying psychosis.

In her description of the symptoms and cause of schizophrenia in children Bender comments on the perceptual problems which occur.

The conclusions of Rutter are interesting on this point. Rutter (1968) views the hypothesis of the genetic basis of autism as "not proven" on present evidence. He tends to the opinion that organic brain abnormalities are important in the aetiology of at least some cases, (although emphasising that "brain-damage" is too general a concept), that many autistic children are mentally subnormal (and I.Q. does not vary with clinical state but is a reliable predictor of later level of intellectual functioning), that autism "is not primarily a disorder of social relationships", and that it is most likely that the true nature of autism is related to a "primary defect in terms of a language or coding problem", while "many of the manifestations of autism are explicable in terms of cognitive and perceptual defects".

Rutter's (1967b) conclusions are based on a five-fifteen year follow-up of 63 psychotic children, all but 12 of whom were considered to definitely fit Kanner's criteria, and to fulfil Creak's nine points. These 63 children were each matched with a non-psychotic child for time of first attendance at the hospital department, age and "measured intelligence".

The work on language, cognitive and perceptual defects has recently been reported by Hermelin (1967) and Frith (1969). It suggests an hypothesis of the presence of "deficits in verbal coding and patterning (Hermelin 1967), the presence of some central processing deficit related to different levels of interpreting information rather than impairment in certain input channels (Hermelin 1969), and a tendency to impose patterns on incoming stimuli which is largely independent of external factors and results from "inflexibility in inner processing" (Frith 1969).

Rimland (1965) presents an hypothesis of the nature of autism, as being caused by an inability to link present ongoing psychological experience with past experience. This inability is postulated as being caused by an impairment in the functioning of the reticular formation of the brain. Rimland suggests that this impairment occurs because of a genetic vulnerability related to an inborn capacity for high intelligence. (This hypothesis has been critised because of its highly speculative nature (See Rutter(1968)).

Hermelin & O'Connor (1968) point out that arousal (as influenced by the reticular formation) is a complex phenomenonand that in autistic children, modalities differ in their degree of arousal - autistic children show overarousal under some conditions but normal arousal under others when compared with controls).

Goldfarb (1959, 1961), presents a view of childhood schizophrenia to some extent embracing both that of Bender and that of Bettleheim. In his book "Childhood Schizophrenia", he discusses the question of what constitutes the condition,

and whether it is a unitary entity. He presents his opinion that a valuable way of approaching this is to compare a group of children (26) reliably diagnosed as being schizophrenic (by at least two psychiatrists, cases of gross cerebral damage were excluded), with a group of matched normal children (matched for age and sex), and also to look for sub clusters or groups within the schizophrenic group. He then proceeds to report such a study.

Since Goldfarb's group very probably includes some autistic children, it would appear important to include here his views and the results of his work, however briefly.

He views childhood schizophrenia as "an aetiologically nonspecific, profound deficiency in essential adaptive functions. There is no evidence of a positive disease process relentlessly unfolding itself. The designation merely serves to remind us that the child under scrutiny is conspicuously deviant from normal in quality of ego functioning" (Goldfarb 1959). Goldfarb's report of the very careful and comprehensive study of the 26 schizophrenic children and 26 normal children at the Ittleson Centre shows ways in which not only the schizophrenic and normal children differed from each other, but ways in which "organic" and "non-organic" sub groups could be reliably separated out within the schizophrenic groups (by both test and experimental procedures, and independent psychiatric and neurological assessment). Goldfarb postulates therefore two types of disorder within the entity called childhood schizophrenia. "In one class are the "organic" children with nonintact-central nervous systems which are demonstrated by pathological physiology and its resultants in the ego

deficits and primary behavioural incapacities. In the other, are the "non-organic" children whose ego deficits and behavioural capacities functionally reflect the psychosocial adequacy of the family". (Goldfarb 1961).

In contrast to those writers who consider autism as a reaction to organic impairment of some type, there are those who consider it a disturbance of affective contact. Kanner, as already mentioned, used this term when first describing the condition. Kanner's views have already been described to some extent in the section on diagnosis. However, it should be added here that although Kanner writes about "constitutional predisposition" (Kanner 1957), and "inborn autistic disturbance of affective contact" (Kanner 1943), he also considers that family relationships play a part in the development of autism. (Eisenberg & Kanner 1956).

Mahler (1952), also considers "autistic infantile psychosis" to occur in children with a constitutional predisposition to severe and basic damage to the ego. This damage results in the child's inability to be affectively aware of other human beings so that people are perceived only as "part-objects", and in no way different from inanimate objects. Such an inability gives rise to autistic symtoms as the infant's defense against the external stimuli, and internal excitations with which it cannot cope, because it has not established the means of coping through the necessary basic emotional relationships with the mother (who is "the first representative of outer reality").

Although distinguishing "Autistic infantile psychosis" from birth, from later forms of childhood

psychosis, such as "symbiotic infantile psychosis", Mahler points out how autism can be superimposed on symbiotic infantile psychosis, as a way for the symbiotic child to cope with his anxieties. Thus Mahler too, distinguishes between autism as a means of coping with an inborn defect present from birth, and autistic behaviour and symptoms occurring in response to other, later severe anxieties.

Bettleheim (1967) is another writer who considers autism to be a disturbance of affective contact. However, he views autistic children not as being unable to relate but as relating in unusual ways. Bettleheim considers autism as one of the most severe types of childhood schizophrenia. He emphasises two critical periods or periods of special sensitivity for personality development. These are from six to nine months and from 18 months to two years, and are periods when autistic withdrawal may occur. He stresses mutuality or satisfaction in adapting to each other's needs between infant and mother, and the mother's ability to allow her child to develop autonomy or to express its developing personality, as important areas involved in the development of autism,or alternatively of "self-hood". The state or condition out of which autism arises he defines as "the conviction that one's own efforts have no power to influence the world, because of earlier conviction that the world is insensitive to one's reactions". Thus Bettleheim understands autism to be caused by psychological factors; by a downward spiral of mother-child misperception in which the misunderstanding of one leads to negative reactions and anxiety in the other, which in turn lead to more

misperceptions and more anxiety, so that the child becomes less and less able to communicate well with the world and more and more anxious, and finally communication breaks down and the child retreats from the intolerable situation. Such a downward spiral does not begin solely by chance; there are some reality elements which interfere with the establishment of mutuality and of the child's autonomy, but they are not as severely or extremely negative and hostile as the child perceives them to be.

Despert (1951) and Boatman & Szurek (1960) are other writers who understand autism as arising out of pathological interpersonal relationships. Boatman & Szurek write about "childhood schizophrenia" but like other authors mentioned earlier, appear to be including autistic children in the group of patients and their families which they have studied; they in fact appear to use the terms "childhood schizophrenia" and "autism" to refer to a similar condition. They stress the role of anxiety, induced in a child by anxious parents, in the development of psychosis.

A final and unusual view to be recorded in this survey aimed at presenting the range of views on the subject of intantile autism, is that of Jules Henry (1951). He views schizophrenia in children as resulting from a rejection by their parents, and this rejection as being the result of society which no longer provides a role for children. Thus he considers that there is no longer sufficient motivation for parents to want children; instead of a realistic need for children as providing, for example, help in looking after land or guaranteeing the retention of land in a family, there now remain mainly "dubious" needs, for example, "to obtain gratification" or "to keep a husband".

d. Summary of Range of Views on Nature and Aetiology

This is a bewilderingly wide range of views on the nature and aetiology of early infantile autism. No doubt much of the confusion is, as many writers have pointed out, the result of many conditions being considered at present to be all part of the same entity. Another large part of the confusion appears to be related to the fact that, whereas some writers consider "autism" to be a separate entity (Kanner, Rutter), others see it as a symptom which can occur in many different conditions (Creak, Bender). Thus attention to diagnostic criteria is important. At present at least some differences of opinion may be the result of different workers basing their conclusions on groups of cases which are given the same name, although diagnostic criteria differ. Some of the differences in opinion between Bettleheim and Rutter may be due to this, since Bettleheim's cases may all be of later onset. It is significant that so many writers stress the importance of age of onset as a factor differentiating different types of childhood schizophrenia.

The important distinction made by Goldfarb and Bender between "organic" and non-organic" groups is also significant (even though Bender considers schizophrenic symptoms in a "non-organic" child as not representing true schizophrenia). Perhaps, if it were possible, differentiation on the basis of the presence or absence of some form of minimal organic impairment would be a second factor helping to classify the very different views on nature and aetiology. (Here Rutter and Bettleheim may be again cited as representing extreme views).

At present it would appear necessary for workers in the field of autism and childhood schizophrenia to be receptive both to concepts concerning causation as resulting either from psychogenic or "organic" factors, and to the way demonstrated by Bender and Goldfarb of understanding a child as a whole, the centre of the interplay of many forces and influences from within and without.

e. Mother-Child Relationships in Infantile Autism

It is principally the writers who consider that psychological factors are involved in the development of autism, who comment on the nature of the relationships between an autistic child and its mother. Those who consider psychological factors as of little importance in its causation tend to explain any unusual patterns of family or mother-child relationships as due to the effect on the family and mother of the presence of such a severely handicapped child. Thus Bender (1947) writes "The mother of the schizophrenic child, especially the child in whom the process has developed insidiously over a long period,shows a specific mechanistic patterning due to her efforts to help the child in his distorted identification process, to understand what is happening and to identify herself with the child. The mother bears an intolerable burden of anxiety and guilt, and is more bewildered than the child himself. She will try every mechanism for denying, evading, displacing, or absolving the child's psychosis. The motor and physical dependence of the child, his intriguing charm, his distressing anxiety, all bind the child to the mother while she cannot identify

with his problems or follow his disturbed thought process and development".

However, both Goldfarb and Kanner & Eisenberg present evidence opposing the view that it is the presence of the child which causes the abnormal parental personalities and interactions.

Eisenberg and Kanner (1956) point out that there is a history in the parents of the autistic children they have studied, of the type of personality pattern they have noted.

Goldfarb (1961) in his distinction between "organic" and "non-organic" schizophrenic children suggests that the latter group becomes schizophrenic because of the nature of their family interactions. In an assessment (based on rating of family interaction on several dimensions as observed in the home) of family adequacy, the families of normal children were rated as most adequate, the families of "organic" schizophrenic children as next most adequate, and those of "non-organic" schizophrenic children as least adequate. However, when the children were rated by staff for effectiveness of ego functioning or adaptive capacity, the normal children were found to be functioning best, the "non-organic" schizophrenic children next best, and the "organic" schizophrenic children least well. Thus when considering the families of the schizophrenic children, those families with the less disturbed children were found to be most inadequate. Goldfarb argues that this can be taken as evidence to support the view that it is not the presence of a severely disturbed child which causes unusual family interaction, but rather that the unusual family interaction was present in the first case. (He does not,

however, suggest that this is the only conclusion which can be drawn from the results, but he indicates that he considers it is the most likely. He also stresses the importance of a further investigation with larger groups of children).

f. Reported Patterns of Mother-Child Relationships in Infantile Autism

Potter's (1933) early description of schizophrenia in children included comments on the abnormal parental personalities and parent-child relationships found in the six cases he presented; many of these features reoccur in later reports (for example, dependence of the child; over protectiveness and dominance, and an "oscillating" attitude of the mother).

Eisenberg and Kanner (1956) and Kanner (1957) have noted in the parents of autistic children "marked obsessiveness", "emotional frigidity", "perfectionistic dissatisfaction with the pace of their(children's) habit development".

Despert (1951) described a mother, typical of a group of mothers of schizophrenic (including autistic) children, as "compulsive, perfectionistic, narcissistic, immature, frigid, emotionally detached, frightened by body contact, lacking in sensuousness and capable of functioning satisfactorily only on an intellectual level". Despert considers that the failure of these mothers to provide required satisfactions for their children, may be related to guilt about forbidden sexuality and sensuousness.

Tietze (1949) in her account at an investigation by repeated psychiatric interview, into the past maternal attitudes and behaviour patterns of a group of intelligent mothers of adolescent and adult schizophrenics, also reports mothers as being overanxious, obsessive and domineering. They were "restrictive" with regard to the libidinal gratifications of their children". Most of these mothers were perfectionistic, oversolicitous, and more than usually dependent on the approval of others.

This theme of overintellectualism and obsessiveness possibly as a reaction against guilt over their own sexual drives is also echoed by Boatman and Szurek (1960). These authors write of parents "tyrannised by (their) own internal conflicts about repressed and distorted libidinal impulses". These parents fail to find the undemanding tender love they crave in their spouse, and this increases their fear that such feelings are dangerous. They are thus unable to show spontaneous, tender feelings; the mother often turns to the child for satisfactions, but is anxious and unstable with him, alternating between overinvolvement and frozen withdrawal. "She can neither unambivalently help her child experience the passive gratifications necessary to the helplessness of his infancy, nor yet confidently help him learn each new skill as his advancing age makes it appropriate. Neither can she stand firmly but calmly by to help him through any regressive reactions of panic and anger. When the child's reaction to all of this is apathetic withdrawal, outbursts of rage, and reactive non learning, both parents feel an even greater sense of helplessness, failure, guilt and rage".

This quotation is included because it appears to describe failures in the area of the concepts of mutuality and autonomy stressed by Bettleheim, as well as the type of mutual misperception he describes as leading eventually to autistic withdrawal.

The second main theme running through this literature is that of rage, hostility and fear of destructive impulses. Bettleheim stresses these, particularly the hostility of the child. So too does Bender (1947) and Kaufmann et al (1957, 1959). The latter group of writers also mention the parents' fears about dependency.

Finally Goldfarb while also stressing the importance of "rage" represents a third theme, also represented by Bettleheim, that of problems in communication. Goldfarb (1959) writes of repressed rage and hatred of the child (repressed because such feelings conflict with the concept of an idealised parent figure), which is revealed in "parental perplexity". This parental perplexity he describes as "the broad term indicative of parental passivity and uncertainty, lack of parental spontaneity, absence of parental empathy, and an absence of immediate awareness of the child's needs for gratification, bewilderment or blandness in the face of socially unacceptable or bizarre behaviour in the child, and a total absence of forthright parental control". Goldfarb demonstrates parental perplexity and disordered verbal interaction through the contrast of mother-child interaction in normal and schizophrenic children. He shows how, with the schizophrenic child, the mother facilitates the abnormal either by various rewards or encouragements, or by her perplexity causing her to be non-directive and non-rein-

forcing when the opposite is needed, so that there is an overall vagueness and confusion. This does not occur with the normal children, when the mother is appropriate and realistic.

This discussion of Goldfarb's ideas shows how, although a separation of three broad themes running through the literature on the subject of mother-child relationships in autistic children, can be presented, these three themes all overlap to some extent.

(Another aspect of work in this field is discussed in the section of an interaction in families with a schizophrenic member, when the work of Singer and Wynne (1963) is presented).

g. Infantile Autism and Schizophrenia

Some of the reported patterns of family interactions in the families with an autistic child member, are similar to those reported in the families of adult schizophrenics. Although some authors, for example, Rutter, consider that autism is in no way related to adult schizophrenia, others consider that the two are related and the differences in symptomatology result from the difference in age of onset of the two conditions. Thus O'Gorman (1967) points out that "there are many points of clinical similarity between these "autistic" children and schizophrenic adults. They have the same loss of contact with reality, the same self-absorption, the same lack of sympathy and warmth, the same failure to make friends; they show the same inappropriateness of utterance and action, the same kind of failure at times to use abilities which they use easily at other times; and similar unexplained fluctuations of mood". O'Gorman suggests that if allowance

were made for the effect of a schizophrenic process on the developing personality and intellect of the child, then "the clinical picture of schizophrenia, or autism, in childhood might be regarded as truly analogous to that in adults". Kay and Roth's paper on the relationship of "late paraphrenia" to schizophrenia gives some support to the view that schizophrenia may manifest itself in different ways at different ages. (1961).

Kanner appears to consider autism as a sub-group within childhood schizophrenia and childhood schizophrenia as a type of schizophrenia, the expression of which is affected by the limited life experience and intellectual development of the child.

Bender and Mahler both write as if they consider autism and childhood schizophrenia to be closely related to adult schizophrenia, (Bender through her long term follow-up of schizophrenic children and Mahler through her understanding of the dynamics of schizophrenia in adults and children), while Potter (1933) writing on childhood schizophrenia appears to consider this as related to adult schizophrenia. Other writers too appear to make this assumption (for example Tietze 1949).

Bettleheim uses the example of the causation of schizophrenic reactions in prisoners in concentration camps, to illustrate the type of hopeless and "extreme situation" which an autistic child must perceive himself to be in, and as a result of which the autism develops. It would appear from this analogy that Bettleheim views autism and schizophrenia as related conditions.

Thus there is some evidence and some experienced opinion which suggests that there is a relationship between

schizophrenia as it occurs in adults, and early infantile autism. Therefore, some consideration of views and theories on family interaction in families with a schizophrenic member is of interest, since this study is concerned with mother-child interaction and such interaction is a part of family interaction.

2. Interaction in Families with a Schizophrenic Member

Impetus to work in this field was given by a paper by Bateson, Jackson, Haley & Weakland entitled "Toward a Theory of Schizophrenia" (1956). This paper was based on the concept that the unusual communication patterns of the schizophrenic must have been developed through being involved in an environment where these communication patterns are appropriate.

Work developing from this concept or linked with it has been based on the environment which is most likely to influence an adult, that of his family from his infancy onwards. For this reason, and because many of the concepts developed from this work are similar to those reported by people concerned with the family relationship of the autistic child (for example Bettleheim, Boatman & Szurek), the work in this field is reviewed.

However, it should be noted that Singer and Wynne (1963) in a study comparing the form or style of thoughts and attitudes (rather than content) of the parents of 20 autistic, schizophrenic children (14 autistic, six schizophrenic with autistic traits), 20 neurotic children (10 acting-out aggressive children, 10 withdrawn), and 20 schizophrenics who had become overtly ill in late adolescence or young adulthood, found differences between the four groups. Projective test data of each parent

considered with spouse was used for comparing the groups. The parents of the autistic schizophrenic children gave responses suggesting behaviour which would "rebuff, impair and interfere with the very beginnings of any tender or nuturant relationship"; their "disaffiliate" tendencies (or avoidance of close relationships) were particularly marked. The parents of those who developed schizophrenia later, gave responses which suggested that relationships would be allowed to develop, but that focusing of attention would be distorted and the acquisition of meaningfulness would be interfered with. Parents of the acting-out children gave responses suggesting relatively well defined percepts, but disturbed moods and impulses; they appeared to be active and energetic in their relationships. Parents of the withdrawn neurotic children appeared sad and to be making great efforts to maintain relationships.

Thus parental characteristics were found which are similar to those reported elsewhere for parents of "autistic", schizophrenic" children, and for parents of older schizophrenics. However, the two groups of patients could be differentiated blindly on the basis of their parents' projective test data. This suggests that the families of these two groups differ in at least some ways so that work in the one field can only be applied to the other with caution.

Further work of Wynne and Singer will be considered later in this section.

The paper "Toward a Theory of Schizophrenia" presented the concept of the "double bind" as demonstrating the experience to which the appropriate reaction is a schizophrenic mode of communicating. Weakland later (1960)

defined the general characteristics of this situation as:-

"1. When the individual is involved in an intense relationship; that is, a relationship in which he feels it is vitally important that he discriminate accurately what sort of message is being communicated so that he may respond appropriately.

2. And, the individual is caught in a situation in which the other person in the relationship is expressing two orders of message and one of these denies the other.

3. And, the individual is unable to comment on the messages being expressed to correct his discrimination of what order of message to respond to, i.e. he cannot make a metacommunicative statement". (i.e. he is prevented from pointing out the disagreement between the messages).

The 1956 paper presented hypotheses about the family situation of the schizophrenic which results in an extensive occurrence of the "double-bind". (The paper also notes that "double-bind" situations often occur in normal interaction). The characteristics of such a family are:

"1. A child whose mother becomes anxious and withdraws if the child responds to her as a loving mother. That is, the child's very existence has a special meaning to the mother which arouses her anxiety and hostility when she is in danger of intimate contact with the child.

2. A mother to whom feelings of anxiety and hostility toward the child are not acceptable, and whose way of denying them is to express overt loving behaviour to persuade the child to respond to her as a loving mother and to withdraw from him if he does not. "Loving

behaviour" does not necessarily imply "affection"; it can, for example, be set in a framework of doing the proper thing, instilling "goodness", and the like.

3. The absence of anyone in the family, such as a strong and insightful father, who can intervene in the relationship between the mother and child, and support the child in the face of the contradictions involved".

Reasons why the mother might feel this way are discussed (for example, merely having a child, child in same sibling position as was the mother).

Such a situation would result in the mother needing to control the child's distance or closeness from her; if the mother feels affection and draws the child close it makes her anxious and she must reject the child, yet she cannot accept the rejection but must simulate affection and closeness. Thus the child must not accurately discriminate between the mother's messages, since to do so would mean realising his mother's hostility and causing her to come close to realising it, so that she will punish him in some way to prevent realisation; the child must learn to distort his perception so as to fit in with the mother's system.

Weakland (1960) later extends the"double-bind" hypothesis to cover three person situations, in which both parents may be involved in setting up the "double-bind", and emphasises that the person caught in the "double-bind" soon learns to set up such binds of his own. Weakland also expands on the reasons why individuals cannot cope adequately with "double-binds" without distorting their perceptions, and communication patterns, for example, by pointing out the contradictions. Thus he restates the "double-bind" hypothesis:

"1. In a "double-bind" situation, a person is faced with a significant communication involving a pair of messages, of different level or logical type, which are related but inconsequent with each other.

2. Leaving the field is blocked.

3. It is, therefore, important to respond adequately to the communication situation, which include responding to its duality and contradiction.

4. An adequate response is difficult to achieve because of the concealment, denial, and inhibition inherent in or added to the basic contradictary pair of messages".

He discusses how inherent or added concealment, denial or inhibition (for example by ignoring the complexities) can make it more difficult for an individual to grasp the contradictions being presented to him.

Before the concept of "double-bind" was formulated Lidz later joined by other workers, was studying the family environment of the schizophrenic. From his intensive studies, which used a variety of techniques, and which he summarises in a paper written with others in 1963, he found that the families of schizophrenics were all seriously disturbed, in a variety of ways and in ways which pervaded the whole family interaction. He found that mothers, fathers and siblings were nearly always very disturbed, and that the families "were either "schismatic" - or were "skewed" in that the serious personality disturbance of one parent set the pattern of family interaction". "Irrational and paralogical" ways of thinking and communicating

were found; the parents often had anxieties around their homosexual and incestuous tendencies, and as a result of family pathology the children had problems in gaining a secure sexual identity and in developing satisfactorily strong egos.

Lidz et al state "We find that these parents fail to provide a satisfactory family milieu because they cannot form a coalition as members of the parental generation, maintaining their appropriate sex-linked roles, or transmit instrumentally valid ways of thinking, feeling, and communicating suited to the society into which the child mustemerge. The child who grows up in a family lacking in these fundamentals has confused and confusing models for identification, has difficulty in achieving a sex-linked identity, in overcoming his incestuous attachments, and in finding meaningful and consistent guides for relating to others because of the deviant perception and cognition of himself and the world which he has acquired in his family".

Lidz et al point out how their findings are very much in agreement with other workers in the field.

Weakland (1960) discusses Lidz's work in terms of the "double-bind" concept and points out that the presence of "family skew" involves situations in which there is apparent parental agreement, while in fact covert disagreement exists, so that contradictory messages reach the child, while "family schism" although involving open parental disagreement may also appear to the child as overt agreement with covert disagreement, since the parental schism may not always be overtly apparent to the child.

Bowen (1960) following intensive study of families with a schizophrenic member, comments on the "emotional divorce" or emotional distance between parents, the reciprocal alternating overadequate - inadequate relationship between parents which often results in the "domination-submission issue". Bowen reports "One of the outstanding clinical characteristics of the families is the inability of the parents to make decisions" and shows how this is related to difficulties over who is submissive and who dominant.

Weakland (1960) also discusses Bowen's findings in terms of the "double-bind"concept. He notes Bowen's findings on the way in which many families maintained a facade of agreement covering up disagreements, by keeping at an emotional distance from each other (Bowen 1959). Weakland also discusses Wynne's concept of "pseudamutuality" (Wynne 1958) which refers to families which appear to be close but are in fact covering up contradictions.

This emphasis on disagreement, more often covert than overt, and difficulty in decision making and on general pathology in the families of schizophrenics, lends itself to experimental investigation. Several studies have confirmed abnormal patterns of relationships (for example Kohn and Clauson 1956), Alanen 1968), while others have looked at difficulties in coming to agreement and in decision making.

Farina (1960) investigated the question of role dominance and conflict in the parents of schizophrenics, by giving them 12 hypothetical problem situations (concerned with how parents should act in difficult situations related to bringing up their sons), and asking them to come to

agreement. The discussions of the parents were tape recorded and various indices of conflict calculated. Parents of schizophrenic patients were found to display more conflict than parents of normal offspring. Indices of conflict found to differentiate significantly between the control and schizophrenic parents were total time spent in coming to agreement and number of interruptions by both mother and father, while failure to agree differentiated significantly between the control parents and the parents with schizophrenic offspring who had had poor premorbid adjustment (although this did not differentiate between the controls and the total schizophrenic groups).

Ferreira (1963) and Ferreira and Winter (1965) studied decision making in normal and pathological families. In the 1963 study ten of the 25 families in the pathological group had a schizophrenic child. In the 1965 study 50 families were normal, 15 had a schizophrenic child, 16 a delinquent child, and 44 a maladjusted child. In both studies the family triad indicated their choices first as individuals, in a series of situations they had to imagine as true; the families then were asked to agree on choices together as a family. The normal families were found to differ from the abnormal families; in the 1965 study the normal families had greater agreement between individual members before any exchange of information, spent less time in reaching their decisions, and arrived at decisions which better fulfilled individual member's choices. The families with a schizophrenic member were not slowest at reaching a decision, but when their time to reach a decision was

considered, together with the extent to which their joint choice fulfilled individual member's wishes, they were shown to be least efficient as families faced with such a task. In the families with a schizophrenic member, in contrast to normal families, spontaneous agreement (before information exchange) was not found to increase with age of child, nor to favour the same-sex parent. The 1963 study, although less extensive, gave similar results to those shown in 1965; it also showed that in both normal and abnormal families parents had more control over the family decision than the child; however, in the abnormal families the child had more say (or the parents less say) on what the family decided not to choose.

Following the impetus given to research in the field of the families of schizophrenics by the development of the concept of the "double-bind", Wynne has summarised recent work in the field of communication patterns in these families in his Mental Health Research Fund 1968 Annual Lecture.

Wynne explicitly outlines two levels at which research into the development of schizophrenia should progress; both of these he considers contribute to a predisposition to develop schizophrenia. One is the level of constitutional predisposition, which he links with genetic influences on "response dispositions". The second level is that of "transactional" events which he subdivides into "(1) Intrafamilial communication patterns; (2) family role structure; (3) the intrafamilial sub culture of shared beliefs, myths, rates and values; and (4) extrafamilial factors, which, in turn can be subdivided along lines such

as peer-groups, community network, social class, and broader cultural context". Wynne has been mainly concerned with intrafamilial communication patterns. In his lecture he refers to work designed to test hypotheses that:-

(1) Communication patterns "are systematically related to ..... cognitive and psychophysiologic response dispositions";

(2) That "at least some aspects of communication patterns can be directly linked to genetic endowment";

(3) That "communication patterns of individuals should be systematically related to the symptomatic picture shown by the same individuals";

(4) That "given a major, enduring relationship of parents and offspring, communication deviances of parents should be significantly related to the clinical psychiatric diagnosis and the symptomatic picture of their offspring".

Strodtbeck (1962),Cheek (1965), Mishler and Waxler (1968) Reiss (1968) have used approaches to investigate problem solving and discussion of disagreement in families. However, Wynne and Singer use projective and other psychological tests to provide the basis for studying actual "behavioural communication samples". They hypothesise that the manner in which an individual communicates with a professional worker will reveal some of the enduring ways in which that individual communicates with his or her offspring. They have developed a method of scoring communication samples obtained in this way, which

when parental scores are taken together, allow a blind statistically significant differentiation between the parents of schizophrenics, neurotics and normals, and between the parents of frank schizophrenics, borderline psychotics and severe neurotics.

The main scoring categories used in these studies were:-

(1) "Closure problems" or "statements and behaviour which induce lack of clarity and understanding in the listener as to what the point or meaning is which the speaker wishes to convey".

(2) "Disruptive behaviour".

(3) "Peculiar language and logic".

These categories are all related to the question of whether "shared" task sets and foci of attention can be established and maintained during the transaction between individuals involved.

Wynne suggests from this work that in all parents of schizophrenics, definable deviant communication patterns can be found. (He notes that these deviant patterns can also be found in families without schizophrenic offspring).

Although Wynne's reported data does not, as he points out, explain why such deviant communication patterns come about in families with schizophrenic offspring (whether they are an indirect result of an inherited "response disposition", whether the result of living with a disturbed child, or whether they help produce a schizophrenic illness), he reports that the parents of a sample of schizophrenics showed more of the type of

communication which "would induce perplexity, mystification, unclarity, and disorders of selective attention in a listener" than did the offspring. He states that this could be consistent with a theory of such communication patterns causing schizophrenia. It is also related to the hypothesis that the schizophrenic himself is not necessarily schizophrenogenic.

3. The Interaction of the Emotionally Disturbed, Subnormal, and Physically Handicapped Child with its Mother

There has recently been an upsurge of interest in the interaction which occurs in families with psychotic members, as the preceding review indicates. However, much less interest has been shown in the interaction occurring in normal families or in families with members handicapped by events other than psychosis, so that evaluation of the significance of reported interaction patterns in certain types of families is difficult. As Guskin (1963) suggests, when writing about the relationship between retarded children and their parents, it would be valuable for comparisons to be made between the interaction occurring in normal families and families with a handicapped member, during situations designed to elicit certain types of behaviour.

a. Approaches to Studying Mother-Child Interaction

A review of parent-child interaction studies has recently been made by Lytton (1969). He lists five different approaches which have been used in interaction investigations. These are questionnaires and interviews for parents, observation of structured and of unstructured interaction in an experimental setting, and "naturalistic

observation in the home". Lytton discusses two main issues for investigation of parent-child interaction; one is the "amount of control over external cues that the experimenter must or can exercise", the second issue is "the range of interaction behaviour tapped by different methods". He concludes that the question to be investigated must determine the approach used and suggests that the combination of traditionally used approaches and the application of interaction techniques to twin studies, may be valuable.

Lytton discusses the difficulties to be overcome in each of the five approaches. He points out that a structured situation in a playroom or laboratory will involve distortion in interaction because the situation will differ from one that is "naturalistic", and also because of the presence of an observer.

In discussing the effect of the presence of an observer, a variable in both experimental and "naturalistic" observation methods, he reports a study by Patterson and Reid (1969) in which presence of an observer was shown to alter behaviour in a family. He discusses ways in which investigators have attempted to minimise the effect of an observer's presence, and concludes that researchers carrying out observation with an observer present must accept that their results refer to interaction in such a situation.

However, Pease and Hawkes (1960) suggest that the presence of an observer can be used in a structured observation, by incorporating it into the structure as a stressfactor.

An interview approach, as Lytton points out allows for "wilful distortions" by interviewees as well as "making excessive demands on mothers' capacities to make difficult discriminations and generalisations and, often, to recall by-gone days". However, distortions can be reduced by directing questions only to recent single and overt events, and by checking the report of one interviewee against that of another informal interviewee.

Lytton dismisses questionnaires on attitudes of parents as being of very little value.

b. Studies on Mother-Child Relationships in Emotionally Disturbed Children

Recent trends in some psychiatric (Howells 1968) and social work (Seebohm 1968) thinking indicate an assumption that emotional disturbance in children is rooted in family pathology and interaction. There have been several studies on the incidence of psychiatric disorder in children with mentally ill parents and of disorder in parents with emotionally disturbed children. (See review in Rutter 1965); many of these, as well as the study carried out by Rutter, are reported to indicate the importance of environmental factors in the association of mental illness in parents and their children, and in the development of emotional disturbance in children. The work of Singer and Wynne (1963) already presented, contributes evidence on this point.

However, little work has been reported on the observation of the manner in which it is assumed by many people, that the environmental factors operate, that is by family, and particularly mother-child interaction. Some

studies, for example, Sperling's report of simultaneous or consecutive psychoanalysis of 20 neurotic mothers and children (Sperling 1951), have investigated interaction by other means. Sperling suggests that "the symptons of the child present their responses to the mothers' unconscious wishes", while Mahler in a discussion of Sperling's paper (Mahler 1951) emphasises "a persistence of the preverbal symptons, based on mutual pathological needs", as important in "reciprocal" neurosis between mother and child. Gluck & Wrenn (1959) have reported similarities in, and a temporal relationship between, the problems revealed during simultaneous group play sessions for children, and group psychotherapy sessions for their neurotic mothers.

G. Stewart Prince (1961) observed interaction during assessment and therapy between children referred to a child guidance clinic, and their mothers, with the intention of gaining information about the usefulness of this procedure in this setting. His observations suggest that such observation can be of value.

c. Mother-Child Relationships in Mentally Retarded Children

Farber has reported work (Farber 1962) based on interviews on the effects on a family of the presence of a retarded child in terms of the feelings of parents about the child, and the effect on the parents roles in life. Tizard and Grad (1961) interviewed and studied records of families with retarded children; they report on the valued role a retarded family member can come to fill in some families.

Goshen (1963) has reported a pattern of development of a form of retardation in children which he

relates to a neurotic maternal attitude which presents mainly as depression, and is "characterised by failure to stimulate and evoke meaningful signals during critical periods of life" (of the child). The children are primarily retarded in language and each varies widely in his performance level on different tasks, performing better on those in which he is not generally expected to succeed by society. This report is based on psychotherapeutic sessions with a sample of mothers who had attended a psychiatric department for assessment or treatment, and who had a retarded child. Goshen suggests that this may be the cause of retardation in as many as 50% of the cases of retarded children who demonstrate no brain or sensory abnormality. The links with psychogenic theories of the causation of autism are interesting, particularly as some of Goshen's descriptions of the mothers of the retarded children resemble those of the mothers of autistic children or schizophrenic adults.

d. Mother-Child Relationships in Physically Handicapped Children

A study in this area by Mann (1957) is reported in a paper by Schaefer and Bell (1958). Mann gave two questionnaire measures of parental attitude, the Parental Attitude Research Instrument (Form IV) developed by Schaefer and Bell, and the Shoben Parent Attitude Survey, to mothers of normal children and closely matched cerebral palsied children. Mothers of the normal children scored significantly higher on Shoben's Ignoring scale; there were no significant differences on the possessive or dominant scales. On the Parental Attitude Research Instrument, mothers of the cerebral palsied children scored significantly

higher or showed more agreement with the scales of Seclusiveness, Strictness, Intrusiveness, Acceleration, Encouraging verbalisation, Equalitarianism, and Comradeship and sharing. Mothers of the normal children scored significantly higher on the Marital Conflict, Irritability, Rejection of the Homemaking Role, and Avoidance of communication Scales. (Shaefer and Bell report that maternal attitude as measured by their scale is related to education, more highly educated mothers tend to have more usually approved attitudes to child rearing.

Thurston (1959) has developed a sentence completion technique for investigating the reaction of parents toward their physically handicapped children. He gave it (Thurston 1960) (by post) to a large sample of parents and near relatives of institutionalised cerebral palsied children who were also severely retarded. The technique was aimed at finding how the relatives remembered their feelings towards the children before institutionalisation; Thurston summarised that they appeared "hostile, suspicious, depressed and generally uneasy". Over 50% of relatives' responses indicated emotional upset (mainly grief) when they first learned of the handicaps; 21% responded with a search for help and 12% with feelings of guilt. Over-indulgence (21%) or not understanding or accepting the handicaps (13%) accounted for approximately a third of mistakes made in bringing up the child.

e. Comparison of Mother-Child Interaction in Groups of Differently Handicapped Children

Guskin (1963) reports a study by Fredericks (1957) in which mothers of normal, retarded and physically handicapped children were matched for socio-economic status

and education, and given Shoben's Parent Attitude Survey. Mothers of the retarded children scored higher on the Ignoring and Dominant scales.

Klebanoff (1959) compared the scores of mothers of schizophrenic children, mothers of mentally retarded and brain damaged children, and mothers of normal children, on a factor analysed form of the Parental Attitude Research Instrument which involved five factor scores or syndromes: suppression and interpersonal distance (warmth and closeness of the mother-child relationship and recognition of the individuality of the child), hostile rejection of the homemaking role, excessive demand for striving, overpossessiveness, ("covert control of the child by keeping him indebted to the mother, dependent and immature", while the mother appeared sacrificing and suffering), harsh primitive control. The results suggested in general less pathological attitudes in the mothers of the schizophrenic children than in the mothers of the brain injured and retarded children. The attitudes of the mothers of the normal children were less pathological than those of the mothers in the other two groups on these measures. The factor scores or syndromes where differences were recorded were the suppression and interpersonal distance syndrome on which the two clinical groups tended to be more pathological; the overpossessiveness syndrome on which the two clinical groups each differed significantly from the normal groups but not from each other; the harsh primitive control syndrome on which the brain damaged group tended to score higher than the schizophrenic group.

Klebanoff discusses the significance of these results mentioning various factors which may have distorted the results and others which run counter to his conclusion that "In general, then, the reactive hypothesis of pathological attitudes of mothers of schizophrenic children tends to be supported and doubt is cast upon the notion of the mother's attitudes as the cause of schizophrenia".

Klebanoff suggests a harder look at the attitudes of mothers of organic children for workers believing in the psychogenic causation of schizophrenia, since they may find there attitudes similar to those present in mothers of a schizophrenic child, but related to the birth and upbringing of a severely handicapped child. He also suggests studies of not only parental attitudes but also parent-child interaction.

C. Aims of the Present Study and the Formulation of the Hypotheses to be Tested

1. Aims

Reviewing the literature on autism, theories about its psychogenic causation, theories on mother-child and family interaction in autism, schizophrenia and in other handicapping conditions, it becomes apparent that although there are many reported and inferred types of interaction occurring in the families of people suffering from these conditions, there is little actual observation of the interaction which occurs.

The aim of this study then, is to look at the interactions which actually occur between mothers and their autistic children. Since any results derived from a comparison between autistic and normal child-mother interaction could be criticised because any differences found could be attributed to the stress of the presence of a handicapped child in the one group but not in the other, the autistic child-mother pairs have been compared with child-mother pairs in which the child is handicapped by other conditions. The conditions chosen were subnormality, physical handicaps, emotional disturbance.

Since a normal group of children is not included, then it would be possible, if the autistic children are found to be different to the other children in their interactions with their mothers, to hypothesise that the autistic children are nearer normal children than are the handicapped children. This hypothesis would then need to be tested out.

A specific task of a simple kind was chosen to provide the situation in which the interaction could be achieved (the choosing of a toy), and a well established research tool used as the main means for analysing the processes observed (Bales Interaction Process Analysis).

If the suggestions which have been made about mother-child, and to some extent family, interaction are correct, then some evidence of their presence should appear in the observed processes. (Although interaction within a complete family was not observed, it is hypothesised that where theories about family interaction are tested out, the mother and child as representative of the family, should show some of the expected features).

Thus this study has been designed so that hypotheses derived from the literature can be tested out. The hypotheses have been formulated in a manner relevant to the tools used in the study. The research hypotheses (Siegel 1956), are given in a form which is directly derived from the literature.

These research hypotheses have then been recast as null hypotheses so that they may be tested directly by the experimental findings. The general theory is contained in the research hypotheses. The particular predictions contained in the null hypotheses clearly do not exhaust the implications of the research hypotheses.

These hypotheses are given in the subsequent section.

2. Research Hypotheses and Derived Null Hypotheses

A. Ease of decision making

Research Hypothesis:

Because of the difficulty of a family with a schizophrenic member in reaching a decision, the autistic group will show more difficulty in making a decision, and will take longer over the process and over the whole interaction.

This hypothesis has been derived from the observations of Bowen (1960) on the difficulty of families with a schizophrenic member in making decisions. It is also designed to test out, in a more meaningful situation, the work of Farina (1960), Ferreira (1963), and Ferreira and Winter (1965), on length of time families with an abnormal or schizophrenic member take in making a family decision.

A.1. Null Hypothesis:

There will be no significant difference between the four groups, or the autistic group compared with the others, in the time taken to reach a decision, nor in the time to complete the whole interaction or episode.

A.2. Null Hypothesis:

There will be no significant difference between the four groups, nor the autistic group compared with the others, in the number of cases in which a decision about choosing a toy is made.

B. Disagreement and Expression of Disagreement

Research Hypothesis:

The mothers and the children in the autistic group will be less able to show disagreement overtly, although they will not actually be more in agreement than

than the other groups.

This is related to the concept of the "double-bind" (Bateson, Jackson, Haley & Weakland 1956; Weakland 1960), and the work on covert disagreement with apparent overt agreement in families with a schizophrenic member. (Wynne 1958, Bowen 1959, Cornelison 1963; Lidz, Fleck, Alanen).

B.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic group when compared with the other three, in the number of responses classified in Bales' category 3 "Agrees".

B.2. Null Hypothesis:

There will be no significant difference between the four groups nor between the autistic group compared to the other three, in the number of responses classified in Bales' category 10 "Disagrees".

C. Directiveness and Autonomy

Research Hypothesis:

Mothers of the autistic children will be more directive and will allow their child less autonomy than the other mothers.

This research hypothesis is related to the reports of dominating, overperfectionistic mothers of autistic children (Potter 1933, Tietze 1949, Despert 1951, Eisenberg and Kanner 1956, Kanner 1957), and theories and reports about the failure of mothers to allow their autistic child to develop autonomy (Boatman & Szurek 1960, Bettleheim 1967). It is also related to Ferreira's findings (1963) on parental control of choice.

C.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other groups, in the number of responses classified in Bales' category 4 "Gives Suggestion" given by mothers.

C.2. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other groups, in the number of responses classified in Bales' category 4 "Gives Suggestion" given by mothers, minus the number of responses in Bales' category 8 "Asks for Opinion", given by mothers.

C.3. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other groups, in the number of responses classified in Bales' category 5 "Gives Opinion" given by children.

C.4. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other groups, in the score on Bales' "Index of Directiveness of Control":-

$$\frac{\text{N.4. ("Gives Suggestion")}}{\text{N.4. + N.6. ("Gives Information")}} + \frac{\text{N.5. ("Gives Opinion"}}{\text{N.5. + N.6.}}$$

where N = Number of responses in category

C.5. Null Hypothesis:

There will be no significant difference between the four groups, compared with the other three, in the member of the pair who initiates the final choice of toy.

C.6. Null Hypothesis:

There will be no significant difference between

the four groups, when compared with the other three, in the member of the pair who controls the toy choosing.

C.7. Null Hypothesis:

There will be no significant difference between the four groups, when compared with the other three, in the member of the pair who carries the toy from the room.

D. Non-task Related Behaviour

Research Hypothesis:

The interaction between the mothers and children in the autistic group will be less concerned with reality as represented by the task presented, and more concerned with feelings and emotions as represented by the issues in the social-emotive area of Bales' scheme.

This hypothesis refers to the generally reported findings of pathological relationships, presumably leading to an overconcern with internal feelings (instead of external reality). This is best described by Goldfarb (1959). It is also related to the concept of less efficient families (Ferreira and Winter 1965), and the findings of how the intrusion of feelings due to abnormal relationships interfere with decision making (Bowen 1960). Reports of the abnormal intensity of feelings (for example, Bettlehiem 1967) are also relevant.

D.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other groups, in the number of responses classified in Bales' social-emotive categories, totalled together, i.e.

Category 1. "Shows Solidarity"

" 2. "Shows tension release"

" 3. "Agrees"

Category 10. "Disagrees"

" 11. "Shows tension"

" 12. "Shows antagonism"

E. Presence of tension

Research Hypothesis:

More tension will be shown in the interaction between the mothers and children in the autistic group, than between the mothers and children in the other groups.

This also refers to general reports of pathological relationships in families with autistic or schizophrenic members, for example, Goldfarb (1959), Bettleheim 1967). Such relationships might reasonably be expected to be revealed to an observer as tension. The accounts of "double-bind" situations, and other family relationships of schizophrenics by Bateson et al (1956), Weakland (1960), Lidz & Fleck (1960), and Bowen (1960), all indicate severely tense situations.

E.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other groups, in the number of responses classified in Bales' category 2 "Shows tension release".

E.2. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in the number of interactions classified in Bales' category 11 "Shows tension".

F. Mutual antagonism

The mothers of the autistic children will be more hostile towards their child, and will show less feeling for the child. This will be reciprocated by the children.

This hypothesis refers principally to Bettleheim's (1967) theories about hostility in the mother-autistic child relationships, and to the frequently reported lack of the mother's feeling for, or understanding of, her autistic child's needs (for example Bettleheim's (1967) concept of failure in the area of mutuality; Goldfarb (1959); Boatman and Szurek (1960); Kanner's "Emotional frigidity " Eisenberg and Kanner (1956); Singer and Wynne (1963)).

F.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic as compared with the other three groups, in the number of responses classified in Bales' category 12 "Shows antagonism".

F.2. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in the number of responses classified under Bales' category 1 "Shows solidarity".

F.3. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in scores on Bales' Index of Expressive-Malintegrative Behaviour:-

$$\frac{N.10 + N.11 + N.12}{N.10 + N.11 + N.12 + N.1 + N.2 + N.3}$$

where N + number of responses in category

10 = "Disagrees"

11 = "Shows tension"

12 = "Shows antagonism"

1 = "Shows solidarity"

2 = "Shows tension release"

3 = "Agrees"

G. Attitude to toys

Research Hypothesis:

The autistic children will pay less attention to the toys, and the choice of toy in the autistic group will differ from that made in the other groups.

This refers to a report by Stroh (1967) that autistic children are uninterested in toys. A study by Loomis et al (1957) on different play patterns in autistic children, when compared with other children, is also relevant.

G.1. Null Hypothesis:

There will be no significant difference between the four groups, or between the autistic and other groups in the number of toys used appropriately by the children.

G.2. Null Hypothesis:

There will be no significant difference between the four groups, or between the autistic and other three groups in the type of toy chosen.

H. Attitude to Outcome (formulated during pilot study).

Research Hypothesis:

The abnormality of the relationships in the autistic group, will be shown by a difference between this group, and the other groups in the rating of their

attitude to the outcome of the interaction; the autistic children and their mothers will be less likely to havea realistic attitude of pleasure at being given a toy, and their attitude will be shaped more by their feelings about the difficulties of their relationships.

This can be seen as related to Hypothesis D, that is, it is concerned with thequestion of how the uneasy, pathological interpersonal relationship in the autistic child-mother pairs, interferes with their ability to show pleasure in a pleasurable situation. All the literature on uneasy, unhappy mother-child relationships in autism and schizophrenia is relevant here.

H.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in the rating of attitudes of the mothers and children to the outcome of the interaction.

I. Control of Situation (formulated during pilot study).

Research Hypothesis:

Because of the abnormality of mother-child relationships in the autistic group, there will be problems for this group over controlling the situation.

These null hypotheses can be used to test out theories about over-dominate mothers in autism (Potter 1933; Fietze 1949) and in schizophrenia (Bateson et al 1956, Kahn and Clausen 1956; Farina 1960); more generally the hypothesis refers to the intrusion of feelings and anxieties (related to the hypothesised pathological mother-child relationships), to such an extent that there is less contact with the reality of the situation as shown by appropriate control.

I.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in who is rated as being in control of the situation in each case.

I.2. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in score on Bales' Index of "Difficulty of Control over Situation".

$$\frac{\text{Number of responses in category 9 ("Asks for suggestion")}}{\text{Number in category 9 + number in category 4 ("Gives suggestion")}}$$

J. Involvement of the observer (formulated during pilot study)

Research Hypothesis:

Because of the abnormality of the mother-child relationships in the autistic group, the communication difficulty existing between mother and child in this group, and the anxiety produced in the observer by the abnormal mother-child relationships in the autistic group, the observer will be more involved in the interaction in this group.

This hypothesis refers to already mentioned observations of pathological relationships and communication difficulties between autistic child and mother, and the clinical finding that serious pathology induces anxiety in an observer (for example, M. Bleuler 1966). It might be expected that the mother-child pair, because of their difficulties with each other, would turn from each other, to another for help (and Tietze (1949) reports mothers of

schizophrenics as usually dependent on the approval of others), and that the anxiety induced in the observer would cause her to become involved in order to attempt to reduce the problems of the pair, and so reduce her own anxiety.

J.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in the amount of observer involvement in the interaction.

K. Bales' Index of Difficulty of Communication

Bales' Index of Difficulty of Evaluation

At a later stage, hypotheses were formulated which predicted that, on such measures, the autistic group should have scores indicating more difficulty in these areas, as both are concerned in decision making, which is a process hypothesis A. predicts the autistic group will find more difficult.

K.1. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in score on the Index of Difficulty of Communication.

$$\frac{\text{(Number of responses in category 7("Asks for Information")}}{\text{(Number in category 7 + number in category 6 ("Gives Information").}}$$

K.2. Null Hypothesis:

There will be no significant difference between the four groups, nor between the autistic and other three groups, in score on the Index of Difficulty of Evaluation.

$$\frac{\text{Number of responses in category 8 ("Asks for Opinion")}}{\text{Number in category 8 + number in category 5 ("Gives Opinion").}}$$

D. Design and Method of Investigation

1. Selection of Final Sample

Children were chosen with handicaps which their mothers would be likely to perceive as of equal severity. Thus, beside the group of 10 autistic children and their mothers, there was a group of 10 children of subnormal intelligence, a group of 10 emotionally disturbed children, and a group of 10 handicapped children, all with their mothers.

These four groups thus included handicaps which could be considered to result from family interaction (emotional disturbance, possibly autism, possibly subnormality), and handicaps which could be perceived as resulting from factors outside family interaction (P.H. subnormality, possibly autism, possibly emotional disturbance). Thus they have a wide range of the type of handicaps found in children.

All the handicaps were sufficiently severe for the children to have been referred to a paediatrician in a children's hospital (24 cases), to the psychiatric department in a children's hospital (10 cases), or to a subnormality hospital (one case), or in five cases by an education department to a special unit for autistic children. All the handicaps were shown to have existed for at least two years prior to the experimental investigation, either by ascertaining the time of the original referral, or from a study of the case history. All were diagnosed by experienced consultants in the relevant fields.

The chronological age range was from four and a half years up to puberty, or in practice 11 or 12 years. This choice was mainly dictated by the availability of children and their mothers for inclusion in the sample. A smaller age range was impracticable because of the difficulty of collecting a sufficiently large sample; thus it was felt that the age range four and a half years up to puberty, although wide, would allow a suitable sample to be collected, allowing a single task to be meaningful to all the children, even those severely handicapped and functioning and a markedly lower mental age level. It was assumed that the nature of mother-child interaction would not differ so markedly over this age range, as to include uncontrolled variables which could affect the measures used in the study. This assumption was partly based on the general clinical finding that, even if efforts are made to change an interpersonal interaction pattern, it is extremely hard to do so, and partly on the view that the school-age yet pre-pubertal child forms a fairly homogeneous group.

The people making up the sample were primarily selected from referrals to the investigator when working in the psychiatric department of a children's hospital as a clinical psychologist: every child referred who satisfied the sample requirements and was brought by its mother for psychological assessment was invited to co-operate; 34 out of the 40 in the sample were seen in this way. However, since few children definitely diagnosed as autistic were referred in this way, it was arranged for five autistic children to be referred by the consultant child psychiatrist attached to a unit for autistic children, and to be seen with

their mothers at the unit. One further autistic child was seen at a subnormality hospital where the investigator worked on a part-time basis.

2. Description of final sample

The four groups of children did not differ significantly from each other in age (Kruskal-Wallis one-way analysis of variance), nor sex (chi square.) On intelligence test performance the groups differed significantly, the emotionally disturbed children scoring highest (W.I.S.C. scores in six cases, Stanford-Binet for four), physically handicapped children next highest (two W.I.S.C's, eight Stanford-Binets), and subnormal children next (two W.I.S.C.'s, eight Stanford-Binets), and autistic children scoring at a similar level. The test scores for the autistic children were not reliable; they were all mainly based on the relatively unreliable Merrill-Palmer, and in the majority of cases were based on performances on only a few items of the scale; in some cases performance items of the W.I.S.C. (were also given).

Detailed information on socio-economic level of the children's families was not collected, but from examination of the case notes it appeared that the families of the subnormal and emotionally disturbed children were at a level similar to that of the majority of referrals to the hospital. This was predominantly a level determined by paternal occupation in the skilled manual or semi-skilled category. The families of the autistic children were at a somewhat higher socio-economic level with the husbands mainly in skilled manual and white collar jobs, while the families of the physically handicapped children were mostly at a similar level, but with one or two husbands in

managerial occupations. Several of the families were of immigrants, mainly from the West-Indies.

The group of physically handicapped children ranged in age from five years three months, to nine years four months, with a mean of six years nine months. Their I.Q.'s ranged from 63 (W.I.S.C.) to 126 (Binet) (mental age range of four and a half to 12 years one month) with a mean of 90. There were six boys and four girls. Thier handicaps were in one case blindness resulting from congenital anaemia (in an adopted child), and in the other cases birth injuries and malformations of varying degrees of severity, ranging from severe spastic quadriplegia and spina-bifida to mild hypotonia. Five handicaps could be rated as severe and five as less severe to mild.

The group of subnormal children had a mean age of seven years with a range of four years six months to 10 years one month. Their mean I.Q. was 67 and the I.Q.'s of individuals ranged from 48 (W.I.S.C.) to 78 (Binet) (mental age range of three years two months, to five years 11 months). Seven of the group suffered from subcultural subnormality with a possible complication of poor eyesight in one case, asthma in another, and superimposed emotional disturbance in another. Three of the children in this group suffered from pathological subnormality.

The emotionally disturbed children ranged in age from five years 10 months, to 12 years nine months with a mean of eight years eight months. Their I.Q.'s ranged between 81 (W.I.S.C.) and 110 (Binet), (mental age range five years five months, to 12 years 12 months), and the mean I.Q. for the group was 97. The main presenting problems

for six of these children were psychosomatic including four cases of enuresis (one of these was also encopretic). Three children presented with behaviour disorders; two of these were reported to behave in an agressive, defiant manner, while one truanted and was depressed. The main problem of the remaining child in this group (an adopted child) was depression.

The group of autistic children had an age range of four years 11 months, to 11 years two months, mean age for the group eight years three months. The level at which these children performed on parts of the Merrill-Palmer and W.I.S.C. intelligence test scales ranged from the level consistent with severe subnormality to a level consistent with an I.Q. of 100 (a mental age range of approximately five years to nine and a half years). The mean level was consistent with an I.Q. of 67. These children were all referred as autistic, however, it transpired that the accurate diagnosis for one child was "psychosis", and for another "partial autism". In two other cases there had been a suspicion that subnormality might be the primary problem. Two of the children (one of these being a ? primarily subnormal child), and to some extent a third, performed in the test situation in a much less bizarre manner than the others in this group; these three had all been diagnosed as autistic and possibly they had all improved to some extent by the time they were tested.

3. Cases Omitted from Final Sample

Besides the final sample of 40, 18 children and their mothers were also asked to co-operate in the procedure; nine of these were used as an initial trial group (age range 4.11 to 12.7 with three over age 10.0, and one under age 5.0; three physically handicapped, four emotionally disturbed, one "partially autistic", one where the differential diagnosis was between emotional disturbance and brain damage - the child tested as being ? subnormal, since referred as such, turned out to be emotionally disturbed).

The nine children not included in the final sample were either originally thought to belong in one of the four diagnostic groups, but later found not to meet all the criteria (two children), had in fact reached puberty, although this was not known at the time of testing, (three children), were too young for inclusion in the sample, (one child), were tested for interest as a borderline case (one child diagnosed borderline autistic), were tested as possible substitutes if required, (one child), or were originally diagnosed as belonging to one of the diagnostic groups but at the time of testing had improved so much that the appropriateness of inclusion in one of the groups was in doubt (one child).

4. Trial Procedure

The actual procedure used with the children and their mothers was basically worked out following a certain amount of discussion with three child psychiatrists who had experience of autistic children, discussion with the psychologist supervising the research, about five months

experience with the psychological testing of subnormal, physically handicapped and emotionally disturbed children, and some brief experience with testing and observing autistic children. The observation of three children accompanied by a parent, who when asked to choose a toy from a fairly arbitrarily selected group of toys, after routine psychological testing, formed a prior group. This first procedure was then modified following its further use with the trial group of nine children and their mothers. These modifications were mainly concerned with what type of observations it was possible, and probably valuable, to make in the situation, and over what length of time it should prove valuable to make the observations.

5. Toys

It was expected that the actual toy chosen would reveal something about the couple choosing it through the possible hypothetical symbolism of each toy. Therefore, in the final study, the range of toys to be presented to each mother and her child was selected to include toys which could with some justification be reasoned to have the following overtones:- noisiness, dirtyness, aggressiveness, sexuality, oral eroticism, oral sadism, sadism, sublimation, control.

A mirror was also included following a suggestion by Stroh (1967), since the autistic children might not be expected to use a mirror in a normal way, unlike the other children. The choice of the other toys all followed deciding on the categories, that is, they were all chosen because they fitted the categories

decided upon, rather than for their possible individual implications.

It was planned that each toy would cost under 2/-d., although in fact one (feeding bottle), cost more. This was designed to exercise some control over the variable of attractiveness of each toy at a reality level.

Toys presented to each mother and child pair (See Figs.1.-18.)

1. Noisy:
   a) Plastic mouth organ
   b) Plastic recorder
2. Dirty:
   a) Bubble blowing solution with dipper
   b) Multicoloured plasticine
3. Aggressive:
   a) Gun with movable trigger which could be loaded with caps, although these were not included
   b) Dagger with blade which receded into handle on impact
4. Sexual:
   a) Clockwork plastic mouse with key
   b) Paper squeaker which unrolled into a tube with a feather at one end, while squeaking when blown into at mouth piece end
5. Oral erotic:
   a) Small "pyrex" feeding bottle with teat
   b) Plastic pipe (intended for bubble blowing)
6. Oral sadistic:
   a) Small model of a tiger
   b) Large model of a crocodile with clockwork mechanism which could be operated by friction

FIG 1: PRESENTATION OF TOYS IN CHOICE SITUATION

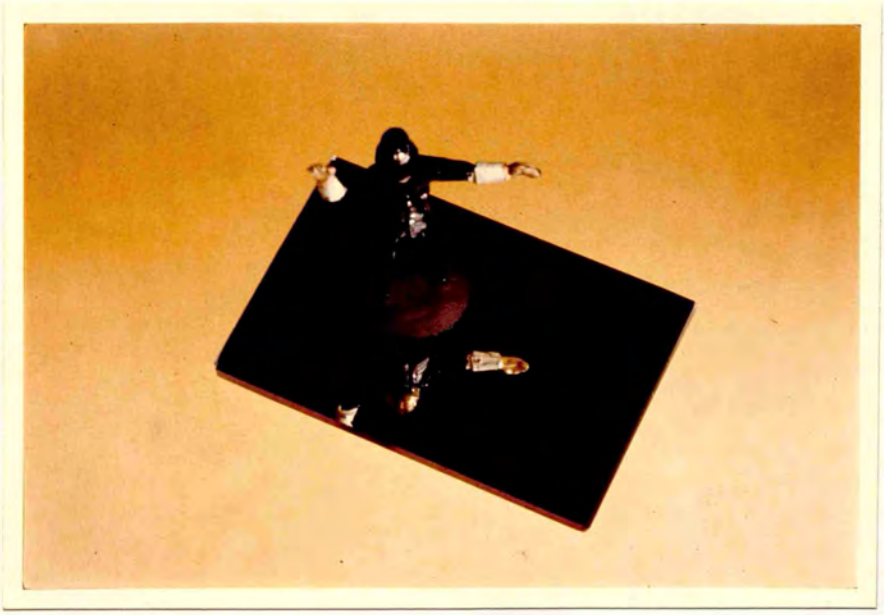


FIG 2: TOYS OFFERED IN CHOICE SITUATION
MIRROR

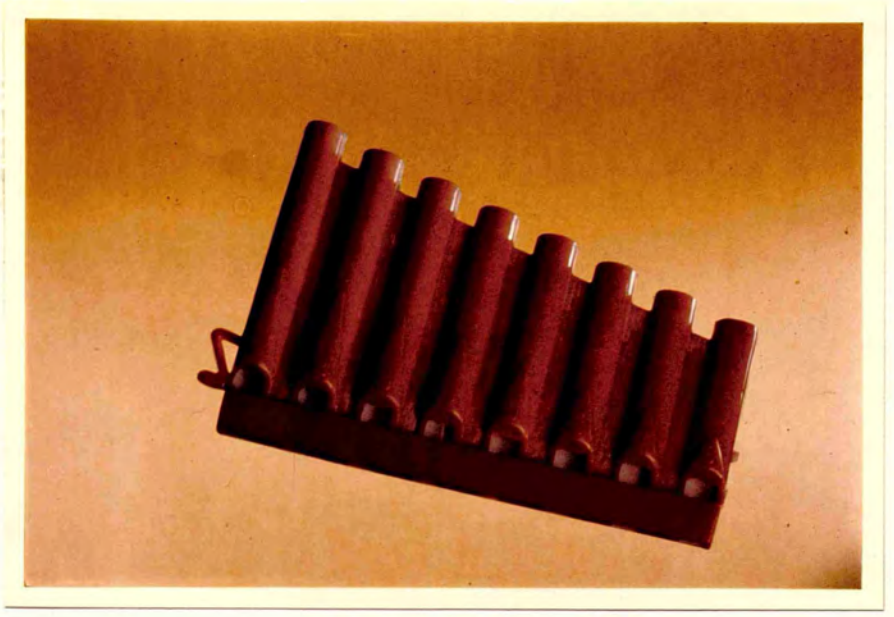


FIG 3: TOYS OFFERED IN CHOICE SITUATION
MOUTH ORGAN (Noisy)

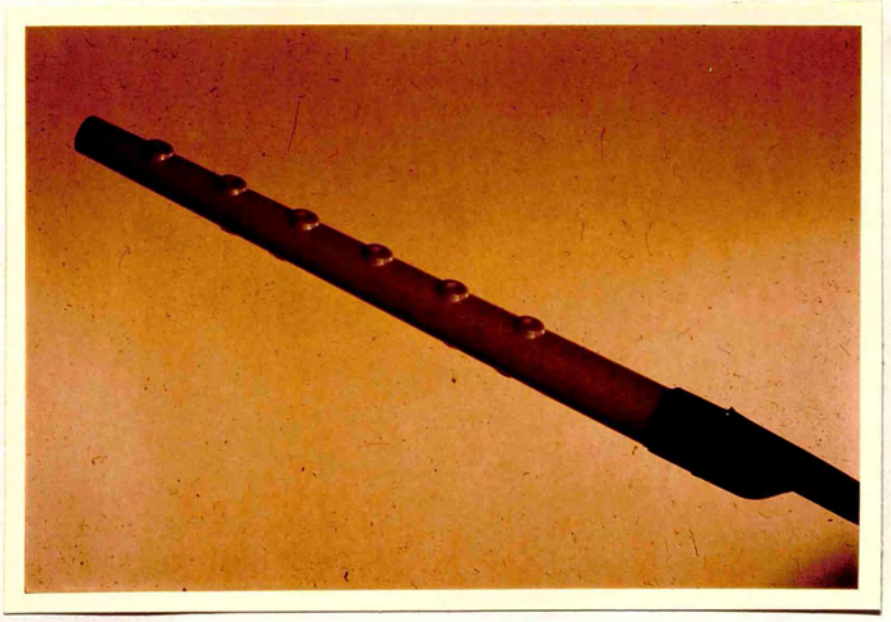


FIG 4: TOYS OFFERED IN CHOICE SITUATION
RECORDER (Noisy)

FIG 5: TOYS OFFERED IN CHOICE SITUATION
BUBBLE SOLUTION (Dirty)

FIG 6: TOYS OFFERED IN CHOICE SITUATION
PLASTICINE (Dirty)

FIG 7: TOYS OFFERED IN CHOICE SITUATION
GUN (Aggressive)

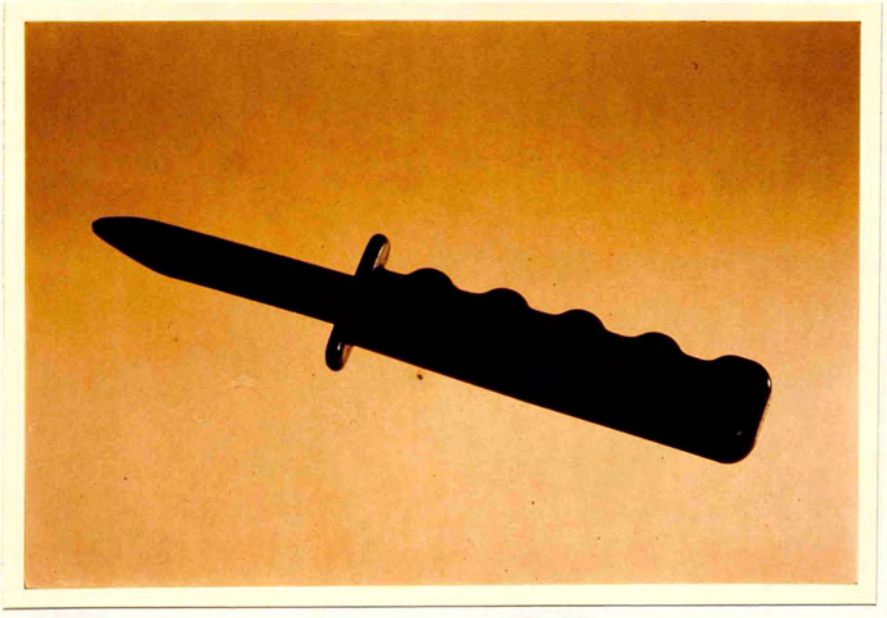


FIG 8: TOYS OFFERED IN CHOICE SITUATION
DAGGER (Aggressive)

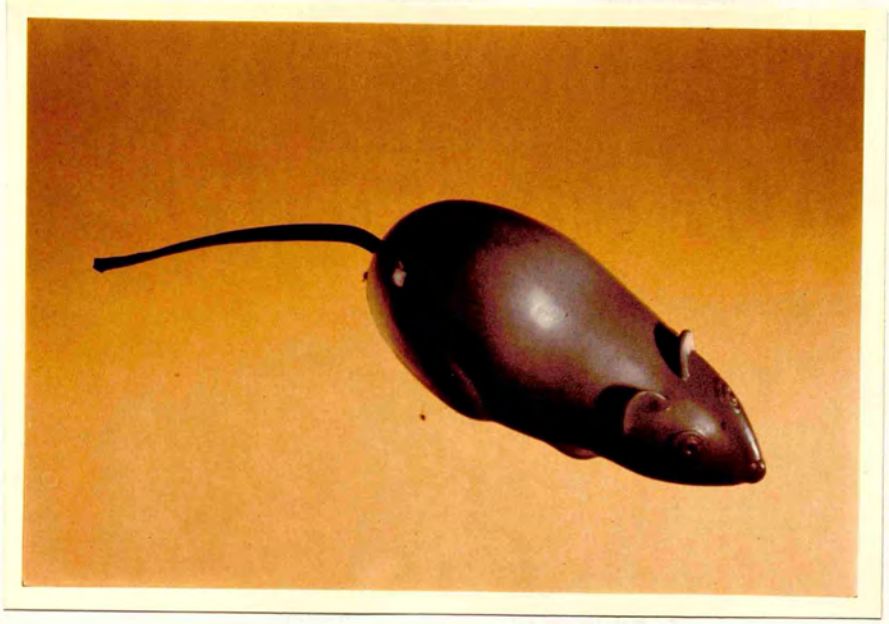


FIG 9: TOYS OFFERED IN CHOICE SITUATION
MOUSE (Sexual)

FIG 10: TOYS OFFERED IN CHOICE SITUATION
SQUEAKER (Sexual)

FIG 11: TOYS OFFERED IN CHOICE SITUATION
FEEDING BOTTLE (Oral Erotic)

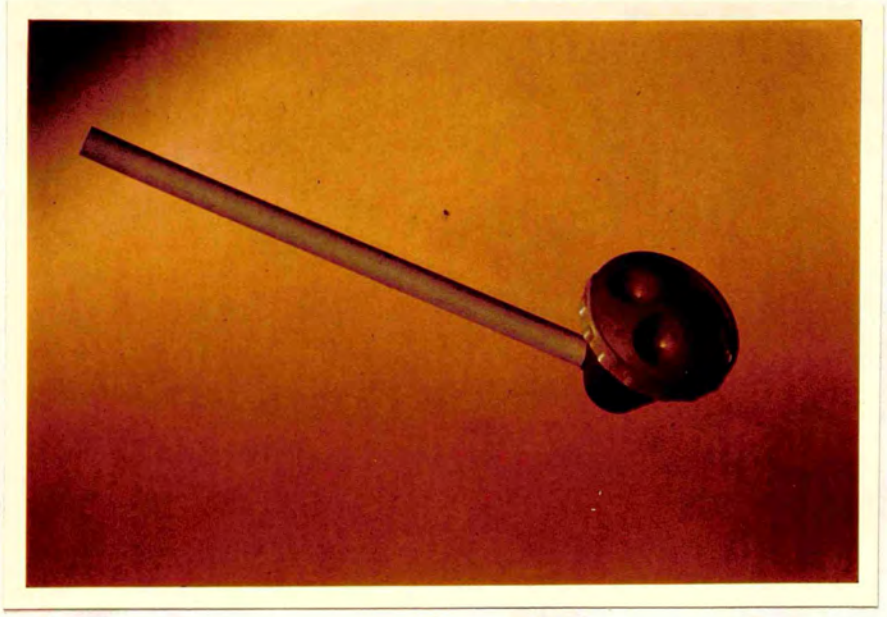


FIG 12: TOYS OFFERED IN CHOICE SITUATION
PIPE (Oral Erotic)

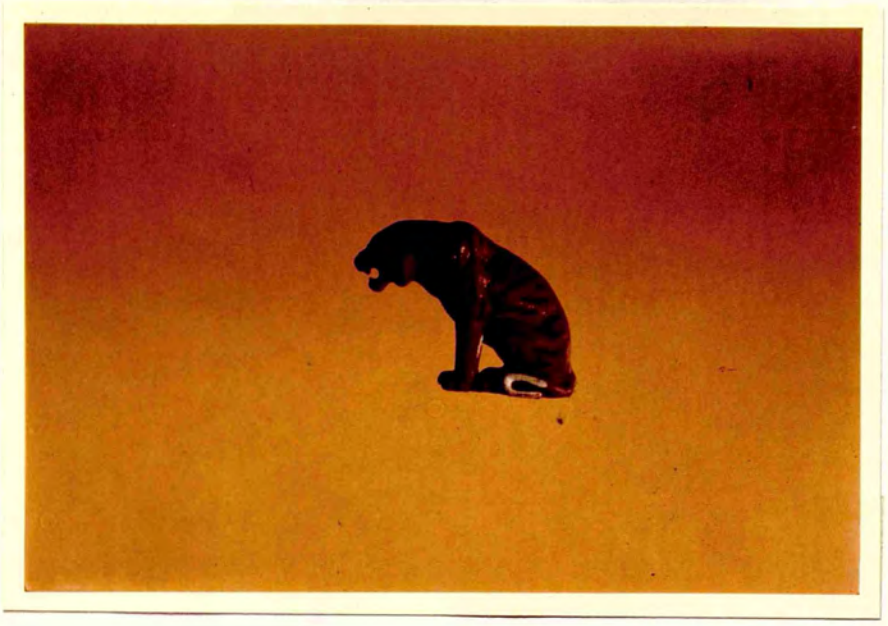


FIG 13: TOYS OFFERED IN CHOICE SITUATION
TIGER (Oral Sadistic)

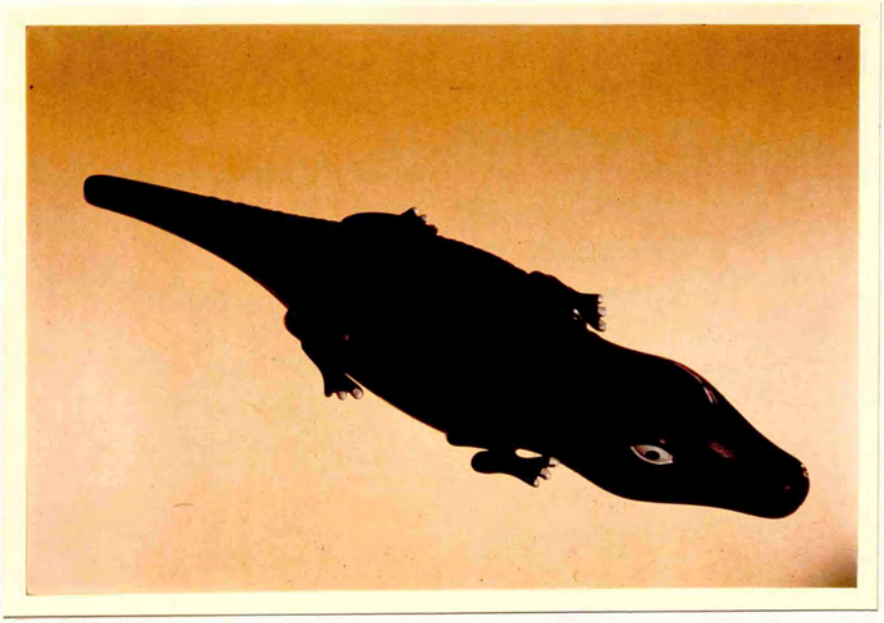


FIG 14: TOYS OFFERED IN CHOICE SITUATION
CROCODILE (Oral Sadistic)

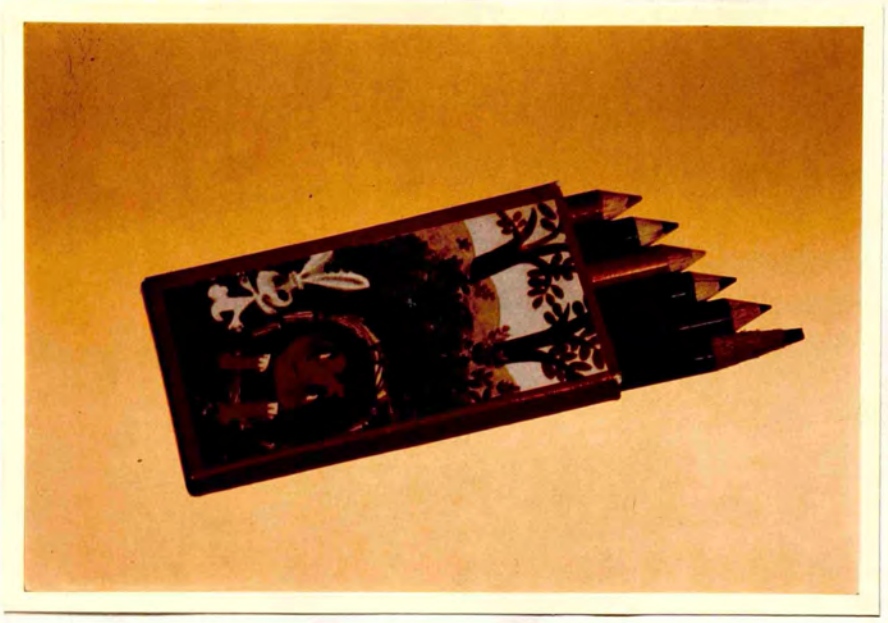


FIG 15: TOYS OFFERED IN CHOICE SITUATION
PENCILS (Sublimatory)

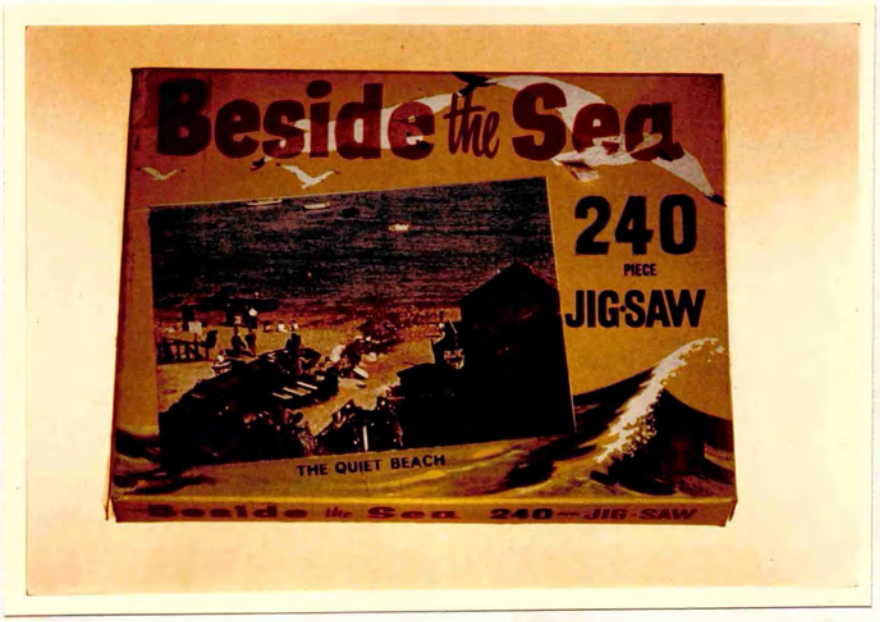


FIG 16: TOYS OFFERED IN CHOICE SITUATION
JIGSAW (Sublimatory)

FIG 17: TOYS OFFERED IN CHOICE SITUATION
POLICEMAN (Controlling)

FIG 18: TOYS OFFERED IN CHOICE SITUATION
TRAFFIC SIGNS (Controlling)

7. Sublimatory

a) Small packet of five coloured pencils

b) Relatively large jigsaw in box, of an adult scene to be made up with 240 small thin cardboard pieces

8. Controlling

a) Small model of a policeman

b) Large card with 24 continental plastic traffic signs held on to card by clear plastic moulding

9. Double sided mirror

It was recognised that the justification for including various toys in their categories varied, however, it was felt that this method of selection provided a range of toys which should include something to attract all the children to be included in the sample, and to be seen to be attractive to any child in the sample by the mothers. The relatively low socio-economic status of the people in the main catchment area of the hospital was relevant to this expectation.

6. Situation

The standard situation in which the mothers and their children were to be observed was selected with the intention of providing an activity which would be meaningful and interesting, both to each mother and to each child of the type to be included in the sample, of providing a situation within which a mother and her child could readily interact together, of providing a limited situation with an end point which would be readily apparent to the mother, the child, and the observer, and of providing a situation in which information about roles might readily be revealed

(Pease and Hawkes, 1960). Further, of facing the couple with a decision to be made, so that theories about difficulties in coming to decisions in families with a schizophrenic member could be looked at in the light of the data to be collected. The meaningfulness of the situation to each participating couple was considered to be the most important feature, since without this there would be more doubt about how typical of each mother and her child, would be the behaviour sampled. If a situation which would be meaningful to the participants and in which they could readily involve themselves could be set up, it was assumed that behaviour would be observed which would be sufficiently typical of each couple for valid comparisons between groups of couples to be made. The situation was created in which, after the completion of psychological testing, each mother and child would be asked to choose a toy to take away, so that the situation had a concrete outcome.

7. Observations

During the mother-child interaction aroused by the toy choosing, various observations were made.

a. Bales' Interaction Process Analysis

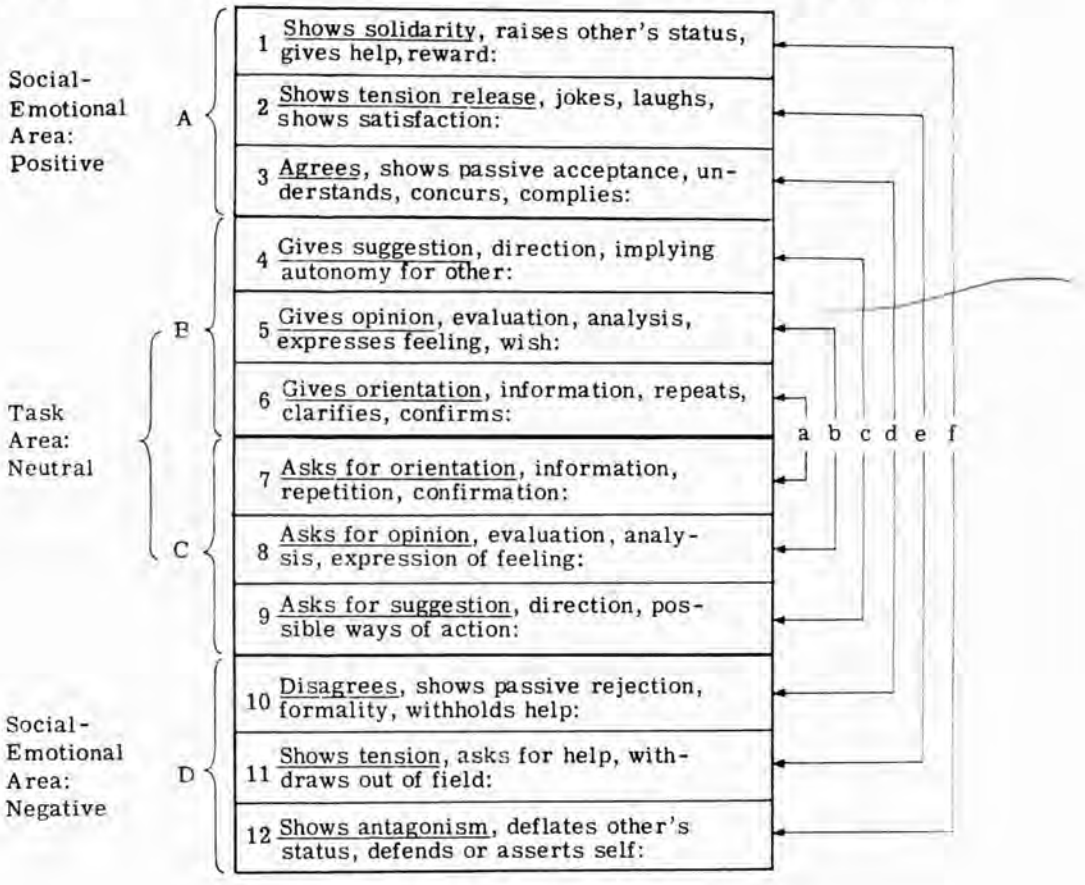
One of the most important sets of observations was made by using Bales' Interaction Process Analysis (Bales' R.1951). This was chosen as being the most comprehensive system for the study of small groups in which people interact, of any type and of any size, from two upwards (Hare, Borgatta, Bales 1955). The system is essentially based on the use of group interaction as a problem solving process.

Ideally the system requires an observer trained until he reaches an acceptable level of reliability, observing through a one way vision screen in a room wired to reproduce sound from the group room, and recording observations on a moving roll of paper. However, as Bales points out, such arrangements cannot always be made, and the Interaction Process Analysis may be used in other settings. The system requires the observer to note the nature of each interaction, either verbal or non-verbal, the person from whom it comes, and to whom it is directed. The observer is also directed to scan the group every 60 seconds to note unobtrusive expressive reactions.

Each observed interaction or reaction by a group member is classified by the observer into one of 12 categories. The unit which the observer should score "is the smallest discriminable segment of verbal or non-verbal behaviour to which the observer, using the present set of categories after appropriate training, can assign a classification under conditions of continuous serial scoring". In assigning units to scoring categories, the observer is directed to think of himself as the group member to whom the interaction is directed, and assign pieces of interaction to categories on this basis.

The 12 categories and the three most simple ways of grouping them can best be shown by Bales' own diagram reproduced in Fig. 19 (Bales' 1951 p.9).

Fig. 19. The system of categories used in observation and their major relations.



KEY:

a Problems of Communication
b Problems of Evaluation
c Problems of Control
d Problems of Decision
e Problems of Tension Reduction
f Problems of Reintegration

A Positive Reactions
B Attempted Answers
C Questions
D Negative Reactions

Besides the relationship between categories shown in Fig. 19, Bales also groups problems in the task area "as primarily Adaptive-Instrumental in significance", and problems in the Social-emotional area as "primarily Integrative-Expressive in significance." He hypothesises an alternation of group activity between these two.

He also suggests than an ongoing group process may begin with Questions (Section C), move on to Answers (Section B), and then to either Negative or Positive Reactions (Sections D. & A.) Bales' book contains a detailed description and discussion of his categories, together with examples. The book also suggests a programme for training observers and a scheme for assessing observer reliability so that training at each stage in the learning can continue until an arbitrarily set acceptable level is reached. Bales emphasises the difficulty of the task of the observer and says that it "requires long practice and frequent retraining to perform consistently".

Fortunately the design of the present project involved observation of only two people interacting mainly together; this is a relatively more simple observation task than those mainly described in Bales' book which required observations of groups of four or more people all interacting together. However, considerable time was spent by the writer in first studying the rationale and possible applications of the observation method, then the specific content of the scoring categories, as suggested by Bales in his training programme. The programme was followed further by next scoring written protocols, then recorded and live interactions. Training was not, however,

carried out under the direction of an observer experienced in the technique, nor was it possible for Bales' system of reliability checks to be applied, as these require the participation of several other trained observers. Adequate learning of the method and readiness to apply it to the experimental situation was judged from the author's subjective feelings of confidence and familiarity with the procedure, together with a fairly close agreement between results obtained by direct observation and by scoring from a sound recording of the interaction.

It was assumed that since the observation task was more simple than those for which Bales' full training programme was designed, since both scoring from direct observation and from sound recording were to be used, and since the same observer would be scoring throughout, then the results gained by using Bales' system in this way should be sufficiently useful for the purposes of a project of this sort, when it is borne in mind that because of the limited samples, no more than tentative findings would be deduced.

b. Other Observations

Observations during the interaction apart from those involved in Bales' system, were of two types. There was objective timing and rating of behaviour. There was also subjective rating and assessing of attitudes, reactions and interpersonal interactions which was based on the author's clinical training, experience and theoretical outlook.

(1) Objective Observations

1. A record of how long the child took before responding to the toys.

2. A record of how long the child took with the toys.

3. A record of the time interval before a final choice was made by mother and/or child.

4. A record of the time interval before a final decision about choice was made.

5. A record of the length of time the total interaction around the question of toy choosing lasted.

6. A record of the number of toys the child touched and used.

7. A record of which toys touched, were used appropriately, non-appropriately, or not at all.

8. A record of which toys were considered by both mother and child, and which was finally chosen and by whom.

9. A record of by whom the chosen toy was carried from the room, and whether it was handed by the child to the mother to be carried from the room.

(2) Objective Observations omitted

Following the preliminary trial of the procedure three types of objective observations or recording were dropped, these were:

1. The number of toys the child looked at.

2. A record of the contact between the mother, child and observer as shown by the number of times each talked to, looked at, touched, attempted contact through objects, with, or made contact through objects with, one of the others.

3. The answer to the question, asked of the mother by the observer "What is the nature of (child's name) difficulties, do you think".

The first two of these were dropped early in the trial procedure because it proved impractical in the absence of video-tape equipment to make the type of observations required while also making all the other required observations. The question was dropped early in the trial procedure because the author found that an isolated question of this type did not fit easily into the standard situation, and tended to arouse speculations in the mothers which interfered with the type of situation and mother-observer relationships which was otherwise being established.

During the preliminary trial it was also found that the observations of the number of toys the child touched and used, and the way in which the child used toys were overlapping observations. However, both observations were filled out for each interaction, the one from the other, mainly for convenience of analysis.

(3) Subjective Observations

The second type of additional and subjective observations were an attempt to note what Bales refers to as "idosyncratic content" (p.34) and knowledge of which he suggests is necessary in order to interpret fully and most usefully the various notes and indices obtained from Interaction Process Analysis. These then included an assessment by the observer of the following:

Subjective Observations

1. The origin of the final choice of toy.

2. The presence or absence of agreement between mother and child.

3. The member of the couple who controlled the choice of toy.

4. The member of the couple who controlled the situation in general.

5. The attitude of the mother to the outcome of the situation rated on a 5 point scale.

6. The attitude of the child to the outcome of the situation rated on a 5 point scale.

7. A description of the mother's general reaction to the situation.

8. A description of the child's general reaction to the situation.

9. Any other additional observations about the interaction.

These observations which were additional to those required by Bales'System, were made partly as an aid to interpreting the results obtained from Bales' System as mentioned above, and partly so that the hypothesis about difficulty in reaching agreement in families with a schizophrenic member, could be looked at and the expectations about differing uses and choices of toy by the groups in the sample, could be considered.

E. Procedure

1. Environment of Investigation

As mentioned earlier, the actual experimental procedure was carried out in three different settings in order to collect a sufficiently large sample.

The majority of mother-child pairs were seen in a small test room situated in the out-patient department of a children's hospital. Thirty-four pairs of the final sample and all the trial sample were seen here, this included all the physically handicapped, subnormal and emotionally disturbed children with their mothers, together with four autistic children with their mothers.

Five autistic children with their mothers were seen at an education authority unit for autistic children, and one autistic child with his mother was seen at a N.H.S. hospital for the subnormal.

The children seen at the hospital had been sent appointments for psychological testing following their referral to the Psychiatry Department by consultant paediatricians or G.P.'s for problems in which a psychological assessment was either considered relevant by a consultant psychiatrist, or directly requested by the referring doctor. The children were mostly seen on only one occasion when psychological tests relevant to the problem presented by the referral were administered, and then followed by the toy choosing procedure.

When the children were seen twice, the toy choosing was carried out at the end of the first visit.

In 38 of the 40 cases, the main test given or attempted was an intelligence test (Stanford-Binet, or

W.I.S.C., Merrill-Palmer.)

In one case where intelligence testing did not precede the toy choosing, the physically handicapped child had been present during his twin's intelligence test (lasting 30 minutes), and his twin's toy choosing. He then took part in the choosing procedure himself, with his twin present. The other case was an autistic child tested at the autistic unit; her mother was not present on the day arranged, but intelligence tests were given then and the mother and child seen five weeks later, when the testing was discussed; this was followed by the toy choosing.

In order to standardise the toy choosing situation as far as possible, an intelligence test, or parts of several intelligence tests, were given to the autistic children seen at the autistic unit, before the toy choosing procedure was carried out with them.

These children attended the unit daily, and their mothers had been invited by the headmistress of the unit, to be present when a psychologist came to test their child at the request of the consultant psychiatrist attached to the unit.

This testing was carried out in a fairly large empty classroom, in the presence of the mother, and following a discussion with the mother about the child, its progress and the reason for the testing. The reasons given for the testing were that the psychiatrist was interested to know how the children would perform on the tests, and that the psychologist was interested in the type of children who attended such units, and in seeing both the child and its mother together. Some of the mothers appeared anxious to

know if the testing was related to any particular decisions to be made about their child, and it was, therefore, mentioned to all these mothers that the testing was not related to any particular decision or question, but was only to see how the child performed on the tests at that time.

The one autistic child seen at the subnormality hospital attended there as an out-patient, and was referred by a consultant for a psychological assessment. He was seen in a medium sized room in the part of the hospital used for out-patient visits and clinical investigations. The setting for his visit, and the expectations around it were, therefore, presumably fairly similar to those associated with the visits to the psychologist at the children's hospital

2. Introduction of Procedure and Instructions

During the trial period it was found important always to give the parent and child a definite opportunity or invitation to discuss the referral to the psychologist, the psychological tests, their significance, the child's performance etc., and to deal fully with any points raised, before going on to the toy choosing. If this was not done, the parent, or sometimes the child, often appeared not to concentrate on the toy choosing, and might bring up questions around the referral or test results at the earliest opportunity, thus attempting to bring the observer into the choice situation in away which made it difficult for the observer to avoid involvement while also behaving appropriately.

Thus when the psychological testing was finished an invitation to discussion was given to the mother if she was present, or she was invited in by the child or psychologist if she was waiting outside, and the invitation explained in

terms of an opportunity to discuss her child's performance, and also the psychologist's wish to do something with them together.

After the discussion the toy choosing was introduced along the lines of "Now I have something else which I would like you to do together. It's not something to do with the tests, but is something that I'm interested in doing with people like you that I see here, and which I ask them to help me with. It's something that I'd like to use this tape recorder for, is that all right?". There were no refusals to co-operate; most mothers appeared interested, and quite pleased to help; with some couples there were comments about the tape recorder which was switched on, and whose microphone was placed near the mother and child, as soon as they agreed to help.

Occasionally fathers or other members of the family would also be present during the discussion of the test performance. If it was appropriate, that is, in the case of father, other adult family members, or older siblings, the extra person or people were asked to wait outside by saying something like "This is something I am interested in doing just with Johnny and his mother, so I wonder if you would mind waiting outside for a little while". In other cases where the accompanying children could be considered too young to wait alone outside, they were also present; this happened in four cases; they were given a toy which interested them; in none of these cases did the sibling appear to be involved in the interaction; it seemed clear to everyone that the toy choosing was something for

the mother and one child only. However, in one case the mother's eagerness to finish the choosing may have been related to the sibling's dislike of exclusion.

There was one case when an older person was present because it had appeared inappropriate to ask him to leave. This was a father (one of the only two sets of adoptive parents in the sample). He appeared to remain outside the interaction except for one response when the child brought him in; this interchange was excluded when the interactions were assessed.

By the time the tape recorder was switched on and the instructions for the toy choosing begun, the psychological test materials were all put away, and the materials for observing the toy choosing put out ready. Since the test room where most of the trials were carried out was very small the mother and child were always sitting within a few feet of each other; in the five cases where the procedure was carried out at the unit for autistic children, the mother was asked to move to be near the child before explaining the procedure. The case of toys was then put in front of the mother and child and opened by the psychologist while giving the instructions; the psychologist then moved and from this point until the end of the procedure attempted to behave as an observer only, not as a participant.

The actual instructions given in each case were something similar to "What it is I want you to do is to both together choose one of the toys from here for Johnny to take away. Right?" In some situations the instructions were adapted slightly to make them more appropriate, for example, for a younger child "Now I'll tell you what I want you do so.

I want you and your mummy together, to choose one of these toys in here for you to take away. Right?"

3. Observations

The child and its mother were then observed so that the observations listed earlier could be recorded. Of these observations only those involving time, (time before contact with toys was made, total time of child with toys, total time of the interaction, time to final choice by mother and/or child individually, time to agreement by mother and child, recorded with a stopwatch,)choice of toys, contact and use of toys, which toys handled and in which order, which were the main choices, which was the final choice, who carried it from the room , and the recording of the interaction according to Bales' System were carried out actually during the presence of the mother and child. The observations about agreement, origin of final choice, controller of the choice and situation, attitude to outcome and reaction to the situation, together with any other general observations, were all made directly after the departure of the couple.

The times were all checked within a few hours after the interaction from the tape recording. The observations of the interaction according to Bales'System were also checked within a few hours from the tape. Fairly quiet digital counters were used for both of these recordings of the interaction. Four banks of counters, each capable of recording six different totals were used; two counters were labelled with Bales' 12 categories for the child, and two labelled for the mother. As there were few interactions involving the observer, these were noted on the score sheet.

Thus the total number of responses for mother, child and observer in each of the 12 categories, together with to whom they were directed, were recorded. Any spontaneous involvement by the observer was also noted, however, the observer's original instructions and final summarising or ending remarks were omitted.

Originally it had been expected that the interaction would end when agreement was reached, but it was soon found (in the trial period) that interaction continued after agreement or a decision had been reached by the mother and child about which toy to take away. Thus totals in the 12 Bales' categories were obtained for the time up to the reaching of a decision and the time after the decision, and up to the end. This separation of the overall totals obtained during the actual interaction, into sub totals of up to and after decision was made from the tape recording during the checking of the original scoring.

Bales reports that observers listening to sound recordings of interactions which they have previously scored live, besides usually reporting "very vivid image recall", also "frequently get more scores than originally, probably because the knowledge that derives from their "having been there before" removes the blocks to placement of their scores that perhaps arose from the unanticipated twists of events in the original situation". In this study some differences in totals were found between original and tape scoring. These were not large, and did not appear to distort the pattern of totals over the 12 categories. Two rules were established for dealing with these differences. One was that in general the higher of the two totals should

be taken unless there was reason for assuming that one method of scoring was the more reliable. In general the live scoring was considered more reliable for the social-emotive groups of categories (1-3 and 10-12), while the tape recording was considered more reliable for the task oriented groups of categories (4-9). In practice no difficulty in interpreting these rules was found, and in nearly all cases the higher of the two totals was taken.

4. Termination

Just as it had been originally assumed that the interaction would end when the mother and child had made their choice, it was assumed that the point at which the interaction ended would also be clearly defined. However, this was not so, and in practice some couples appeared very uncertain about what was expected of them after choosing a toy, talking about their choice for some time and perhaps putting the other toys back in the case. This was in spite of the careful preparation of each toy-choosing situation as being something different from the testing, and in spite of previous discussion of the child's referral, test results, and future events related to the referral. It was assumed, that for the mothers and children the testing situation controlled by the psychologist, was of predominant importance, and, therefore, their general attitude did not change for what was to them, a minor part of the session, and they expected the psychologist to continue to organise the interview.

For the couples who firmly announced or demonstrated that they had chosen with an air of finality,

and then left possibly after making sure that nothing more was required of them, there was little difficulty in deciding on the end point, which was taken as the couples' own announcement of the completion of the task. However, to help in the more uncertain cases two rules were established. These were that the end was taken as occurring either at the departure of a couple, or at a point after agreement on a choice when a new topic for discussion was introduced. (This was often about test results or the future procedure on referrals). In nearly all cases (that is those when the end point was clear or when the second rule was used), the observer said at the end of the interaction over the toy choosing, something like "Right - good - that's all", or "Right - good - that's fine". Observations and the tape recorder were then stopped.

F. Results

1. General Observations

In general, most mothers and children readily accepted the toy choosing task when it was presented to them. But the ways in which couples used the situation varied widely over the whole sample. The variation which appeared to result from the expression of different personalities and different types of mother/child relationships was interesting enough to observe, but the interactions which appeared to be based on understandings of the situation which were widely different from that of the investigator, were even more fascinating.

Observation of these interactions was, therefore, interesting from a clinical point of view. It raised questions about the most rewarding approaches to understanding interpersonal relationships, and the personality of an individual in a social setting (Garmezy, Farina and Rodnick, 1960; Pease and Hawkes, 1960). When the understanding gained from observing a mother and child in what was an everyday and meaningful situation was added to that gained from psychological test results, observations of test performance as well as a discussion of test results, and the presenting problem, a much fuller understanding of the presenting problem was gained. Where this fuller understanding was compared with the understanding of other professional workers involved in a case, it seemed that it was a valuable and probably valid understanding. (Unfortunately a plan to investigate the validity of impressions gained from observations of couples choosing a toy by comparing them with psychiatrists' rating, proved

impractical). Clearly more experience and more investigation of the value to a clinical psychologist of observation during an interaction is necessary. At this point it can only be said that where time is available for more than the basic psychological tests, it may be useful to spend it in this type of observation, rather than in administering further tests. This idea is, of course, mainly an extension of the approach expounded by psycho-dynamically oriented psychologists (Phillipson 1955).

In order to give some idea of what was observed during the toy choosing, the following section will be concerned with a brief description of what occurred in each of the groups, and will contain charts of the interactions according to Bales' categories totalled together for each of the four sample groups. An appendix will contain more detailed accounts of some of one of the most typical interactions for each of the four groups.

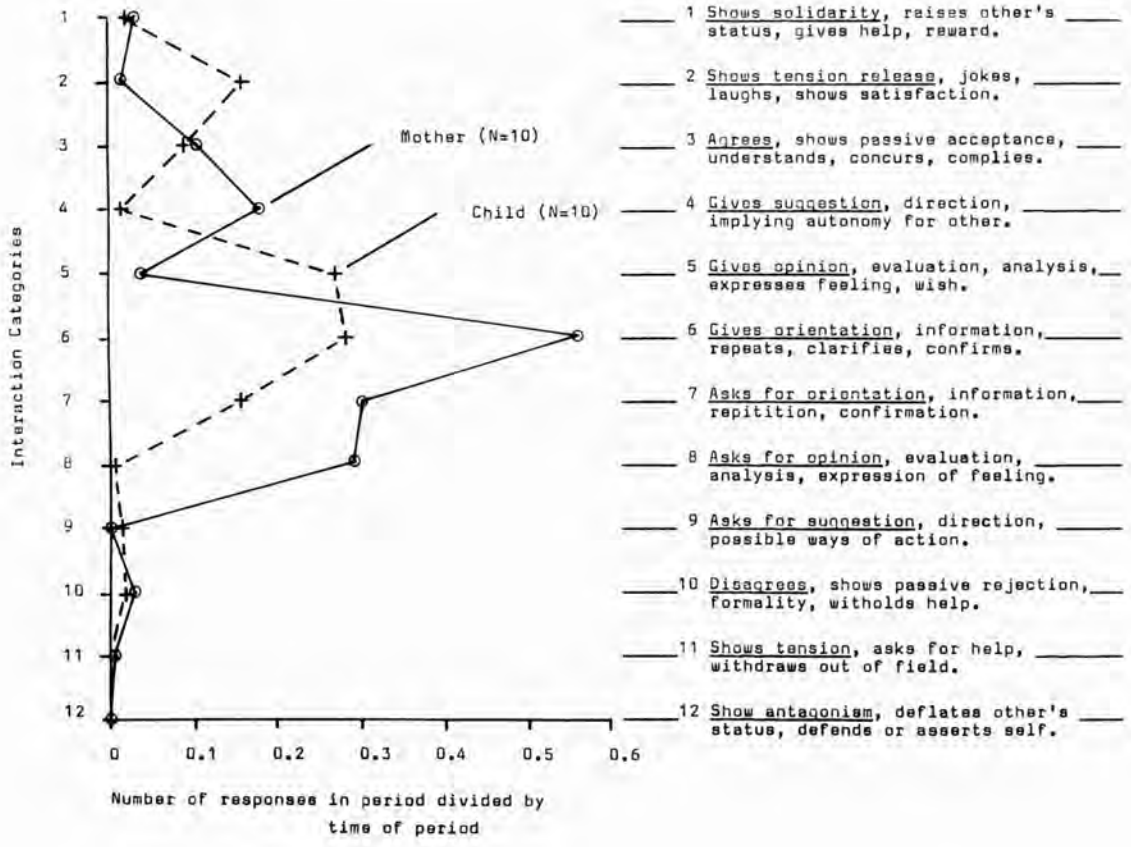
Results relating to the hypothesis which the experiment was set up to investigate, will be grouped together after the descriptive section. This will be followed by a further section dealing with other results of the investigation which are not directly related to the research hypothesis.

a. Physically Handicapped Children

The groups made up of physically handicapped children and their mothers took, on average the third longest time overall (mean 4' 54") when compared with the other groups. A decision about which toy to choose was made in all cases, the choice originating in all but one case with the children, and in all cases the child carrying

Figure 20
UP TO DECISION OR END IF NO DECISION PRESENT

INTERACTION PROFILE, PHYSICALLY HANDICAPPED



INTERACTION CATEGORY

1 Shows solidarity, raises other's status, gives help, reward.

2 Shows tension release, jokes, laughs, shows satisfaction.

3 Agrees, shows passive acceptance, understands, concurs, complies.

4 Gives suggestion, direction, implying autonomy for other.

5 Gives opinion, evaluation, analysis, expresses feeling, wish.

6 Gives orientation, information, repeats, clarifies, confirms.

7 Asks for orientation, information, repitition, confirmation.

8 Asks for opinion, evaluation, analysis, expression of feeling.

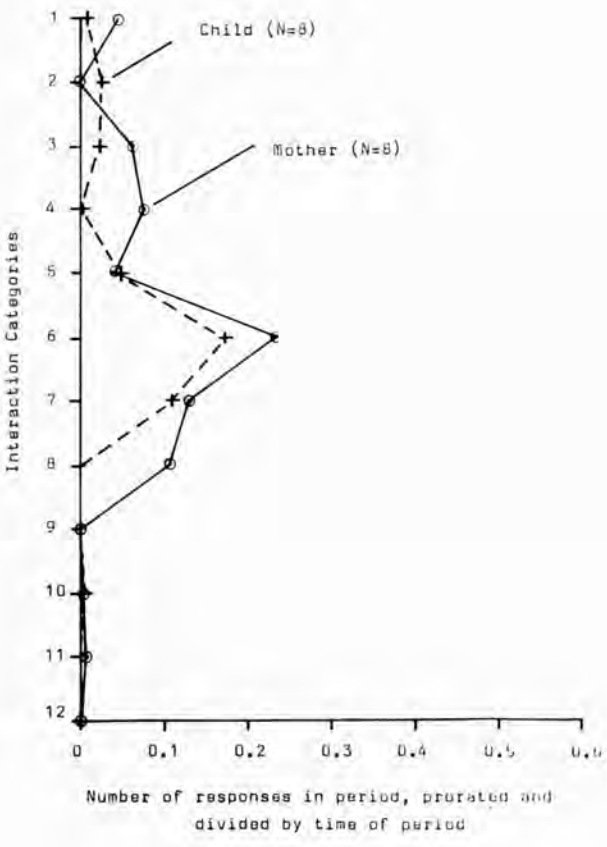
9 Asks for suggestion, direction, possible ways of action.

10 Disagrees, shows passive rejection, formality, witholds help.

11 Shows tension, asks for help, withdraws out of field.

12 Show antagonism, deflates other's status, defends or asserts self.

Figure 21
AFTER DECISION IF PRESENT



the toy from the room. In four cases a 'controlling' toy was chosen, in two an 'aggressive' toy, and in one case a 'dirty' toy, in one an 'oral erotic', in one an 'oral sadistic', and in one a 'sublimatory' toy. Both mothers and children tended to be pleased at the outcome of the situation (one child and one mother (not related) appeared passive, and the others were positive), and in all but one case the mother appeared to be controlling the situation.

While coming to a decision and after arriving at it, the mean number of toys touched was 7.5 and the mean number used appropriately was 3.1.

In four of the interactions the mothers were uncertain about whether their child could take the toy away with them in spite of my instructions, and in two of these cases the mothers seemed uncertain of what the situation was about and what they were expected to do.

In extent of observer involvement the group was most similar to the subnormal group. These two groups differed from the emotionally disturbed group in the amount the observer responded to the children in the period after decision making and the amount the mothers directed communications to the observer before a decision was reached.

In the physically handicapped group the mothers tended to bring in the observer more than the children, especially in the period before a decision was made. There was little spontaneous involvement on the part of the observer, and she tended to communicate less with the mothers and children than they did with her.

On the whole, this group of mother-child pairs was mainly task oriented; although in some cases they seemed uncertain of the reasons for their being asked to carry out the toy choosing, and although each pair carried it out in their own individual way, there were only two cases where it appeared to the investigator that the situation was being used to communicate or act out feelings or any wishes not related to the task of choosing a toy together.

Although each couple in this group (as in all the groups) behave in its own individual way, the group as a whole appears to differ from the other groups because of the couples' use of the situation as a teaching and learning situation. Thus as Figs. 20.and 21. show the mothers were quite directing and controlling, and spent most of their time giving their child information, they also asked for information, and asked for opinions. There was both some agreement and some disagreement between the mothers and children, but on the whole the children spent most of their time giving information and opinions, while also asking for information and playing with the toys. The patterns of interaction up to and after the decision about which toy to choose were fairly similar.

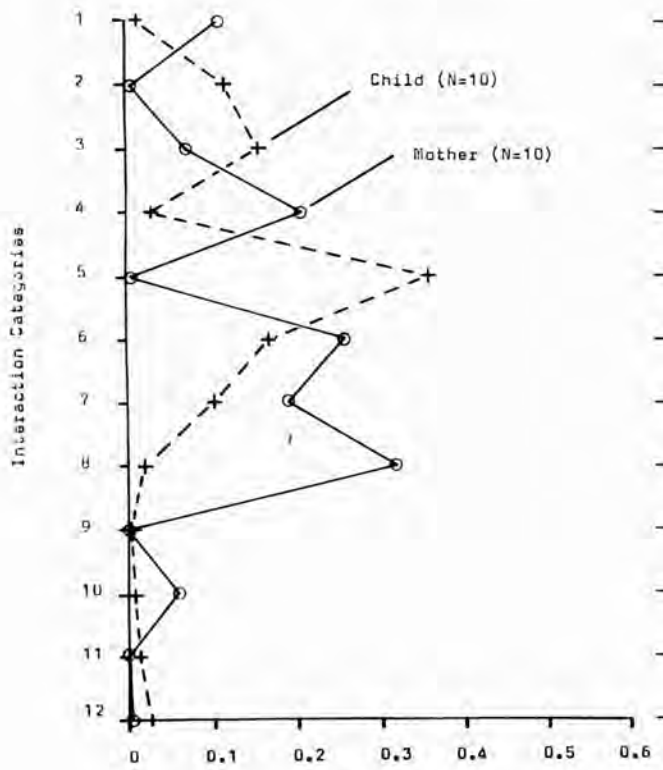
This type of use of the situation is shown in the Appendix by case P.4., which is representative of this group.

b. <u>The group of Subnormal Children and their Mothers</u>

This group took, on average, the second longest time in coming to a decision (mean 4' 0"), the third

INTERACTION PROFILE, SUBNORMAL GROUP

Figure 22
UP TO DECISION OR END IF NO DECISION PRESENT



INTERACTION CATEGORY

1 Shows solidarity, raises other's status, gives help, reward.

2 Shows tension release, jokes, laughs, shows satisfaction.

3 Agrees, shows passive acceptance, understands, concurs, complies.

4 Gives suggestion, direction, implying autonomy for other.

5 Gives opinion, evaluation, analysis, expresses feeling, wish.

6 Gives orientation, information, repeats, clarifies, confirms.

7 Asks for orientation, information, repitition, confirmation.

8 Asks for opinion, evaluation, analysis, expression of feeling.

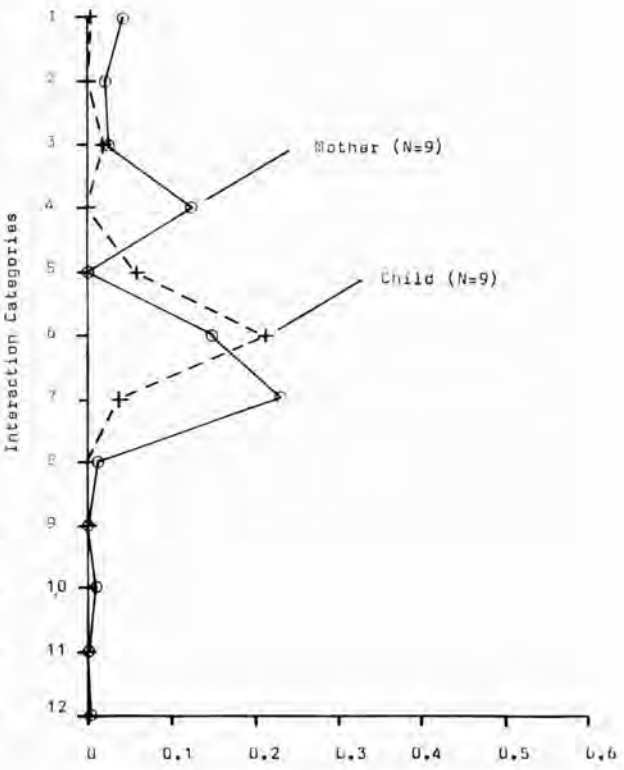
9 Asks for suggestion, direction, possible ways of action.

10 Disagree, shows passive rejection, formality, witholds help.

11 Shows tension, asks for help, withdraws out of field.

12 Show antagonism, deflates other's status, defends or asserts self.

Figure 23
AFTER DECISION IF PRESENT



longest time overall, when compared with the other groups (mean 4' 46"). Agreement on which toy to take was absent in one case, appeared to be present, although not clearly so, in two cases, andclearly presen in the other seven. Where a choice was made (nine cases) this originated from the child, and it was the child who carried the toy away in allbut one case. In coming to a decision, the children touched a mean of 5.3 toys, and used appropriately a mean of 2.0. In four cases a 'dirty' toy was chosen, in two a 'sublimatory' toy, and a 'sexual', an 'oral sadistic', and a 'controlling' toy each were chosen in one case. (No choice made in one case).

In nine of the 10 cases the mother appeared to be in control of the situation, but in one case where the mother kept herself aloof from the toy choosing in spite of her child's efforts to interest her, the child appeared to be mostly in control.

In allbut one case both mother and child were pleased with the outcome of the situation. The one case where both mother and child were displeased was unusual in several ways, including failure to reach a decision.

In all but two cases the subnormal children and their mothers responded to the situation in a realistic way; they appeared to spend their time going about the task which had been set them, although of course each pair and each individual responded differently. None of the mothers seemed uncertain about what was expected of them. However, there was one mother who did not believe that her son could take a toy away. (Already referred to above (S.9); atypical interaction). In this interaction and to a lesser extent in

one other, something other than interaction around the question of which toy to choose seemed to be occurring.

This group involved the observer to a similar extent to that shown by the physically handicapped groups. The children involved her a little less than the mothers, particularly before a decision was reached, and both mothers and children involved her more in the period before a decision was made. The observer communicated spontaneously very little with the mothers and children, and responded more to the mothers than to the children, and more before a decision was made, than after.

Although it is difficult to make generalisations for the four groups, it seems that the subnormal group tended to have a somewhat less rich and varied interaction than the other groups. Before decisions were made (see Fig. 22.) there was a certain amount of agreeing, disagreeing, and giving support between the mothers and children; there was also some playing with the toys by the children. However, the main activity before making a decision was that of the mothers being fairly directing, but mainly asking their child for his opinion, while the children were mainly involved in giving their opinions.

After a decision was made (see Fig.23), there was less playing, disagreeing, agreeing and supporting (although agreeing and supporting occurred a little). The mothers remained fairly directing, but the main activity became much more like that for the physically handicapped group, that is, centred more around the asking for and the giving of information. The mothers tended to mostly ask for

information (about the toys) and the children to give it; the mothers seemed to be helping their children to learn for themselves and examining them on their knowledge, rather than giving them direct information as the mothers in the physically handicapped group tended to do.

Case S.3. is described in the Appendix as typical of this group.

c. Emotionally Disturbed Children

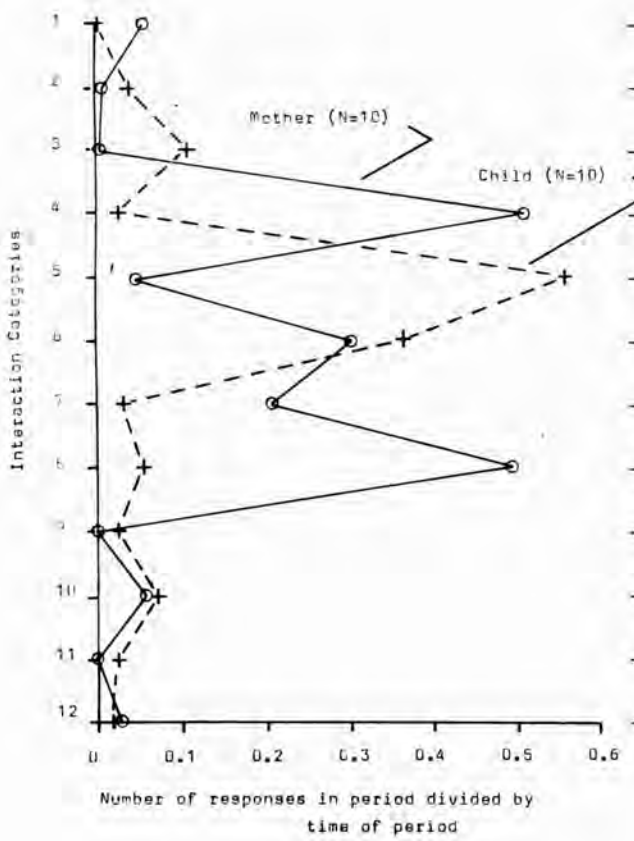
The group of emotionally disturbed children and their mothers were, on average, the quickest of the four groups, both overall (mean 3' 20"), and in coming to a decision (mean 1' 50"). Agreement on a choice was clearly present in nine cases, and presumably present in one; in eight cases the choice originated with the child, and in two with the mother. In one case only did the mother carry the toy from the room; this was the same and the only case where the child appeared to be in control of the situation. In coming to a decision 3.3 toys on average were touched, and 1.1 on average used appropriately. The most popular choice was of 'sublimatory' toys (four cases); next most popular was of 'dirty' toys (two cases), then 'noisy', 'oral erotic', 'oral sadistic', and 'controlling' (all one case each).

Both mothers and children tended to be pleased at the outcome of the situation, although three mothers and two children (one related pair) showed neither pleasure nor displeasure.

Two mothers in this group did not understand from the interactions that a toy could be taken away, another mother thought that the interaction meant that both she and her daughter should have a toy. Only one mother seemed not

INTERACTION PROFILE, EMOTIONALLY DISTURBED GROUP

Figure 24
UP TO DECISION OR END IF NO DECISION PRESENT



INTERACTION CATEGORY

1 Shows solidarity, raises other's status, gives help, reward.

2 Shows tension release, jokes, laughs, shows satisfaction.

3 Agrees, shows passive acceptance, understands, concurs, complies.

4 Gives suggestion, direction, implying autonomy for other.

5 Gives opinion, evaluation, analysis, expresses feeling, wish.

6 Gives orientation, information, repeats, clarifies, confirms.

7 Asks for orientation, information, repitition, confirmation.

8 Asks for opinion, evaluation, analysis, expression of feeling.

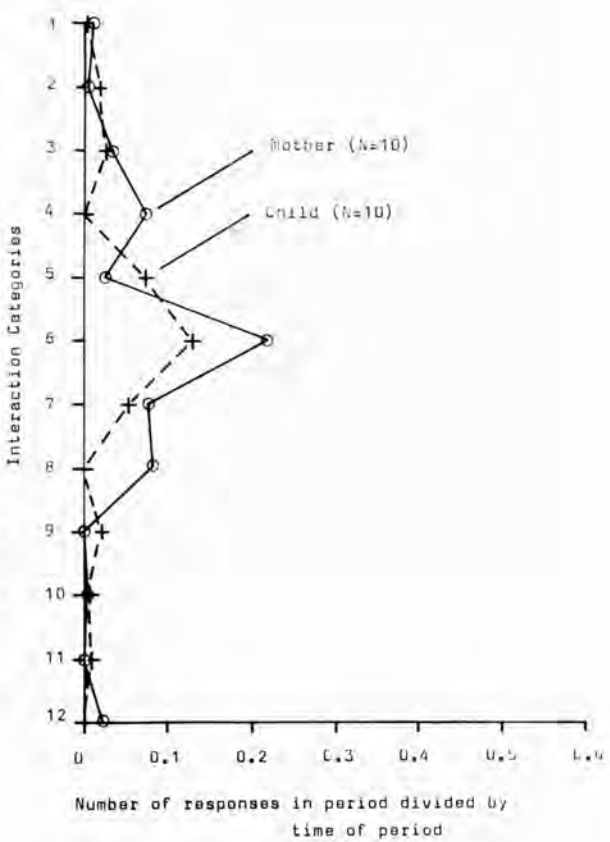
9 Asks for suggestion, direction, possible ways of action.

10 Disagrees, shows passive rejection, formality, witholds help.

11 Shows tension, asks for help, withdraws out of field.

12 Show antagonism, deflates other's status, defends or asserts self.

Figure 25
AFTER DECISION IF PRESENT



to be in touch with the meaning of the situation. Apart from this case, the mother-child pairs dealt realistically with the situation, and did not appear to use it for the expression of ideas and any wishes not related fairly clearly to the task. They seemed, however, to reveal more of themselves during the interaction than the mother-child pairs in the subnormal and physically handicapped groups.

The observer responded more to the children in this group in the period after a decision was made than she did to the children of any of the three other groups in a similar period.

The mothers in this group varied from the mothers in the other two non-autistic groups by directing communications to the observer lessoften in the period before a decision was reached. Otherwise the mothers and children involved the observer asmuch as the mothers and children in the subnormal and physically handicapped groups. Briefly, the mothers directed communications to the observer more than did their children, and both directed communications more often after a decision had been made. The observer responded more after the decision had been made than before. Before the decision was made she responded more to the mothers, and after, she responded more to the children. The observer's spontaneous communications were more frequent after the decision had been made.

In this group less of a general or typical pattern of interaction occurred than in the subnormal or physically handicapped groups. While reaching a decision about the toys (see Fig.24), the mothers tended to show more antagonism

and made more suggestions than the mothers in the other three groups; their time was mainly spent in giving suggestions to their children, and asking for their opinions, but they also spent some time in the asking and giving of information. In general some mothers behaved most like those in the autistic group, and some most like those in the subnormal group.

During this time the children spent most of their time either mainly giving their opinions or mainly giving information, so that some of them behaved rather like the subnormal children (this was mainly when their mothers were behaving rather like those in the subnormal group). They tended to play less, to disagree more and to ask for suggestions and for opinions more than the subnormal or physically handicapped children.

Once a decision had been reached(see Fig.25), the interaction became more like that in the physically handicapped group; it most often was around the giving of information by both the mother and child; however, these pairs differed from the physically handicapped group in that some time was still spent on the asking and giving of opinions. After a decision was reached the mothers continued to tend towards showing more antagonistic, aggressive or self-assertive behaviour than those in the subnormal or physically handicapped group, but they no longer gave a greater proportion of suggestions to their children than the mothers in the other three groups.

None of the 10 cases represents a case in any way typical for this group, however, P.2. is described in the Appendix as representing some of the features of

interaction mentioned here.

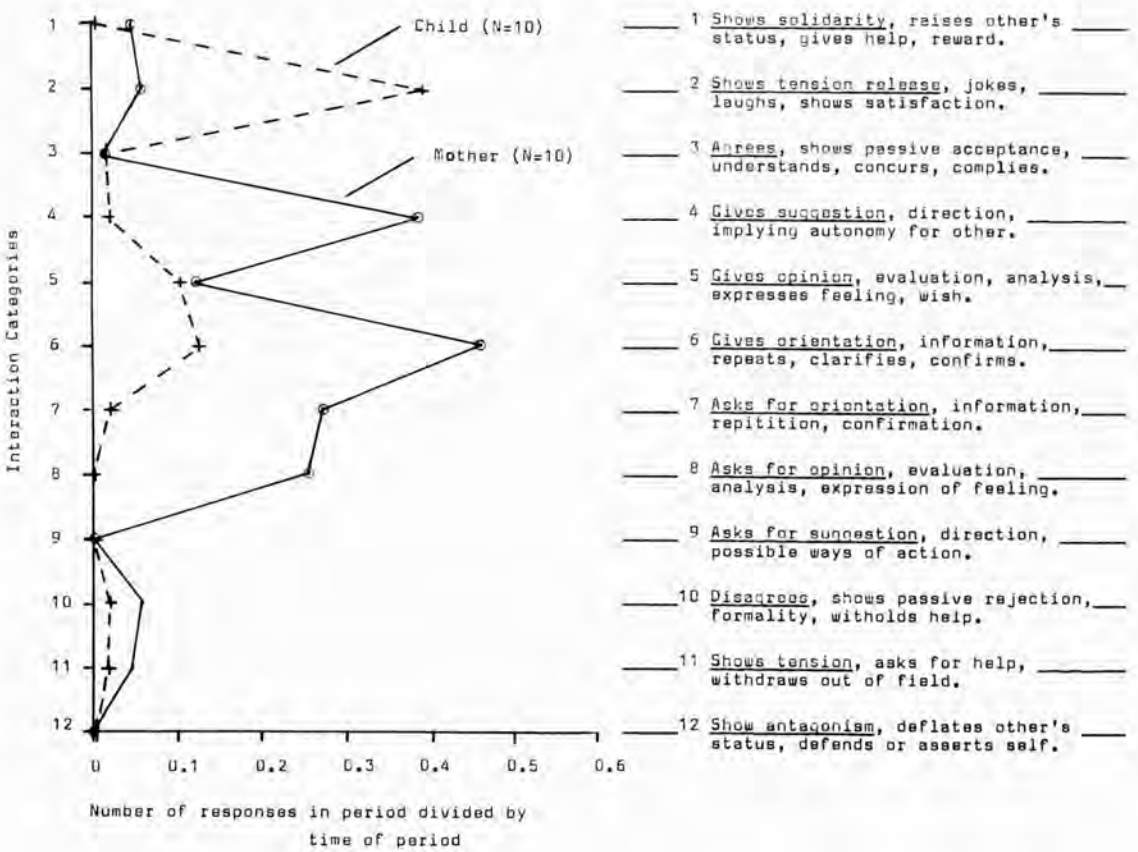
d. Autistic Children

The group of autistic children and their mothers took, on average, the longest both to reach decisions (mean 6' 39") and overall (mean 7' 51"). Decisions on which toy to choose were clearly present in only four cases. In four other cases a decision appeared to have been arrived at but it was not openly made, and in two cases a decision was absent. In one of the two cases where a decision was absent, this was caused by the child's insistence on taking two toys and the mother's agreement with her over this; thus toys were taken in nine cases and in six of these the choice originated with the child. The children touched a mean of five toys and used appropriately a mean of 3.4 during the interaction. The most frequently chosen toys were 'noisy' toys (two cases),'dirty' toys (two cases), 'sexual' toys (two cases). 'Oral erotic', 'sublimatory' and 'controlling' toys were chosen once each. In seven cases the child carried the toy from the room, and in one (where a choice was only implied) the mother carried it. In one case (again where a choice was only implied) the toy was left behind.

The situation appeared to be under the mother's control in only five cases; in one it appeared to be under the child's control, and in four under the observer's. The case where the child appeared in control (and in which, incidentally a toy decision was only present by implication the choice having originated with the mother who carried it away), was the only one in which a negative reaction to the outcome of the situation was shown. However, five other

Figure 26
UP TO DECISION OR END IF NO DECISION PRESENT

INTERACTION PROFILE, AUTISTIC GROUP



INTERACTION CATEGORY

1 Shows solidarity, raises other's status, gives help, reward.

2 Shows tension release, jokes, laughs, shows satisfaction.

3 Agrees, shows passive acceptance, understands, concurs, complies.

4 Gives suggestion, direction, implying autonomy for other.

5 Gives opinion, evaluation, analysis, expresses feeling, wish.

6 Gives orientation, information, repeats, clarifies, confirms.

7 Asks for orientation, information, repitition, confirmation.

8 Asks for opinion, evaluation, analysis, expression of feeling.

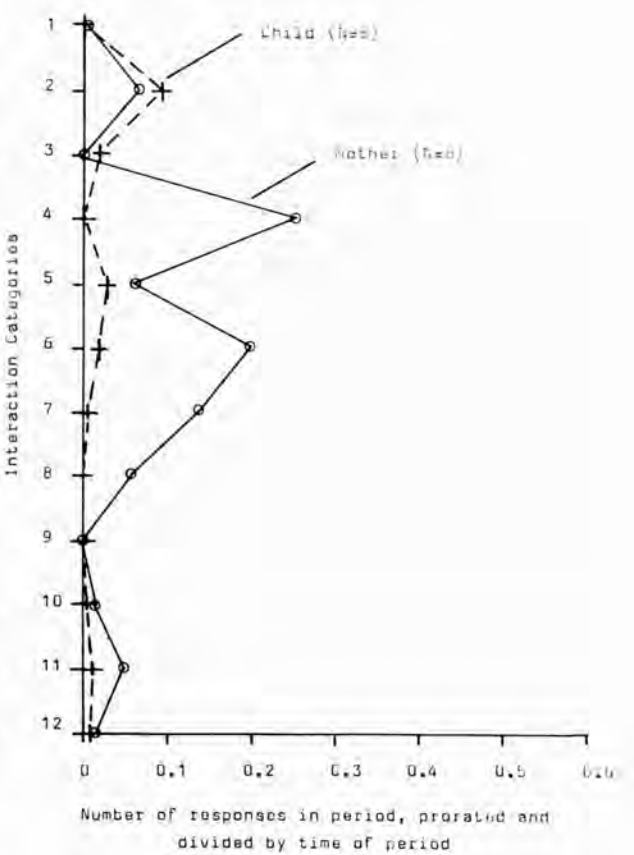
9 Asks for suggestion, direction, possible ways of action.

10 Disagrees, shows passive rejection, formality, witholds help.

11 Shows tension, asks for help, withdraws out of field.

12 Show antagonism, deflates other's status, defends or asserts self.

Figure 27
AFTER DECISION IF PRESENT



mothers and five children showed neither pleasure nor displeasure at the outcome (three related), and only four mothers and five children showed pleasure.

As already indicated the observer played more of a part in the interaction in this group than in the other three groups. This was as a result of communication with the mothers rather than the extent to which the observer responded to the children, the extent to which the children directed communications to the observer, or the extent to which the observer intervened spontaneously. Thus the mothers directed communications to the observer very much more than did the children; both directed more before agreement than after. The observer responded more to the mothers than to the children, and more of her responses (spontaneous, to mother, and to child) occurred before agreement than occurred after agreement.

The observer's greater involvement was probably at least in part due to the confusion shown in many cases by both child, and mother about what was happening. In only four cases was the interaction realistically related to the toy choosing task, and in one of these four the mother did not clearly understand the instructions (she doubted that her daughter could keep a toy and also thought that she (the mother) should choose a toy), while in another of the four cases the child did not clearly understand the instructions.

In one of the remaining six cases the mother was very manic and excited her child considerably; in one the mother was intensely hostile to the observer while the child was hostile to her; in one the child showed no understanding of the situation while the mother seemed normally aware;

in one the mother was confused and anxious and appeared to have misunderstood the meaning of the situation, so that she treated it as a chance to demonstrate her son's knowledge; two interactions had a strange timeless quality about them - the mothers seemed content to sit and wait while their children played (both these were rated as 'observer controlled').

For this group there is no clear typical case - the interactions tended to be marked by their alarming and individual bizarreness and unpredictability - an interaction which appeared about average in degree of strangeness has, therefore, been chosen for description in the Appendix (A.2).

Although each case within this group is so different from all others in the content of the situation, the structure of all the interactions differ quite markedly from that in the other groups.

In the groups with subnormal, physically handicapped, and emotionally disturbed children, the interaction tended to centre around the asking and giving of opinions and information, however, in the group with autistic children, their interactions in these areas both before and after reaching a decision, were overshadowed by their playing (or showing tension release), while for the mothers, interactions in these areas tended to be overshadowed by the giving of suggestions.

The mothers of the autistic children also differ from the other mothers in the proportion of their interactions in the negative social emotional area; this is mainly because they show more tension; they also tend to show more tension

release, and less agreement.

In the positive social emotional area there fell a large proportion of the autistic children's responses when compared with the other children because of their playing.

In general this group showed less varied interactions for any individual than in the other groups. Their interactions were even less varied than the subnormal group, and unlike the subnormal group, each mother and her child did not have roughly equal variability. Up to the making of a decision (see Fig. 26.) the mothers mainly gave suggestions and information, while also asking for opinions and information, and showing tension and tension release; the children played and gave opinions and information with a little asking for information, and some disagreement. After a decision has been made (see Fig. 27.) the mothers continued in a similar pattern, but with relatively more giving of suggestions and relatively less giving and asking of information and asking of opinions; the children continued to mostly play, but also show a small proportion of giving opinions and information, agreeing and showing tension.

2. Detailed Results

Statistical analyses of results are grouped together according to the research hypotheses to which they relate.

Ease of Decision Making

The results relating to the two null hypotheses in this area A.1. and A.2. are presented below. The data relating to time to reach a decision and time to complete the interaction for the four groups (A.1.) was analysed by comparing the results for the four groups using an analysis of variance, and by comparing the results for each group in turn with the result for the autistic group (Dunnett's test).

The data relating to the question of how often a decision about choosing a toy was made in each of the four groups was based on direct observation (A.2.); the proportion of cases in each group definitely making a decision, the proportion implying the presence of a decision and the proportion not making a decision were analysed using the Fisher Exact Probability Test.

The results of the analyses of variance indicate that there is not a significant difference overall between the four different experimental groups in either the time they take in reaching a decision, or in the time taken over the total interaction.

The means for each group indicate that the autistic group tended to take longer both overall, and in reaching a decision, but there is a significant difference in these means only when the autistic and emotionally disturbed groups are compared over time taken to reach a decision (Dunnett's test).

These results lead to a rejection of the null hypotheses A.1. and tend to support the research hypothesis that the autistic group would take longer over the decision making than the other groups.

A.2. The results related to this hypothesis also lead to rejection of the null hypothesis and give some support to the research hypothesis in that, if the ultimate presence of a decision or choice of toy is compared with complete absence, then the autistic group does not vary significantly from the other groups, but if clearly present decisions are compared with decisions which are either not clearly present or absent, then the autistic group varies significantly from two of the other three by having fewer cases where a decision is clearly present. (It does not vary significantly in this from the subnormal group, although a similar trend is present in this comparison).

On the whole, therefore, the results in this area lead to rejection of the null hypothesis, and give some evidence which tends to support the research hypothesis.

A.1. Analysis of Variance for the time up to the making of a decision, or if none was made, to the end of the interaction

Table 1

Mean of time in minutes & * seconds	Autistic Group	Physically Handicapped Group	Subnormal Group	Emotionally Disturbed Group
	6' 39"	3' 38"	4' 0"	1' 50"

Table 2

Source of Variation	Sum of Squares	D.f.	Mean Square	F
Between Groups	.00191	3	.0006366	2.22
Within Groups	.01033	36	.000287	(P < .1 > .05)
Total	.01224	39		

Dunnett's test for comparing the means of speed of making a decision for the physically handicapped, subnormal and emotionally disturbed groups, with the autistic group as a control.

Mean square within groups = .000287

Standard error of difference between means = .007576

Difference between control and treatment means must exceed .01614 for significance at 95%

Table 3

Groups	Difference between means for autistic and other groups
Physically Handicapped	.0054948
Subnormal	.0124898
Emotionally Disturbed	.0182587

∴ mean of only the emotionally disturbed group differs at the 95% level of significance from the autistic group mean.

* For the analysis the reciprocal of time was used in order to ensure that the data was normally distributed in keeping with the requirements of the statistical test used.

A.1. Analysis of Variance for the total time of the interaction

Table 4

Mean of time in minutes & seconds *	Autistic Group	Physically Handicapped Group	Subnormal Group	Emotionally Disturbed Group
	7' 51"	4' 54"	4' 46"	3' 20"

Table 5

Source of Variation	Sum of Squares	D.f.	Mean Square	F
Between Groups	.0003177	3	.000106	1.50
Within Groups	.0025423	36	.0000706	(N.S.)
Total	.00286	39		

Dunnett's test for comparing the means of speed of completing total interaction for the physically handicapped, subnormal and emotionally disturbed groups, with the autistic group as a control.

Mean square within groups = .0000706

Standard error of difference between means = .003758

Difference between control and treatment means must exceed .008003 for significance at 95%

Table 6

Groups	Difference between means for autistic & other groups
Physically Handicapped	.0032313
Subnormal	.0067690
Emotionally Disturbed	.0067871

∴ none of the means of these differ significantly from that of the autistic group

* For the analysis the reciprocal of time was used.

A.2. Agreement on choice of Toy

Table 7

	Autistic	Physically Handicapped	Emotionally Disturbed	Subnormal	Number of Cases
Present	4	10	9	7	30
Present by implication	4	0	1	2	7
Absent	2	0	0	1	3
Number of Cases	10	10	10	10	40

Comparing the autistic groups with each of the three other groups separately for the number of cases with decisions present (whether definitely or by implication), and the number with decisions absent:-

(1)

Autistic & Physically Handicapped: N.S.) Fisher's
)
Autistic & Emotionally Disturbed: N.S.) Exact
)
Autistic & Subnormal : N.S.) Probability Test

Comparing the autistic group with each of the three other groups separately for the number of cases with decisions definitely present, and the number of cases with decisions either absent or only present by implication:-

Autistic & Physically Handicapped: p = .01) Fisher's
)
Autistic & Emotionally Disturbed: p = .05) Exact
)
Autistic & Subnormal: N.S.) Probability Test

Footnote: (1) Not significant

Disagreement and Expression of Disagreement

This data was analysed by looking at the interactions in the relevant categories in Bales' System (3. and 10.) separately for mother and for child, separately for the period up to the making of a decision (or at the end of the interaction if none was made), and for the period after the making of a decision in the cases where such a period was present. The four experimental groups were compared with each other using the Kruskal-Wallis One-wayAnalysis of Variance, to see if they differed, and the autistic group was contrasted with the other three groups taken together as a control group, using the Mann-Whitney U Test to see if the autistic group differed from the other three on the relevant dimension. Finally the three non-autistic groups were compared using Kruskal-Wallis One-way Analysis of Variance to see if any variation occurring between the four groups derived from differences occurring between the non-autistic groups. Non-parametric statistics were used because of the skewed distribution of the data.

These operations were all carried out for three forms of the data:-

a) the sum of interactions falling in any one category

b) the sum of interactions falling in any one category divided by the time during which they occurred.

c) the sum total of interactions falling in any one category divided by the total number of interactions occurring for that individual during the period considered.

These three forms were used because they each provide a different basis on which to compare the four experimental groups and so are all required for a complete analysis of the data.

The statistical analysis of the numbers of interactions by both mothers and children falling in the categories 'Agrees' and 'Disagrees', supports the null hypothesis B.2., and allows rejection of the null hypothesis B.1. These results suggest that although the four groups showed no differences in the amount of interaction categorised as showing disagreement however the data was treated, there was some tendency for the mothers of the autistic children to show less interaction categorised as agreeing than the other groups of mothers who did not differ among themselves in this way, before a decision was made, while after it had been made the mothers of the autistic children definitely agreed less often than the mothers in the other groups who did not differ from each other in this way. Thus the results go some way towards supporting the research hypothesis derived from theories about the difficulties with expressing disagreement overtly in families with a schizophrenic member. This research hypothesis would predict less expression of disagreement in the autistic group when compared with the other groups, yet only the same or even less expression of agreement, that is, that the mother and child in the autistic group are not more in agreement, yet they express disagreement overtly less often than the other groups.

The present results suggest that the mothers in the autistic group tend to be less in agreement yet only express the same amount of disagreement as the other mothers.

B.1. Number of responses in Bales' category 3 'Agrees'

Y Shown by mother

Table 8

Up to decision or end if no decision +

	Significance Values		
	Kruskal-Wallis One-way Analysis of Variance for 4 groups	Mann-Whitney U Test between Autistic & 3 other groups	Kruskal-Wallis for Subnormal ⊖ Physically Handicapped,⊕ & Emotionally Disturbed⊗ groups
Raw Data	.15	.13	.20
Raw Data* / Time to decision or end if no decision	.08	.08	.10
Raw Data x / Total number of interactions for mother up to decision or end if no decision	.10	.09	.12

(Autistic group give fewer)

* After referred to as 'Data/Time'

x After referred to as 'Data/Total No.'

⊖ After referred to as 'Sub'

⊕ After referred to as 'P.H.'

⊗ After referred to as 'Em.D'

+ After referred to as 'Up to decision'

Table 9

After decision if present x

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & 3 other groups	Kruskal-Wallis for Sub, P.H. & Em.D. groups
Raw Data	.04	.02	.15
Data/Time	.06	.02	.30
Data/Total No.	.07	.03	.25

(Autistic group give fewer)

x After referred to as 'After decision'

Number of responses in Bales' category 3 'Agrees'

Z Shown by child

Table 10

i. Up to decision

	Significance Values		
	Kruskal-Wallis One-way analysis of Variance for 4 groups	Mann-Whitney U Test between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em. D groups
Raw Data	.60	.32	.25
Data Time	.50	.17	.50
Data Total No.	.50	.17	.50

Table 11

ii. After decision

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.70	.38	.50
Data Time	.90	.48	.70
Data Total No.	.80	N.S.	.60

B.2. Number of responses in Bales' category 10: 'Disagrees'.

Y. Shown by mother

i. Up to decision

Table 12

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.70	.20	.75
Data Time	.90	.25	.95
Data Total No.	.80	.20	.80

ii. After decision

Table 13

Significance Values

	Kruskal-Wallis for four groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.75	.23	.73
Data Time	.70	.18	.70
Data Total No.	N.S.	N.S.	N.S.

Number of responses in Bales' category 10: 'Disagrees'.

Z. Shown by child

i. Up to decision

Table 14

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.80	.44	.60
Data Time	.70	.44	.50
Data Total No.	.70	.38	.50

ii. After decision

Table 15

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em. D. groups
Raw Data	.70	.43	.40
Data Time	.60	N.S.	N.S.
Data Total No.	.70	N.S.	N.S.

Directiveness and Autonomy

The research hypothesis in this area, about the directiveness and failure to give autonomy to their autistic child, of the mothers in the autistic group was investigated by testing out the null hypotheses C.1., C.2., C.3., C.4., C.5., C.6. C.7.

C.1. is the most straightforward of the hypotheses based on Bales' System, and refers to the number of responses in category 4 ('Gives Suggestion') for mothers only, both up to and after the making of a decision.

C.2. refers also only to mothers both before and after decision making, but subtracts interactions in category 8 ('Asks for Opinion') from those in category 4.

C.3. refers to children only, both before and after decision making, and looks at the number of interactions in category 5 ('Gives Opinion').

C.4. is Bales' suggested 'Index of Directiveness of Control'. It is based only on raw data and is used here for the interactions of the mother-child pair combined together both before and after decision making, and then for each separately after decision making only.

Except as mentioned above the data is treated in the same way as was described for the section on "Disagreement' and 'Expression of Disagreement'.

C.5., C.6. and C.7. refer to observation and ratings by the observer not related to Bales' categorisation.

Tables 16. and 17. suggest that after decision making, the mothers of autistic children give more responses categorised as 'Give Suggestion' (among the other three groups the mothers of the emotionally disturbed children give least responses in this category; presumably because this is also the quickest group the number of responses in this category shows as significantly fewer when the simple sum of responses is taken).

Up to the making of a decision the number of suggestions given by mother distinguishes significantly not only the autistic mothers from the others, but it also distinguishes between the other three groups, where the mothers in the emotionally disturbed group give most. (This difference among the three is minimised when only the simple sum of responses is used because the emotionally disturbed group were so quick, and therefore, presumably gave fewer responses or interactions).

Tables 18. and 19. suggest that when the number of responses falling in the 'Asks Opinion' category for the mothers is subtracted from the number falling in the 'Gives Suggestion' category for mothers, the resulting measure, which should indicate directiveness accompanied by lack of respect for the child's autonomy, then there are no differences between groups up to the making of decisions, but on decision making the mothers in the autistic group show significantly more of this particular type of directiveness. (The other three groups do not differ among themselves).

Tables 22., 23., 24. and 25. again show that (using Bales' Index) if the directiveness of the giving type

of interaction centred around a task is considered for mothers and children together, then the autistic group does not differ from the others before a decision is made, (although the three other groups differ among themselves with the emotionally disturbed group being most directive); after a decision is made the autistic group do not differ from the others (which no longer differ among themselves), chiefly because of the directiveness of the mothers.

Tables 20. and 21. show that when the number of opinions the children give are considered, (and it would be expected that this is related to the autonomy of the child), then the autistic children are shown to give significantly fewer opinions up to the making of decisions, but to give a similar number to those given by the children in the other groups after decision making.

Thus taken together, the results relating to the question of the directivenessof mothers and the autonomy of children, and based on observations according to Bales' System, show that it is after a decision has been made that the mothers of the autistic children show a distinctive pattern of behaviour, by being more directive. (Up to the point when a decision is made, all the groups tend to vary in the amount of directiveness of the mothers, although this does not occur when requests for the child's opinion are considered together with making suggestions). It is, however, before a decision is made that the autistic children behave differently from the others. They differ by giving fewer opinions (although their mothers do not differ significantly from the mothers in other groups in

the amount of 'Asks Opinion' shown (Table 73.)

These results, although leading to rejection of the null hypothesis, are not entirely those which would be predicted by the research hypothesis; their explanation is not clear.

The results based on observations and ratings which are not related to Bales' System, but are relevant to the question of directiveness and autonomy, are of a type which is most usefully presented for inspection, and not treated by statistical analysis. (that is, null hypotheses C.5., C.6., C.7.) On inspection it is apparent that the four groups do not differ markedly from each other on the question of who initiates the final choice of toy, who is in control of the toy choosing, and who carries the toy away, although there is some tendency for the autistic group to be more variable in the choosing process, and for the mothers of the autistic children to be more in control of the process. However, these results cannot be taken as sufficient evidence for rejecting the null hypotheses, nor for supporting the research hypothesis.

C.1. Number of responses in category 4: ('Gives Suggestion')

Y Shown by mother

i.Up to decision

Table 16

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.075	.004	.70
Data Time	.01	.04	.015
Data Total No.	.04	.13	.04

Em.D. group gives most followed by autistic group

ii. After decision

Table 17

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.01	.00003	.05
Data Time	.15	.0001	.5
Data Total No.	.20	.017	.85

Autistic group gives most

C.2. Number of responses in category 4: 'Gives Suggestion' minus number of responses in category 8: 'Asks Opinion'

Y. Shown by mother

i. Up to decision

Table 18

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.10	.06	.15
Data Time	.15	.18	.15
Data Total No.	.50	.12	.60

ii. After decision

Table 19

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic other 3 groups	Kruskal-Wallis for Sub., P.H., & Em.D. groups
Raw Data	.07	.01	.50
Data Time	.10	.015	.40
Data Total No.	.15	.06	.60

Autistic group scores highest

C.3. Number of responses in category 5: 'Gives Opinion'

Z. Shown by child

i. Up to decision

Table 20

Significance Values

	Kruskal-Wallis for4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.15	.01	.95
Data Time	.01	.001	.15
Data Total No.	.04	.02	.07

Autistic group gives fewer

ii. After decision

Table 21

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.40	.09	.50
Data Time	.80	.18	.90
Data Total No.	.70	.18	.60

C.4. Index of Directiveness of Control:

Number of responses in category 4: 'Gives Suggestion'

Number of responses in category 4 + number in category 6:

'Gives Information'. +

Number of responses in category 5: 'Gives Opinion'

Number in category 5 + number in category 6.

Y. & Z. Shown by mother and child

i. Up to decision

Table 22

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.02	.26	.02

(P.H. score lowest on Index and Em.D. highest)

ii. After decision

Table 23

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.30	.05	.50

(Autistic and Em.D. highest, Sub. lowest)

Index of Directiveness of Control:

Y. ii. Shown by mother after decision

Table 24

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.5	.07	.90

(Autistic score highest and Sub. lowest)

Z. ii. Shown by child after decision

Table 25

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.70	.3	N.S.

(P.H. score highest, Sub. lowest)

C.5. Origin of Final choice of Toy

Table 26

	Number of Cases		
Groups	Origin in Mother	Origin in Child	No Choice
Autistic	3	6	1
P.H.	1	9	0
Em.D.	2	8	0
Sub.	0	9	1

C.6. Member of pair rated as controlling toy choosing

Table 27

	Number of Cases	
Groups	Mother in Control	Child inControl
Autistic	3	7
P.H.	1	9
Em.D.	1	9
Sub.	1	9

C.7. Member of pair carrying toy from room

Table 28

	Number of Cases			
Groups	Mother carries Toy	Child carries Toy	No Choice	Toy left behind
Autistic	1	7	1	1
P.H.	0	10	0	0
Em.D.	1	9	0	0
Sub.	1	8	1	0

Non-task Related Behaviour

The research hypothesis in this area is concerned with whether the autistic group differs from the other groups by being less concerned with the task presented, and more concerned with fe lings. The null hypothesis (D.1. that the mothers and the children do not differ over the four groups in the amount of interaction shown in the social-emotive area), was tested by adding separately for mothers and for children the amount of activity in the social-emotive categories. These totals were then treated as described for the section on 'Disagreement and Expression of Disagreement'.

These results fail to support the null hypothesis D.1. only for the children, who are shown to give a higher proportion of responses which fall in the social-emotive area, than the other children, throughout the interaction. This is less marked for the period after decision making when the amount of interaction in this area is considered in relation to time, possibly because the autistic children responded only about as often in this period as the other children, even though for them it tended to last longer than for the other children.

For the mothers, differences do not clearly occur either before or after dec sion making (although there is some evidence of variation between the four groups after decision making, but only with the less reliable raw data).

Thus some support for the research hypothesis is shown, (although this refers to the children's part in the interaction).

D.1. Number of responses in social-emotive area, that is

Number of responses in categories:

1. 'Shows solidarity'

2. 'Shows tension release'

3. 'Agrees'

10. 'Disagrees'

11. 'Shows tension'

12. 'Shows antagonism'

totalled together

Y. Shown by mother

i. Up to decision

Table 29

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.50	.149	.30
Data Time	.98	.44	.50
Data Total No.	.20	.46	.07

ii. After decision

Table 30

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.05	.14	.10
Data Time	.80	.40	.70
Data Total No.	.85	.25	.80

(P.H. highest; autistic lowest)

Number of responses in social-emotive area

Z. Shown by child

i. Up to decision

Table 31

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.20	.032	.40
Data			
Time	.30	.037	.90
Data			
Total No.	.01	.009	.40

(Autistic group give more)

ii. After decision

Table 32

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.15	.05	.07
Data			
Time	.40	.07	.60
Data			
Total No.	.15	.016	.50

(Autistic group give more)

Presence of Tension

The numbers of responses falling in the two Bales' categories 'Shows tension' and 'Shows tension release' which are related to the two null hypotheses E.1. and E.2. were analysed as previously described in the section 'Disagreement and Expression of Disagreement':

These results allow rejection of the two null hypotheses E.1. and E.2. and support the research hypothesis that more tension is present during the interaction between the autistic children and their mothers than during the interaction between mother-child pairs in the other groups. However, in the period up to the making of a decision, the mothers of the autistic children do not express their tension in a form categorised as 'Shows tension release' any more than do the other mothers, (although they tend to do so (Table 33.) They do express it in this form after the decision making, as do the children throughout.

E.1. Number of responses in category 2: 'Shows tension release'

Y. Shown by mother

i. Up to decision

Table 33

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.50	.09	.70
Data Time	.50	.13	.60
Data Total No.	.50	.08	.60

ii. After decision

Table 34

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.20	.018	.70
Data Time	.25	.015	.70
Data Total No.	.15	.014	.70

(Autistic group shows more)

Number of responses in category 2: 'Shows tension release'

Z. Shown by child

i. Up to decision

Table 35

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.03	.0038	.30
Data Time	.015	.006	.25
Data Total No.	.001	.00007	.20

(Autistic group shows more)

ii. After decision

Table 36

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.04	.009	.25
Data Time	.04	.0005	.15
Data Total No.	.05	.0102	.20

(Autistic group shows more)

E.2. Number of responses in category 11: 'Shows tension'

Y. Shown by mother

i. Up to decision

Table 37

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.03	.001	.50
Data Time	.02	.001	.50
Data Total No.	.02	.001	.40

(Autistic group shows more)

ii. After decision

Table 38

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.20	.026	.50
Data Time	.001	.015	.60
Data Total No.	.20	.026	.30

(Autistic group shows more)

Number of responses in category 11: 'Shows tension'

Z. Shown by child

i. Up to decision

Table 39

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.30	.03	.60
Data Time	.30	.036	.60
Data Total No.	.25	.02	.70

(Autistic group shows more)

ii. After decision

Table 40

Significance Values

	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.35	.03	.20
Data Time	.25	.038	.50
Data Total No.	.25	.0314	.50

(Autistic group shows more)

Mutual Antagonism

The numbers of responses falling in the Bales' categories relevant to the null hypotheses F.1. and F.2., were treated as described under the section 'Disagreement and Expression of Disagreement': the Bales' index relevant to the null hypothesis F.3. was treated as described under the section 'Directiveness and Autonomy', where it applies to the combination of each mother and her child.

These results allow rejection of the null hypotheses F.1., F.2. and F.3. Table 44. indicates that the autistic children show more antagonism and hostility in the period after a decision had been made than do the other children in this period; Table 46. suggests that the four experimental groups vary significantly among themselves in the amount of solidarity shown by mothers after a decision has been made, (although this is only a tendency being based on the less reliable raw data), with the autistic group mothers showing significantly less (except where raw data is used when the greater interaction interval for the autistic group, and presumably therefore, their larger number of responses, would tend to minimise significant differences when the autistic group varies by showing fewer of a particular response); Table 50. suggests that a higher proportion of interaction in the social-emotive area was negative for the autistic group, than for the other groups, after a decision had been made.

These results, therefore, give some support to the research hypothesis that more negative feelings will be expressed by the autistic group of mother-child pairs than by the other groups, although this is shown here to be so

only after a decision has been made.

The results also indicate that where the variation from the other groups is in a greater expression of hostility, it is the autistic children who are involved; where the variation is in giving a smaller amount of support or less affection, then it is the mothers of the autistic children who are involved.

F.1. Number of responses in Bales' category 12: 'Shows Antagonism'

Y. Shown by mother

i. Up to decision

Table 41

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.25	.37	.20
Data Time	N.S.	N.S.	.15
Data Total No.	N.S.	N.S.	N.S.

ii. After decision

Table 42

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.80	.29	.70
Data Time	N.S.	N.S.	N.S.
Data Total No.	N.S.	N.S.	N.S.

Number of responses in Bales' category 12: 'Shows Antagonism'

Z. Shown by child

i. Up to decision

Table 43

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.30	.31	.20
Data Time	N.S.	N.S.	N.S.
Data Total No.	N.S.	N.S.	N.S.

ii. After decision

Table 44

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.08	.004	N.S.
Data Time	.08	.004	N.S.
Data Total No.	.08	.004	N.S.

(Autistic group shows more)

F.2. Number of responses falling in Bales' category 'Shows solidarity'.

Y. Shown by mother

i. Up to decision

Table 45

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.40	.13	.40
Data Time Data	.25	.25	N.S.
Total No.	N.S.	N.S.	N.S.

ii. After decision

Table 46

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.03	.06	.052
Data Time Data	.06	.05	.15
Total No.	.04	.05	.08

(P.H. group shows most; Autistic group shows least)

Number of responses falling in Bales' category 'Shows solidarity'.

Z. Shown by child

i. Up to decision

Table 47

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em. D. groups
Raw Data	.50	.21	.30
Data Time	N.S.	N.S.	N.S.
Data Total No.	N.S.	N.S.	N.S.

ii. After decision

Table 48

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.60	.12	.80
Data Time	N.S.	.13	N.S.
Data Total No.	N.S.	N.S.	N.S.

F.3. Index of Expressive - malintegrative behaviour:

Number of responses in categories 10: 'Disagrees', 11:'Shows tension', 12: 'Shows antagonism'

Number of responses in categories 10, 11, 12 + number in 1: 'Shows solidarity', 2: 'Shows tension release, 3: 'Agrees'.

Y. + Z. Shown by mother and child

i. Up to decision

Table 49

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em. D. groups
Raw Data	.50	.48	N.S.

ii. After decision

Table 50

	Significance Values		
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis for Sub., P.H. & Em.D. groups
Raw Data	.20	.01	N.S.

(Autistic group scores highest)

Attitude to Toys

Data and analysis of data related to direct observations in this area are shown in tables 51, 52. and 53.

The observations and analysis of the number of toys touched and used appropriately by the children in the period up to a decision about choice of toy, supports the null hypothesis to only a limited extent. Although there were no differences between the groups of children in the number of toys they touched, the autistic children used appropriately significantly more toys than the other children. Neither of these results would be predicted by the research hypothesis.

The data presented in Table 53. showing which toys were chosen by each group, is not suitable for statistical analysis; on inspection marked differences in choice of toy between groups are not apparent. The only indication of a difference between the autistic and other groups is in less scatter of choices for the physically handicapped, emotionally disturbed and subnormal children. However, these results, although interesting, cannot be held to clearly support the research hypothesis.

G.1. Number of toys touched.

Table 51

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between P.H., Em.D. & Sub.
Significance Values	.50	.46	.30

(P.H. group touch most, Em.D. least).

Number of toys used appropriately.

Table 52

	Kruskal-Wallis between	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between P.H., Em.D. &Sub.
Significance Values	.10	.019	.20

(Autistic group use most, Em.D. least).

G.2. Toys chosen.

Table 53

Toy		Autistic	P.H.	Sub.	Em.D.	Totals	
Noisy	(Mouth organ	1.5)$_2$	0)$_0$	0)$_0$	0)$_1$	1.5	3
	(Flute (1)	.5)^2	0)^0	0)^0	1)^1	1.5	
Dirty	(Bubble liquid	1)$_2$	0)$_1$	3)$_4$	2)$_2$	6	9
	(Plasticine	1)^2	1)^1	1)^4	0)^2	3	
Aggressive	(Gun	0)$_0$	2)$_2$	0)$_0$	0)$_0$	2	2
	(Dagger	0)^0	0)^2	0)^0	0)^0	0	
Sexual	(Squeaker	1)$_2$	0)$_0$	0)$_1$	0)$_0$	1	3
	(Mouse	1)^2	0)^0	1)^1	0)^0	2	
Oral erotic	(Pipe	0)$_1$	0)$_1$	0)$_0$	0)$_1$	0	3
	(Bottle	1)^1	1)^1	0)^0	1)^1	3	
Oral sadistic	(Crocodile	0)$_0$	1)$_1$	1)$_1$	1)$_1$	3	3
	(Tiger	0)^0	0)^1	0)^1	0)^1	0	
Sublimatory	(Pencils	0)$_1$	0)$_1$	0)$_2$	0)$_4$	0	8
	(Jigsaw	1)^1	1)^1	2)^2	4)^4	8	
Controlling	(Policeman	1)$_1$	.0)$_4$	0)$_1$	0)$_1$	1.0	7
	(Traffic signs)	0)^1	4.0)^4	1)^1	1)^1	6.0	
Mirror		0	0	0	0		0
None		1	0	1	0		2
		10	10	10	10		40

Footnote (1) Decimals refer to divided choice

Attitude to Outcome

The ratings of mothers and children in this dimention are shown in the tables below. For both mothers and children the autistic group was compared with each of the other groups separately using Fisher Exact Probability Test. For both mothers and children the atypical cases with negative attitudes were excluded from the analysis and the number of cases with a positive attitude (both some positive and strong positive) compared with the number having a passive attitude.

These results suggest that the null hypothesis should be rejected; they provide some support for the research hypothesis that the mothers and children in the autistic group have a less positive attitude to the outcome of the interaction. However, the mothers of the autistic children have an attitude significantly less positive than the mothers of only the physically handicapped and subnormal children, while the autistic children differ significantly in this respect only from the subnormal children (if the negative response of one subnormal child is included in the analysis as a passive response, then this difference is no longer significant).

H.1. Attitude of Mothers to Outcome.

Table 54

Groups	Numbers rated in each category				
	Strong Negative	Some Negative	Passivity	Some Positive	Strong Positive
Autistic	1	0	5	4	0
Physically Handicapped	0	0	1	8	1
Emotionally Disturbed	0	0	3	7	0
Subnormal	0	1	0	8	1

Groups compared on positive and passive attitudes:-

Autistic & P.H: $p = .05$

" & Em.D: N.S.

" & Sub: $p = .025$

Attitude of Children to Outcome.

Table 55

Groups	Numbers rated in each category				
	Strong Negative	Some Negative	Passivity	Some Positive	Strong Positive
Autistic	0	0	5	5	0
Physically Handicapped	0	0	1	7	2
Emotionally Disturbed	0	0	2	7	1
Subnormal	1	0	0	7	2

Groups compared on positive and passive attitudes:-

Autistic & P.H: N.S.

" & Em.D: N.S.

" & Sub: $p = .025$

Control of Situation

For hypothesis 1.1. the observer ratings for each group are shown below. For hypothesis 1.2. table 57. gives the comparisons between groups for score on the Index of Difficulty of Control over the Situation; this is computed from raw data for each mother-child pair taken together for the two periods of up to and after the making of a decision.

The analysis of the results of the computation of Bales' Index of Difficulty of Control over the situation supports the null hypothesis I.2., and does not support the research hypothesis that the autistic mother-child pairs will have particular difficulties in this area. Table 56. shows observer ratings for who was in control of the situation; this data is better suited to inspection than statistical analysis and inspection gives some support to the research hypothesis by indicating that the mothers in the autistic group were less in control of the situation than the other mothers.

I.1. Situation Controller.

Table 56

Groups	Number rated in each category: Mother in Control	Child in Control	Observer in Control
Autistic	5	1	4
Physically Handicapped	9	0	1
Emotionally Disturbed	8	1	1
Subnormal	9	1	0

I.2. Index of Difficulty of Control over the Situation:

(Number of responses in category 9: 'Asks for Suggestion'

Number of responses in category 9 + number in category 4: 'Gives Suggestion')

Table 57

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups
Significance Values	.90	.12

Table 58

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups
Significance Values	.80	.29

Involvement of the Observer

The data relevant to this hypothesis was analysed by comparing the groups with each other as described before (in section on Disagreement and Expression of Disagreement), for the total number of interactions categorised in Bales' System directed to the observer by both mother and child (taken separately), both up to and after decision making, and for the total number of interactions categorised in Bales' System shown by the observer either in response to the mother or the child, or shown spontaneously. Because this was not one of the major or initial hypotheses the simpler form of analysis, using raw data only, was used.

The analysis shown in tables 58. and 67. are based only on raw data. From previous tables where other forms of the data are used which correct for length of time for each interaction period and total number of interactions in any interaction period, it appears that the three forms of data usually give similar results, although in some few cases, use of raw data gave results of a different order of significance. For this section, therefore, only results where the significance value is .02 or beyond will be considered sufficient to reject the null hypothesis.

On the above basis the results suggest that the null hypothesis should be rejected; the autistic group varies from the others in that the observer responds more to the mothers of that group than to the mothers in the other groups, throughout the interaction,

and in that after a decision is made the mothers of the autistic group direct communications to the observer more than do other mothers, while the autistic children do so less than the other children. (It is not only after a decision is reached that the mothers in the autistic group direct more communications to the observer than do other mothers, they do so also before a decision is reached; however, this variation is not peculiar to them as the mothers in the other three groups also vary significantly between each other in how much they do so).

These results tend to support the research hypothesis of greater observer involvement in the autistic group.

J.1. Number of interactions shown by Mother to Observer.

Table 59

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D., P.H. & Sub.
Significance Values	.01	.0001	.01

(Autistic group shows most; Emotionally Disturbed group least)

Table 60

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic other 3 groups	Kruskal-Wallis between Em.D., P.H. & Sub.
Significance Values	.20	.01	N.S.

(Autistic group shows most).

J. 1. Number of interactions shown by Child to Observer.

Table 61

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D. P.H. & Sub.
Significance Values	.50	.20	N.S.

Table 62

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D. P.H. & Sub.
Significance Values	.20	.018	.70

(Autistic group shows least)

J.J. Number of Interactions shown by Observer in response to Mother.

Table 63

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D., P.H. & Sub.
Significance Values	.10	.008	.50

(Autistic group shows most)

Table 64

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D., P.H. & Sub.
Significance Values	.20	.017	.80

(Autistic group shows most)

J.1. Number of Interactions shown by Observer in response to Child.

Table 65

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D. P.H. & Sub.
Significance Values	.70	.223	N.S.

Table 66

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D. P.H. & Sub.
Significance Values	.70	.24	.001

(Emotionally Disturbed group most; Autistic group least)

J.1. Number of Interactions shown spontaneously by Observer.

Table 67

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D., P.H. & Sub.
Significance Values	.30	.22	N.S.

Table 68

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D. P.H. & Sub.
Significance Values	.50	.22	N.S.

Index of Difficulty of Communication

Index of Difficulty of Evaluation

These indices were calculated from raw data for each mother-child pair (taken together) for the periods up to and following the making of a decision. Comparisons between experimental groups on the indices are shown in tables 69. - 72.

This analysis indicates no difference between the groups on Bales' Index of Difficulty of Communication, which contradicts the research hypothesis which would predict differences.

The Index of Difficulty of Evaluation is significantly higher for the autistic group in the period before a decision is made, which would be consistent with the results presented in tables 20. and 21., which show that the autistic children give significantly fewer responses categorised as 'Gives Opinion' in this same period (but do not differ later). That the higher score of the autistic group on this Index for this period is likely to be due to less giving of opinions by the children, is suggested by the lack of differences between groups in the amount of asking for opinion by mothers shown in table 73., and the small amount of asking for opinions shown by the autistic children (see group interaction profile, Fig.26.), and either a similar or greater amount of giving of opinions by the mothers in the autistic group for this period (see group interaction profile, Fig.26). In the period after a decision is made, the groups do not vary on this index. These results support the research hypothesis which predicts that the autistic group will differ from the others in scores on the Index of Difficulty of Evaluation.

K.1. Index of Difficulty of Communication

Number of responses in category 7: 'Asks for information'

Number in category 7 and number in category 6: 'Gives Information

Table 69

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups
Significance Values	.50	.38

Table 70

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups
Significance Values	.30	.24

K.2. Index of Difficulty of Evaluation

(Number of responses in category 8: 'Asks for Opinion') ÷ (Number of responses in category 8: + number in category 5: 'Gives Opinion')

Table 71

i. Up to decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups	Kruskal-Wallis between Em.D., P.H. & Sub.
Significance Values	.20	.02	.70

(Autistic group higher)

Table 72

ii. After decision

	Kruskal-Wallis between 4 groups	Mann-Whitney between Autistic & other 3 groups
Significance Values	.20	.37

Y. Mothers' responses in category 8: 'Asks for Opinion'

Up to decision

Table 73

	Significance Values	
	Kruskal-Wallis for 4 groups	Mann-Whitney between Autistic & other 3 groups
Data Time	.80	.45
Data Total No.	.80	.36

G. Discussion

The results of this investigation produce some evidence in support of all the research hypotheses derived from the literature, with the exception of that concerned with the child's attitude to toys. However, not all the evidence is in the form predicted, and not all the predicted form of interaction occurs throughout the whole period observed, nor for both autistic children and their mothers.

In discussing the results, it is of interest, therefore, to consider when the autistic group differed from the other groups, and whether the child or mother differed.

Consideration of the significance of the results in the light of the theories present in the literature, and in the light of factors occurring in the investigation which might tend to invalidate the results, will then follow.

1. Nature of the support of the Research Hypotheses

The evidence from the study on difficulties in decision making is not decisive; however, the autistic group tended to have more difficulty in reaching agreement as shown both by whether agreement was rated as clearly present, and as shown by the length of time it took to reach a decision, and to complete the interaction. This result tends to agree with the results of the studies by Ferreira (1963) and Ferreira and Winter (1965), when abnormal families, including those with a schizophrenic member were found to take a longer time than normal families over decision making; when this time for families with schizophrenic offspring was considered together with how far their decisions fulfilled individual choices, these families were shown to be least efficient. ("Efficiency" in the present study can refer both to decision time and ability to agree on a toy).

However, the present finding that the emotionally disturbed group were quickest and the autistic group slowest, does not agree with the Ferreira studies in which the order from quickest to slowest was normal, delinquent, schizophrenic, maladjusted.

The results supporting the hypothesis of less overt disagreement in the presence of more covert disagreement in the autistic group, when compared with other groups, show less agreement but only the same amount of disagreement in the mothers only, and mainly after decision making. This result is not as expected (that is, expected result was less disagreement and the same amount of agreement), but nevertheless it supports the research hypothesis and in particular supports theories about this

pattern of agreeing and disagreeing being primarily in the parents.

The results related to the hypothesis about directiveness and inability to allow autonomy suggest that it is only after a decision that mothers of autistic children differ in these ways, while it is before a decision that the children give fewer opinions, although they are asked for them as often as are other children. The results do not give indications of whether these findings are related or if so whether it is the autistic children's lack of opinion giving that leads the mothers to be more directive, or whether in the earlier part of the interaction the mothers are allowing their children less autonomy in some way not revealed by the present analysis, and their behaviour in this respect is only revealed by the methods of the investigation after decision making. It may simply be that the autistic children are less interested in the task than are the other children, and this is then reflected in the period of the interaction when interest in the task is most shown by the other children, that is, in the decision making period. It is interesting that it is the mothers of the emotionally disturbed children who are most directive in the simple manner of giving most suggestions, before a decision is made.

The hypothesis referring to less reality-oriented behaviour, (reality represented by the task) in the autistic group is supported only for the children who show more non-task related behaviour throughout.

Where tension is concerned, however, both mothers and children in the autistic group show tension throughout

the interaction; the children also show tension release throughout, although the mothers only show this after a decision has been reached. The tension release shown by the children, however, was mainly in the form of playing with the toys; this was the main activity of these children, and it may be that its categorisation as tension release leads to a misunderstanding of its significance.

When the expression of negative feelings or absence of supportive responses is considered, the autistic group show an interesting pattern. They do not differ from the other groups before a decision is made, but in the period after its achievement the mothers show less solidarity or warm supportive behaviour, while the children show more antagonism and hostility; together the pair express a higher proportion of their social-emotive behaviour in a negative manner than do the other groups.

The unexpected result that the autistic children used appropriately more toys during the period up to the choice of toy, while not touching more toys than the other children, can be related to the result of their greater display of tension release (through their use of toys). "Used appropriately" was judged by the observer and such behaviour usually consisted of exploring or playing with the toys. An analysis of the type of using was not made so that direct comparison with play patterns reported by Loomis, Hilgeman and Meyer (1957) cannot be made. It may be that an analysis of the use of toys would reveal differences in expected directions (for example, greater preoccupation with small details, perseverative and destructive play, lack of interest in the toys for themselves), between the autistic and other children, but on this measure

the autistic children are simply shown to use more toys than the other children. They did, of course, show less interest in the task (gave fewer opinions, more non-task related behaviour); this may be more relevant to the question of appropriate use of toys, than the measures used here.

The attitude to the outcome of the situation shown by the autistic children and their mothers clearly supports the research hypothesis only for the mothers, although there is a tendency for the children to similarly show less pleasure and positive feelings. It is interesting that here again the mothers of the emotionally disturbed children do not differ from the mothers of the autistic children.

The ratings on control of the situation do not support the theories about over-dominant mothers of autistic children; they tend rather to support the hypothesis of less contact with the reality of the situation.

The prediction that the observer would be more involved in the interaction with the autistic group is supported; the involvement only takes the form of interaction between the mother and the observer however, (the autistic children interacting less in the period after decision making than the other children). Possibly the finding that the observer did not intervene spontaneously more often in this group than in the others suggests that the greater observer involvement found in this group was initiated by the mothers.

To summarise the differences found between autistic child-mother pairs and differently handicapped child-mother pairs:- the autistic children throughout show more non-task related behaviour, more tension and more tension release; in the period before a decision is made they also differ from

the other children by giving fewer opinions and using appropriately more toys; they also differ in the period after the decision is made, by showing more hostility, tending to have a less positive attitude to the outcome, and by interacting less with the observer.

The mothers of the autistic children show throughout more tension, more involvement with the observer, and less control of the situation; they also show more difficulty in overtly expressing disagreement, although this is more marked in the period after decision making. In this later period too, they also differ by being more directive and allowing less autonomy, by showing more tension release, less supportive behaviour, and a less positive attitude to the outcome.

As a pair the autistic children and their mothers tend to show greater difficulties in decision making, and more negative feelings.

The three other groups of handicapped children and their mothers vary among themselves on only four occasions; in the giving of suggestions by mothers before a decision is made (when the mothers in the emotionally disturbed group give most, followed by those in the autistic group, the subnormal group and finally the physically handicapped group); in the amount the mother communicates to the observer before decision making (mothers in the autistic group most, followed by those in the subnormal group, the physically handicapped group, and least by the mothers in the emotionally disturbed group); in the amount the observer responds to the child after decision making (to the emotionally disturbed children most,

followed by the physically handicapped children, and equally to the subnormal and autistic children); there was also a tendency (approaching significance) for the mothers to vary in the showing of solidarity after decision making (mothers in the physically handicapped group most, subnormal group next, emotionally disturbed group next, and autistic group least).

It is of interest that three of these four ways that the mothers in the handicapped group vary significantly between themselves are also ways in which the mothers of the autistic children also vary (although in the two ways considered meaningful for the autistic group, they vary even more extremely). It would appear that among the dimensions considered these are particularly significant.

The finding that the three non-autistic handicapped groups do not vary significantly among themselves on more than three (and possibly four) dimensions considered particularly relevant to the autistic group, whereas variation between all groups due to the autistic group only, occurs more often, suggests that in a general sense the autistic group is very different to the other groups (that is, even apart from the specific hypotheses about how they will differ).

Comparisons between these results with the emotionally disturbed, physically handicapped and subnormal child-mother interactions cannot meaningfully be made with those reported in the literature, since this investigation was not designed for such a comparison and does not, therefore, provide the relevant information. However, it

is interesting to note the few possible comparisons, Mann (1957) reported higher "Parental Attitude Research Instrument" scores for mothers of cerebral palsied children when compared with mothers of normal children on scales of Strictness, Intrusiveness, Encouraging Verbalisation. These may perhaps be compared with mothers giving suggestions during toy choosing, on which measures mothers of physically handicapped children were least directive. Thurston's finding (1960) that mothers and close relatives of institutionalised cerebral palsied children were hostile, is not supported by the present finding that after decision making mothers of physically handicapped children were most supportive; this is compatible with Thurston's report of nearly a quarter of his parents referring to their overindulgence of their child. Frederick's (1957) report of mothers of retarded children scoring higher on Shoben's Parent Attitude Survey Scale of Dominance, when compared with mothers of normal and physically handicapped children does not agree with the present finding of mothers of subnormal children making almost as few suggestions about toy choosing as the mothers of physically handicapped children.

2. Consideration of the Results in Relation to the Theories in the Literature

The research hypotheses were derived from the literature and in this section the results of the investigation will be discussed in relation to the literature, and the assumption will be made that the predictions cast about the present investigation were accurate representations of the theories.

Two main areas of theory are related to these results; one is the area concerned with difficulties over agreement, and the expression of disagreement, and therefore, over decision making, in families with a schizophrenic member as discussed and reported by Bateson et al (1956), Weakland (1960,) Bowen (1960), Lidz et al (1963) etc. The second area is that of disturbed, difficult, hostile relationships between mother and autistic child as discussed by Kanner and Eisenberg (1959), Goldfarb (1959, 1961), etc., and Bettleheim (1967). These two areas can be seen as related to each other since the original concepts of Bateson et al (1956), Wynne (1958), Bowen (1960) and Lidz (1963), later interpreted in terms of communication difficulties were based on observations expressed in psycho-dynamic terms of interpersonal conflicts within families. The two areas, in fact can be understood as an expression of similar observations within two different conceptual schemes. (Wynne's recent work (1968) can be seen as carrying one conceptual scheme towards its limits, while Bettleheim's work (1967) carries the other scheme toward its limits).

Occasionally workers using the one conceptual scheme can be seen as almost beginning to use the other conceptual scheme, as when Bettleheim (1967) writes of "The reasons why communication breaks down ....." (page 73).

(The third conceptual approach, that of the organic basis for impairment of the ability to interpret correctly incoming information can be understood as part of Wynne's conceptual scheme in which he allows for both genetic and experiental influences on "response disposition").

In linking these two (or three) main areas of thinking together, an assumption is being made that autism is on the same dimension as schizophrenia. This is disputed by some, for example Rutter (1968), while Singer and Wynne's 1963 paper suggests that if they are on the same dimension, they are some way apart. However, many other writers make a similar assumption (as discussed before) while some, for example Creak (1969) and Bender (1959), use "autism" as a term to describe a sympton which occurs in many conditions. The assumption that is also made that childhood schizophrenia is related to schizophrenia appearing in later life, is less disputed; all the work on communication difficulties appears to make this assumption. The first of these two assumptions will be considered later in the discussion.

Returning to the results of the present investigation, it appears that in the area of communication difficulties, greater difficulties over expressing disagreement and over making decisions were present in the autistic group. In the area of pathological relationship

a more hostile, less supportive, tense relationship was present especially after the decisions were made; difficulties over the child's autonomy and more directiveness in the mother were present, and a less reality based or less appropriate coping with the situation was also present.

However, some of these difficulties occurred after the decision was made; the results do not show whether this is because the autistic pairs felt less need to behave in a socially acceptable manner, and felt less under observation once they had completed the task presented, or whether because typical feelings more readily emerge in this period, or whether because the autistic pairs behaved in the same way throughout, whereas the other three groups altered their behaviour after agreement was reached. Leaving aside the results which relate only to the end of the interaction, it is the expression of more tension release and less solidarity, more directiveness and less respect for her child's autonomy, by the mothers and the expression of more hostility and less interaction with the observer by the autistic children which occur only in the second part of the interaction. The expression of fewer opinions by the child fails to continue into this second half. It is tempting but not logical to ascribe most of these differences either to the child's lack of interest in the task or to a relaxation in efforts to produce socially desirable behaviour on the part of the mother, reflected also in the child's behaviour. However, further investigation would be necessary in order to understand why these before and after differences occur in this way.

Thus the results of the investigation provide some evidence in support of the theories of communication difficulties, and of "frozen", hostile tense relationships presumably leading to more confused, less appropriate behaviour and greater dependence on an outsider, in the interaction between parents and their autistic children. Theories about less interest in toys shown by these children were not supported by the investigation.

The results suggest that the particular nature of these mother-child interactions is not the result of handicaps per se, but are related to the autism itself, (it may be, as mentioned before, that the autistic group were nearer normal than the handicapped group, or that it is the severity, rather than the nature of the autistic child's handicap that is relevant; these points will be discussed in the next section). The results do not, however, provide information about the question of the genesis of abnormal interactions or transactions, and relationships around an autistic child. They can be understood either as resulting from the particular nature of the autistic child's handicap or as causing the handicap. Thus it could be argued that a child with an inborn faulty contact with reality will show less interest in a task such as the one presented, and will merely occupy himself with whatever objects are available showing customary tension, and antagonism when he has been kept for some time in the uninteresting situation. A mother might be expected to react to this with tension, an effort to gain help and support from an observer, and, when the task is completed signs of relief; as the situation continues she might

begin to respond to her child's antagonism with a withdrawal of warm supportive communication and efforts to control him better while attempting not to provoke him further by showing her disagreement. A couple of this type, with a child quite uninterested in the reality of the situation, might be expected to show less realistic behaviour, more difficulty in deciding about a toy, and less pleasure at the end of the interaction.

Alternatively it could be argued that a tense mother, unable to keep control of situations, tending to exclude her child/by looking to an outsider for support, liable to express to her child her customary "double-binds", lack of support, directiveness and overpossessiveness (or failure to allow autonomy) as soon as she feels free to do so, might well cause her child to be uninterested in the task at hand, show tension, withdraw into playing with nearby toys, thus withdrawing also from the observer, and finally openly expressing hostility.

3. Factors affecting Reliability and Validity of the Investigation

1. One factor not so far mentioned, which could be used to explain some of the differences found between the autistic and other groups, is that of the observer's knowledge of diagnosis when rating the interactions. Ideally an observer should not have such knowledge but this ideal would never be possible since even an inexperienced observer would notice facts like physical handicaps, although emotional disturbance and slight degrees of subnormality might not be recognised.

Observer bias may well have affected some ratings in the direction of bringing them into line with expected results. However, not all hypotheses were calculated on single ratings, and it is unlikely that observer bias could have operated to control the results of complicated groupings of ratings, although it might have affected individual ratings used in the groupings.

The results based on observer ratings particularly those not dependent on grouping of ratings are, therefore, most suspect. This includes ratings of the presence or absence of agreement, of choice and situation control and of attitude to outcome.

Considering the ratings based on Bales' system, it is unlikely that observer bias would have operated for only part of the interaction. Thus only the finding of more tension, more tension release and more non-task related behaviour in the autistic children, and more tension in their mothers are truly suspect. The finding of difficulty over expressing disagreement overtly is not suspect since the results, although supporting the research hypotheses, were

not in the expected form.

The results which, from this analysis, may have been affected by observer expectations, must be considered with caution in any conclusions drawn from this investigation.

2. A second factor affecting the reliability of the present findings, is the variation in the conditions under which the toy choosing was carried out. Ideally, the situation and the expectations of a situation should be the same for all pairs in such a study. In practice this probably amounts to all pairs having the same reason for putting themselves in a situation. In the present investigation, although efforts were made to create similar situations, the reasons for seeing a psychologist varied, mainly between the five autistic children and their mothers seen at an education unit, and the rest of the sample. These five mothers and children may have been more anxious about the procedure because it was unexpected, or they may have been less anxious because they were not seeing a psychologist in order that her findings would contribute toward a decision on their child. These two possibilities might perhaps cancel each other out over the five cases; however, the behaviour of the mothers at least, suggested more anxiety in them over the session with the psychologist than in the others mothers in the study. This again would indicate caution in accepting the findings of the mothers of autistic children showing more tension.

3. The main assessed pre-investigation variable between the four sample groups, besides diagnosis, was intelligence (I.Q. and mental age). If this variable were

to affect the toy choosing interaction, it might be expected to do so by influencing toy chosen or speed of choosing. However, marked differences between toy chosen were not found; while speed of choosing varied, it was not directly related to intelligence level. No other relationship with intelligence level emerged from the analysis of the results; had they done so, they would be irrelevant since low I.Q. as shown on standard tests is one of the major handicaps in subnormality and a feature of the handicaps for many autistic children.

However, I.Q. is relevant to the study for other reasons and leads on to the fourth variable to be discussed.

4. In the present investigation the mean I.Q. for the autistic group of children was 67. This israther high for a group of children said to be suffering from early infantile autism, although it is not much higher than the mean of 62.5 found with 53 testable (10 untestable in total sample of 63) autistic children in Rutter's study (Rutter et al 1967). However, Kanner (1957) reports a normal range of potential intelligence, the intelligence assessment of many of the children in the present study was based on their co-operation on only a few subtests, presumably those they found easiest. Thus it was probably an assessment favourable to them.

However, the question of criteria for diagnosis in these children is raised by the I.Q. results. Although all children were referred for testing as autistic, it has already been mentioned that one child in this group was later found to have been re-diagnosed as psychotic. The criteria

for inclusion in the sample was a diagnosis of autism by an experienced consultant child psychiatrist, but there is a strong probability that the consultants involved differed in their criteria, since differing views on diagnosis are found throughout the literature. This raises again the question of autism as a separate entity or as only a symptom often found in childhood schizophrenia. It may be that in one sense the present study should refer to childhood schizophrenia rather than infantile autism. The fact that some theories about "transactional" variations found in families with a schizophrenic member, tend to be supported by the present study, would certainly not conflict with this view. However, this is not a strong argument since Singer and Wynne (1963) found at least some differences between parents of autistic children and parents of older schizophrenics.

5. A fifth variable that can usefully be discussed, is that of how far the translation from the theories presented in the literature, to predictions in the hypotheses relevant to the present investigation, were correct. It is possible here to incur Bales' criticism of "methodological naivety" (1951), and possibly this would be a just criticism of at least one hypothesis, that of manipulation of toys reflecting interest in the toys in the usual sense.

Ideally, in order to control this possibility, several measures of a prediction at different levels from the various theories should be made. However, a larger study would again be necessary for this.

6. A larger study should involve observation of whole families, since in the present investigation, the

assumption was made in testing out the two "communication theory", hypotheses (although not for the other hypotheses) that a mother and a child are representative of a total family. This may be so in some cases but some of the literature, particularly that of the "communication" theorists, for example, Wynne (1968) emphasises the total role played by both parents together.

7. Consideration of how far the predictions reflect the original theories, ushers in another variable to be considered. That of the validity and reliability of the main method used for processing the interactions (the validity of the subjective ratings is of less importance since great significance has not been attached to them). Bales' system may not be entirely valid or reliable, especially when used without the training procedures he recommends. However, it is the most valid and reliable observation method available, and is reported to be of value in observing personality (Borgatta and Bales (1955 a), and since the findings of the present study will be considered only tentative and in need of substantiation, this variable is to some extent allowed for.

Borgatta and Bales (1955 b) report unique characteristics for two person groups, however, since in the present investigation two person groups are not compared with different sized groups, this is not relevant.

8. The limitation of the present investigation, by the small numbers of individuals in each sample group, has already been recognised; clearly a larger or several larger scale investigations to support the present indications would be necessary before definite conclusions could be drawn.

9. Finally two factors already mentioned will be

discussed, Because no normal group was included in the investigation, a further study would be necessary to find whether the autistic child-mother pairs were in fact behaving normally, while the other group of handicapped child-mother pairs were behaving abnormally. Clinical reports and experience would not support this hypothesis, neither do the comparisons between the present findings and earlier findings (Mann 1957; Frederick 1957; Thurston 1960). However, these comparisons do not provide a strong contradication as they are not reliable. The study which does support the possibility of the autistic group being nearer normal than the other groups is that of Klebanoff (1969); he found that mothers of schizophrenic children had less pathological attitudes than the mothers of brain injured and retarded children, although both these groups were more pathological in attitude than the normal group. However, this study used the Parental Attitude Research Instrument to assess maternal attitude and as Lytton (1969) has suggested, questionnaire approaches to assessing attitudes and interaction are not generally found to be reliable. Also Klebanoff's mothers had schizophrenic, not autistic children, and Singer and Wynne's (1963) work suggests that there may be some differences between the parents of these two groups. Assuming that the children in the present study are autistic in the sense the term usually means, then Klebanoff's findings were based on a less reliable method than that reported here, and on a not strictly similar group. However, it is interesting to consider the two findings in Klebanoff's study which are comparable to the present investigation; he found that both his clinical groups had more pathological scores in comparison

to the normal groups on the scale measuring warmth of mother-child relationships and recognition of the child's autonomy; this supports the present findings for the autistic group only; Klebanoff also found a tendency for the brain damaged group to score higher than the schizophrenic group on the harsh-primitive attitude scale; this is not supported by the present findings.

10. The last variable to be mentioned again is that of severity of handicaps. The present study is designed to compare autistic child-mother interaction with the interaction between other comparable children and their mothers, in a standard situation and when handicap is controlled. It may be, that in the present study the autistic children were more severely handicapped than the emotionally disturbed, subnormal or physically handicapped children, so that the variable of handicap was not adequately controlled. This possibility must be considered when drawing conclusions from the investigation.

II. Conclusions

The results of carrying out this investigation suggest that the present method employed is of value in testing out hypotheses about interpersonal communications involving autistic and differently handicapped children.

Assuming adequate control for severity of handicaps and assuming that the autistic child-mother pairs did not behave more normally than the other pairs, then the results give some support to theories about the presence of abnormal interactions in the autistic child-mother relationships, and in families with a schizophrenic member, and contradict suggestions that such abnormal interactions result from the presence of a handicapped child.

One of the main theories supported is that concerned with difficulty in expressing disagreement, while the expectation of difficulty in making decisions is confirmed to some extent; these expectations were derived from observations originally expressed about families with a schizophrenic member.

Theories about uneasy, hostile mother-child relationships in which the mother does not grant the child autonomy, and mutuality is not established, are also supported. Mothers were not shown to be more controlling of the situation, although they were more directive towards their child; mothers of the autistic children tended to be less well in control of the situation as if the pathology of the relationship interfered with their contact with reality; the autistic children were less in contact with the task. The mothers communicated to the observer more than the

mothers in the other groups.

The investigation did not provide any information to bear on the question of whether abnormal relationships cause, or are caused by autism, nor on whether autism is a separate entity or merely a symptom present in a variety of conditions.

The support for theories afforded by this investigation is only tentative. In particular the findings of an unusual degree of tension, tension release and non-task related behaviour in the autistic children, and of tension in their mothers should be viewed with caution. Further studies would be needed to substantiate the present indications. In these studies more stringent criteria for diagnosis, larger numbers, better control of the situation, a wider range of non-autistic handicaps, the inclusion of a normal group, more measures at different levels of the research hypothesis, and larger and more varied samples of behaviour studied, would all be needed.

In particular longitudinal studies involving repeated observations of interaction in a standard situation by an independent observer would usefully be correlated with clinical assessment of improvement or worsening of the condition of the ill member of the family.

It is clear from this study that the technique of direct observation of family interaction has a great deal more to offer than has yet emerged.

Appendix

This section includes a brief description of the interaction during toy choosing for one case in each of the four groups. Fairly short interactions were chosen for description here. As described in the section on general observations on the results, the interactions of the physically handicapped and subnormal boys are representative of their groups, while that of the emotionally disturbed girl demonstrates some of the features shown by her group; the interaction involving the autistic boy is about midway along the dimension of bizarreness as shown by this group.

1. Interaction between a Physically Handicapped Boy and his Mother

Philip was seen when he was six years seven months, having been referred by a paediatrician for an intellectual assessment. Philip had a mild degree of hypotonia; he had been progressing poorly at school and the intellectual assessment indicated that this might have been related to special handicaps which hampered his efficiency on performance, and tasks involving visual-motor skills. His I.Q. on the Stanford-Binet was 86, with indications that he could function within the average range on purely verbal tasks.

Philip was a quiet, passive child who only showed liveliness during the toy choosing period. His mother seemed a pleasant, kindly, woman, cheerful in spite of being somewhat downtrodden.

The couple readily accepted the toy choosing task and Philip immediately reacted to the toys while his mother took over a pleasantly directive, supportive and questioning role in relation to Philip. She began by asking "What do you reckon?" They enjoyed exploring the toys together, with the mother being quite controlling with comments like "Oh, you don't want that" (Philip agreed), and "Don't put that in your mouth because somebody else might want that, if you don't want that". In this way the flute, crocodile, mouse and mouth organ were considered, the last two suggestions coming from the mother. Then the mother said "What toy would you like to take away if you took a toy away"? Further exploration occurred with the mother asking "What's that" about the various toys; the jigsaw and traffic signs were considered

in this way. She became a little impatient with Philip's slowness in choosing and asked him two or three times what he wanted adding "Come on quick", the last time. Philip then whispered his choice of the crocodile; the mother called this an alligator but was corrected by Philip. The mother then asked Philip several questions about the crocodile and he told her how it bites and hurts. The mother then announced the decision with "He wants a crocodile". As Philip was about to go the mother said to him "Where you going now", and to the observer with a laugh "He's got his toy, now he's going to go". When the observer assured the mother that this was correct and the toy was for Philip, the mother sounded very pleased and thanked the observer. The couple then left with Philip's obeying his mother's instruction to say "Goodbye", and when she had said"Goodbye" herself, saying to Philip "There you are, you're having Christmas already".

This interaction lasted 3' 1" overall, with Philip making his choice after 1' 48" and a decision being agreed upon after 2' 16". Philip used only the crocodile and mouse appropriately, the other toys he considered, he did not use at all; Philip controlled the choice and his mother controlled the situation; both were rated as showing some positive feelings about the outcome of the situation.

2. Interaction between a Subnormal Boy and his Mother

Henry was referred by his G.P. to the psychiatry department because of his slow progress. He was seven years old when seen, and it became apparent during the testing session that his mother had manipulated her G.P. into the hospital referral following her anger at suggestions from his school that he should be considered for an E.S.N. placement; his test score of I.Q. 69 on the Binet appeared unreliable, and possibly influenced by a recent Binet administration.

Henry was a friendly, affectionate child, whose speech was difficult to understand, because of a nasal blockage (possibly due to asthma). His mother was a voluble, self-assertive, rather suspicious West Indian woman who appeared to blame Henry's problems on a "bad blood transfusion" as a baby, or the fact that he was disliked at school, and on the fact that he had to miss school because of his asthma.

During the toy choosing, Henry's slightly younger brother was present; he was settled playing with some toys and was not involved in the actual choosing, although he shouted one or two words about his playing, and possibly became upset at not having been given a toy.

When the instructions had been given and the case of toys opened, Henry almost immediately said "That one", taking out the crocodile. His mother asked if he wanted that, and in the absence of a response from Henry she suggested the jigsaw, but announced "He has chosen one now" (that is, the crocodile) to the observer. When the observer did not respond, she began asking Henry the name of his

choice, taking on a teaching role and turning to the observer for corroboration. She then inquired about the tape recorder showing anxiety about how much of what she had said had been recorded. This introduction of a different theme was taken as the end of the interaction.

Thus the mother was very much in control of the situation; she took Henry's immediate choice as his final choice and did not really encourage him to explore the toys any further, but took up a somewhat severe attitude toward him, and quite quickly terminated the interaction. (Her speed of doing so may have been related to the sibling's protest at not receiving a toy).

After his immediate choice Henry was very passive and quietly pleased; he handled only the crocodile. He seemed overawed by his mother.

This total interaction lasted 38". An agreement on the decision was plainly reached after 17", while Henry made his choice after 6". While the mother controlled the situation, the child controlled the choice; both were rated as showing some positive feelings about the outcome.

3. Interaction between an Emotionally Disturbed Child and Her Mother

Janet was five years ten months when seen for psychological testing following her referral to the psychiatry department by a paediatrician, because of ?emotional disturbance and enuresis following a tonsillectomy at two and a half years. Her performance on the Binet was at an I.Q. level of 110.

Janet was a charming and confiding child with an adult manner for her age, which probably hid some anxiety.

She and her mother readily accepted the toy choosing situation which lasted in all only 45 seconds; a decision was made after 20 seconds, and Janet made up her mind about her choice after only six seconds.

As soon as the toys were shown to Janet, she reacted to them, looking at them all with an adult sounding "Mmmm". Her mother immediately asked her what she would like, pointing out that she liked "bubbles", at which Janet made her choice of the flute. Her mother showed surprise and a little disapproval of her choice, asking her why she wanted it, and saying in a disapproving tone "You know what'll happen with that, Daddy'll be playing it" (with a laugh). "Are you sure that's what you want?" There was a short interval when her mother seemed to be hoping that Janet would change her mind, since she appeared to feel that Janet had chosen badly; however, Janet kept to her choice, and after an inquiry about whether Janet was sure of her choice, from her mother, the couple communicated the end of the interaction around the toy choosing to the

observer. After the observer had said "Right, good that's all I want to ask you to do", Janet pointed out the baby's bottle saying "That's for a little baby, that's what..... would like". (Name not clear). Her mother then murmured fondly "Come along then", and after a brief interchange between mother and observer on the next appointment, the couple left.

Thus Janet did not use the toys, nor explore them although she carried her flute from the room. Janet controlled the choosing, while her mother controlled the situation; agreement was clearly present (even though the mother did not appear to approve of the choice, she gave in to Janet), and both were rated as showing some positive feelings about the outcome of the interaction.

4. Interaction between an Autistic Child and his Mother

Kerry was nine years and two months old when seen. He was reported by his mother to have developed normally until he was one year old, and then to have become autistic. He had attended a special hospital unit for autistic children for five years; this unit was not attached to the hospital where the present investigation was carried out and where Kerry was referred to the psychiatry department by a paediatrician for an intellectual assessment. He had earlier been assessed at age four when he was reported to show normal intelligence on the Merrill-Palmer scale; however, on the pre-toy choosing assessment, with some W.I.S.C. and Merrill-Palmer performance tests, he only showed an interest in block building tasks and tasks requiring the fitting of pieces into their correct places, and his effective level of functioning was estimated as being in the subnormal range (at an I.Q. level of approximately 65).

Kerry was a gentle, pleasant and alert boy, who made many odd hand movements. His mother was a pleasant, rather vague person who gave the impression of being unaware of the seriousness of Kerry's condition.

Both Kerry and his mother accepted the request for them "to do something else together", even though the mother had already said that she had to hurry away. When the toy choosing taskwas explained, the mother began naming the toys which Kerry immediately began taking from the suitcase. He took the crocodile, the jigsaw, the crocodile

again, the bubble liquid, the crocodile again. Then his mother suggested the flute; putting it to his mouth to blow - but he did not blow it. Kerry then took the jigsaw again and handed it to his mother, but continued looking in the case and took out the bubble liquid again. All these toys except for the flute were used appropriately. Kerry made mainly only slight murmuring sounds throughout, but when the jigsaw was chosen and afterwards,he made happy baby singing sounds. His mother told him what each toy he held was, prevented him from undoing the bubble liquid container, discussed his interest in the jigsaw with the observer, and interpreted it to her as the choice. She then asked the observer what was expected, and checked with Kerry what he wanted, patiently waiting for a response from him (during this time he laughed) then telling the observer what he wanted (Kerry sighed here), and what he thought of it. She then shut all the toys but the jigsaw away.

The time up to this decision on the jigsaw was 1' 43". However, Kerry gave the impression of wanting to go on exploring the toys (he tried to undo the jigsaw as well as the bubble liquid container), but he was prevented by his mother's announcement of his choice and shutting of the suitcase.

The interaction was ended by this shutting of the case by his mother, and asking Kerry if he was "coming to see Janet" (his sister). A brief discussion of the next test appointment initiated by the mother then followed, and as they were leaving his mother reminded Kerry to bring his puzzle which he was leaving behind, talking to him of how they would do it at home. Kerry appeared to understand his mother's

"Do you want your puzzle" as an instruction to sit down again at the table, as he did this on both occasions that she reminded him thus.

When the observer said goodbye as they were leaving, Kerry ran back and kissed her.

The time from the beginning of the toy choosingup to the introduction of the subject of meeting the sister was 3' 15".

In general, Kerry expressed his wishes behaviourably, while his mother expressed hers verbally. Although she asked his opinion on several occasions, she did not accept or allow his wishes at another level so that to the observer it appeared that her wish to leave quickly (to collect her daughter from school) seemed to overcome his wish to continue exploring. This decision was rated as being only implied and not clearly made. The mother was rated as being in control of toy choice and the situation, and both were rated as having a passive attitude to the outcome.

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