CLASSE ROOM PATTE RN S OF INTERACTION AND THEIR UNDERLYING
STRUCTURE: A STUDY OF HOW ACHIEVEMENT IN THE FIRST YEAR OF
SCHOOL IS INFLUENCED BY HOME PATTERNS OF INTERACTION.

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ABSTRACT

CLASSROOM PATTERNS OF INTERACTION AND THEIR UNDERLYING STRUCTURE: A STUDY OF HOW ACHIEVEMENT IN THE FIRST YEAR AT SCHOOL IS INFLUENCED BY HOME PATTERNS OF INTERACTION.

This study attempts to answer the question of why some children fail while others succeed in the first year of school when they appear to have at least average abilities and to come from family environments which seem, on the surface at least, to provide similar developmental opportunities.

The researcher observed in ten, four-year-old children's homes over a period of four days for each child and followed these intensive home observations with three-monthly, informal interviews with adult family members. Each child was observed in school intensively, on entry to school and every three months following entry until six years of age. Informal interviews were conducted with the class teachers every three months. During the 'intensive' home and school observations continuous hand-written narrative recordings of natural communication incidents were made of all the oral language and activities of the focal child, and of the language and activities of other children and adults when what they said and did was in the vicinity of the focal child. Notes were made of the location, atmosphere, body language, people present, and
focal objects throughout the time of the observations. Field notes were made each night after every home, school or pre-school visit. Each child was tested with a battery of tests on entry into school at five years, at five-and-a-half years and at six years. The gathering of these different data meant a wide variety of information about the child's total ecological environment was gathered.

A variety of ways for examining the data for a relationship between the behaviours and social experience of the child which occurred at home and measures of achievement in school were explored. These included a variety of language variables (e.g. exposure to question types, statement types, amount of talk) and measures of variables related to socio-economic status and home environmental factors (e.g. the HOME Scale, Caldwell & Bradley, 1979). Although some of these variables were significantly correlated with school achievement, it was not clear that the problem of why some children succeeded in school while others failed had been satisfactorily solved.

A more detailed analysis of the data was carried out which differed from most other psychological or educational studies in that it focused on the underlying structures of the natural socio-linguistic patterns of interaction in both home and school first year classrooms. The task was to describe observable social interaction in terms of the underlying structures which characterised the home sub-cultural experience of the children and the sub-cultural
learning (acculturation) required of the children in order to successfully adapt to the school environment.

The theory generated to explain this complex problem was adapted from a theory sometimes termed script theory, or schema theory. It was developed into a framework which could deal with both children's present school experience and the children's past experience of the structure of meaningful social interactions.

The results showed that the underlying structure of patterns of interaction (schema) which the children brought with them from home to school did indeed cause failure for some children at school. The children's experience of patterns of interaction in the homes which were like school patterns of interaction correlated 0.91 with achievement in school. The greater the variety of school-like patterns of interaction occurring in the homes the greater a child's achievement rate was likely to be.

This study has implications for classroom organisation, for the structure of classroom patterns of interaction and for young people who come from home ecological environments which are significantly different from the present classroom environment.

It is argued that children are our nation's most important resource and we need to examine with great care what we are doing to promote alternative classroom environments.
CHAPTER 1

INTRODUCTION

Our immediate need is not so much the construction of a set of categories which will throw a light on all the problems, but rather the schematic formulation of the problems in such a way that they may be separately investigated (Bateson, 1972, p.63).

1. THE PURPOSE

This study sought to discover why some children failed while others succeeded at school when all these children came from apparently similar home backgrounds and appeared to have similar abilities.

Interest in the problem of success and failure of children at school resulted from the researcher spending several years teaching a large number of children who were considered by many teachers to be failures, lazy, uninterested in school and low achievers. These children came from seemingly similar home backgrounds and appeared to have similar abilities when compared with the children who were viewed as successful. It became apparent that something happened at school which affected children’s achievement potential. This was highlighted by a series of classroom activities the researcher carried out with her class of nine to eleven year old children which had the effect of changing the researcher’s expectations of the
children in her class. The aim of these activities was to generate an understanding by the children of why mathematics, reading and writing, were important for children to learn. A series of cards was developed to show what skills were necessary for particular occupations. Visits were made to work places and speakers were invited to school to discuss their particular occupations. The cards instructed the children to work as though they were in particular occupations. The emphasis was not on correctness and completion of the work but on comprehension of the processes necessary to be successful in a particular occupation. For example, learning the arithmetic tables was found to be important because all the occupations explored required quick computational skills at some point. Some of the activities were described as mathematical tables. This demonstrated that knowledge of these tables enabled the activities to be accomplished more quickly. Because all the occupation cards included reading material necessary for working at each occupation (e.g., recipes for ‘home persons’, regulations for ‘electricians’) reading was found to be necessary no matter what the occupation. The children’s success was judged by the researcher, on the basis of the degree of participation and productivity they displayed and the personal learning needs each child identified for him/herself. The children who were normally the ‘most successful’ children in the class did not do better than the others. The usually ‘least successful’ understood and participated in these activities with creativity and vigour. The usual ranking of the children in the class was reversed. Two of the normal classroom expectations (i.e. completion of set activities and
correctness of set activities) was removed and this created an environment which appeared closer to the expectations occurring in the homes of some of the low-achieving children. The work had been designed to give a purpose to reading, writing and calculating by placing these subjects in real life situations created by specific occupations. The result was a dramatic change in individual children's performances. The meaningfulness of the activity might have been one reason for the change in performance. However, it seemed likely that the removal of two criteria, correctness and completion of set activities, normally used as criteria for achievement in school, was as important as the contextual nature of work performed. This classroom programme showed that those children who did not normally achieve in class and who appeared to have similar ability, could achieve when they understood and accepted the classroom expectations. This did not mean correctness and completion of set activities were unimportant. It implied the way these were presented caused difficulty for children who did not understand the purpose of the usual classroom expectations.

The difference between the children who were normally successful in the classroom and those who were normally unsuccessful seemed to be related to the concepts which gave meaning to the understandings of these children. There was certainly a difference in their understanding of the concepts necessary to make sense of the activities at hand. This suggested that there could be fundamental differences in the concepts which underlie the patterns of interaction in the homes of more and less successful
children. In other words, the way activities were viewed, promoted, or performed by the children in their homes was different in some fundamental way from the way activities were viewed, promoted, or performed in classrooms. This would mean some children were at a disadvantage which could cause them to be less successful than others at school. Because of the lost life potential for the low-achieving children, it was important to try to discover if there was a difference between the types of patterns of interaction and their underlying structure in school classrooms and the types of patterns of interaction and their underlying structure in some children's homes, and to see if this difference correlated with school achievement.

The term 'patterns of interaction' used in the study included all patterns of interaction or sequences of activities used by people when information was being transmitted between them. These patterns might be the pattern of a simple verbal communication by a speaker to a listener, or a complex series of verbal or non-verbal communications.

There was an assumption that the regularity of specific patterns of interaction implied an underlying structure enabling children with past knowledge of or experience with particular patterns of interaction, to make sense out of a present pattern of interaction. If making sense of present patterns of interaction was necessary for achievement in school then this knowledge of or experience with particular patterns of interaction was critical for achievement in school.
A study of patterns of interaction and underlying structures implied the need for a study which took account of the present school environment and past, possibly home, influences on children. If patterns of interaction which were significant for achievement in school and children's prior experience with and knowledge of such patterns of interaction (structure) were to be identified, then observations of both classroom and home environments had to be carried out in such a way that the patterns of interaction and their structure were able to be identified. The researcher's background in anthropology and living within a number of different societies led her to perceive the data gathering as an anthropological or holistic problem. An 'anthropological or holistic problem' of this nature required as much relevant information as possible to be gathered in the home and the school, both natural ecological environments of children with apparently similar abilities.

Although there were many studies concerned with the problem of success and failure at school, there had been only a few researching the relationship of achievement at school of apparently 'similar ability' children to their 'natural' home ecological environments and their 'natural' school ecological environments. 'Similarity of home ecological environments' refers to similarity of housing, language, dress, family structure, shared concepts of socialisation and education, and all the other ideas and ideologies shared but not necessarily acted upon which are present within a given sub-culture.
'Success' has been used in this study to mean the results of the measures of achievement used by practitioners within the school system to determine a child's achievement. 'Similar abilities' has been used to refer to those qualities appearing to be present within each child which could be identified through the child demonstrating skills in, for example, dancing, music, reading, acting, sport, home-making; problem solving skills; skills in interpreting new situations and communication skills (i.e. they were able to demonstrate the understanding of information important to themselves).

Anthropological and holistic studies have already attempted to collect as much relevant information as they could about all the possible factors which appeared to affect or influence the subjects of the study question. The studies of Jackson (1979), Heath (1983) and Renwick (1984), were probably the studies of this holistic type which most closely paralleled this study. These studies investigated children both at home and at school and included a wide range of phenomena known to influence achievement at school. They all demonstrated an apparent mis-match between some home patterns of interaction and some school patterns of interaction which resulted in school failure of some children. The ethnographic studies (i.e. a type of anthropological study where observational data was gathered in a variety of ways in the natural ecological environment and analysed using techniques which ensured ecological validity) of Jackson and Heath were particularly relevant. These studies reported the patterns
of socio-linguistic behaviours of the children themselves and the interplay of these patterns of socio-linguistic behaviours with the children's surrounding socio-economic and ethnic backgrounds. They pointed to some specific concepts and patterns of socio-linguistic behaviours (e.g. language styles, story concepts, specific racial differences) which appeared to be associated with school failure. Their findings indicated there was something in the learning processes occurring at school which did not fit with the processes of how children learn in some homes.

2. THE PROBLEM

The problem appeared to be that lack of success at school was caused by the difference between the information transmitting and processing styles (i.e. the enculturation processes) of two ecological environments. That is to say the way a child learned to perform a task in one ecological environment (home) did not appear to be able to be successfully employed to learn to perform a task in another ecological environment (school). A child might have learnt, for example, how to play a game at home by watching other children and copying them. Later, when this child has tried to employ this particular learning method at school it appeared to be an unsuccessful method. What was unknown to the child was that 'timing' was a critical element which had to be added to this learning method for the method to be successful at school. For example, watching and copying other children might be successfully employed at 'lining-up' time but might lead the child into
difficulties if it was employed at 'story-writing' time. This was because during 'lining-up time each child was meant to act in the same way whereas during 'story writing' time each child was meant to act individually. Copying during this second time was sometimes viewed by teachers as a form of cheating. Without being aware of the importance of one element, in this case timing, a child might not have understood why s/he might be rewarded for 'copying' in the one time period and reprimanded for 'copying' in the other time period. This 'timing' example was just one simple example of a very complex process which might be viewed as the process of how children learn to act appropriately within specific ecological environments.

The literature and the researcher's background led the researcher to view the problem of differing learning or enculturation processes as a problem of sub-cultural difference. Levi-Strauss defined a sub-culture as, "A fragment of culture which from the point of view of the research at hand presents significant discontinuities in relation to the rest of that culture with respect to access to its major amplifying tools (1963, p.354)." Therefore the way a particular group of people acted at school might be significantly different from the way people acted at home. This difference in actions presented a person new to one or other of these environments with difficulty in understanding what the difference in actions meant within the unknown environment. In other words the 'culture' of each sub-culture was different and so the way each culture was transmitted (enculturated) was different.
What the term 'culture' meant in this study was critical to understanding the central components of the problem as seen from the perspective of the researcher. Culture was defined by anthropologists like Frake (1961), Wallace (1962), Sturtevant (1968) as being inclusive of observable phenomena and underlying structures. The observable phenomena were usually viewed as societal networks of interaction and the underlying structures were viewed as largely unconscious cognitive structure. This view of culture fitted neatly with the research problem because the research problem appeared to include observable patterns of interaction and underlying structure. The observable patterns appeared to be more specific than 'societal networks of interaction' but could certainly be viewed as a similar phenomenon. The underlying structure appeared to be little different from the 'largely unconscious cognitive structure' of Frake, Wallace and Sturtevant. The task a newcomer encountered in gaining 'access to its [the culture's] major amplifying tools' (in this case the patterns of interaction and their structure) was to make sense out of the 'significant discontinuities'. In terms of this research a child needed to, consciously or sub-consciously, learn to understand how the culture of the school classroom was transmitted (i.e., how to understand the enculturation process).

The view taken in this study was that children had some underlying cognitive structures which included 'learning style differences' deriving from the home ecological environment. This implied that there was something cognitively held by children which they could
call on to aid understanding of situations which appeared to them to be 'new' in some way. Because the concepts of largely unconscious 'patterns of interaction' and 'underlying structure' fitted with Prake, Wallace and Sturtevant's view of culture, this view of culture appeared useful as a basic premise. The situations to which this definition of culture applied were really sub-cultural ecological environments within a larger society. However, the sub-cultural ecological environments of school and of homes included: observable phenomena specific to each ecological environment, social relations, ideas, and 'complex mechanisms by which people exist and persist' (Sahlins, 1963, p.49) which were also specific to each ecological environment.

The school classroom was viewed as one sub-cultural setting. The homes of each child were viewed as different sub-cultural settings. Illich (1971), Philips (1972), Bronfenbrenner (1979), Ramsay (1983), Purkey and Smith (1985), Valsiner (1987), etc. appeared to accord with this view.

The problem required a method enabling as much as was possible within a 'natural' ecological environment to be observed and recorded. Observational methods of this nature could produce unmanageable quantities of data. To avoid this, and bearing in mind there would be just one researcher, the sample had to be bounded in some way. The number of children was limited to ten and the broader setting within which the study was undertaken was limited to a small, working-class town.
To help maintain an holistic perspective four forms of data were collected in both the home and school ecological environments. These consisted of continuous written records of natural language incidents, interviews field notes and test results.

The data were analysed 'etically', that is from the observer's perspective. This perspective required a conceptual structure to help the researcher maintain an objective outlook. It was decided to use the conceptual structures of 'scripts' and 'schema' as theoretical constructs to enable data analysis. The reasons for the selection of these theoretical constructs and for the use of an etic (Pike, 1954) perspective, are described at length in the chapters on methods (Chapter III & IV).

3. THE AIMS AND RESEARCH PROCESS

The researcher's experience of experiential classroom activities described above and former studies (Jackson, 1979; Doyle, 1983; Heath, 1983; Renwick, 1984; etc.) suggested that some children were failing in school because they did not understand the patterns of interaction in the classroom and activities set for them by teachers in the same way the teachers understood these patterns of interaction and activities. They failed not because they could not perform or react correctly, but because they believed they had been asked for different reactions or to carry out different activities, from those expected by the
classroom teacher. Their understanding of what was occurring was different from the teacher's view. The teacher perceived their reactions or activities as incorrect reactions or activities. These incorrect reactions or activities appeared to be interpreted, by the teacher, as an inability to achieve and not as a problem of difference in learning styles. The aim of this study was to discover whether inability to achieve or difference in learning styles was the predominant cause of school failure for the study children.

Finding out why some children failed while others succeeded at school when they came from apparently similar home ecological environments and had similar abilities was not the only aim of this study. The experiential classroom activities described above indicated children from apparently similar home backgrounds achieved differentially because they did not fully understand the patterns of interactions occurring in classrooms. If particular patterns of interaction and underlying structure were significant for achievement in school then it was necessary to identify these particular patterns and structure.

These two aims required the identification of at least two levels of phenomena necessary for discovering the patterns of interaction and underlying structure apparently causing difficulty for some children.

(i) There was the 'tangible' or readily 'observable' level of what the children did and said which could be viewed as patterns of interaction by the observer. The processes used by the researcher to identify these patterns will be
discussed at length later in Chapter IV on methods. Here it will suffice to say the observable phenomena were recorded by the observer. These observations were then divided into communication incidents. An incident was seen to have begun when a particular set of information, topic, or activity, appeared to occur and ended when the same set of information, topic, or activity, appeared to conclude. These beginnings and endings were determined by the language both verbal and non-verbal which was occurring and the reactions to that language, both verbal and non-verbal. These communication incidents formed the first level of phenomena. Incidents were made up of different patterns of interaction between the participants and the verbal and non-verbal language they used.

(ii) Underneath these patterns of interaction existed a structure which appeared to determine how the participants understood the ‘tangible’ or ‘observable’ level. This structure only became distinguishable after similarities between patterns of interaction had been identified and the common structural elements analysed.

Although the problem of school failure appeared initially to be an educational one, the study was concerned with the problem of the transition between home and school and a child’s accommodation to the new (i.e. school) ecological environment. Home and school constituted two quite different ecological environments or sub-cultures in New Zealand society. The implied problem was the difference between the way each sub-culture was taught and how each sub-culture was learnt within its specific ecological environment. Therefore another way of
considering the problem was to view it as a difference in the 'enculturation' processes within each ecological environment (or sub-culture). Enculturation was described by Wolcott (1988, p.218) as, "How each of us acquires the basic cultural orientation that will influence a lifetime of thoughts and actions."

Perhaps the reason for school failure in some children was not only caused by an enculturation process. It might be a learning process far more all encompassing than the enculturation process. It was possible that what was happening for some children at school could be viewed as 'acculturation'. Acculturation occurs when one set of acceptable patterns of cultural beliefs and ideologies becomes subordinate to another set of acceptable patterns. Hoebel (1966, p.559) described this as, "The process of interaction between two societies in which the culture of the society in the subordinate position is drastically modified to conform to the culture of the dominant society." Although he was talking about two different societies there was no reason why this process could not operate within two sub-cultures of one society. Within the school context it would mean some children had a far more difficult task to perform when they arrived at school. If the way some children learnt to understand in the home ecological environment was markedly, but unnoticeably (by the teacher) different from most other children at school, then much of what they (the children) believed they understood would have to be drastically modified in order for such children to be seen (by the teacher) as successful.
The problem which drove this study appeared to require both a method appropriate to the study of culture for gathering relevant data, and a way to analyse this data which bridged the cultural, psychological and educational issues involved. A field-work method commonly used in anthropology seemed a reasonable method for gathering the data but it also appeared essential that the data be guided by a theory with its foundations firmly based in the fields of anthropology, psychology and education. The literature review will show that the theory which met these criteria and proved to be most useful for this study was schema theory.

This study differed from most prior studies concerned with school failure because it focused on the 'natural' interactions occurring in the first year of school and investigated the occurrence of similar patterns in the 'natural' home environments of the focal children in the study. Its emphasis on the differences in the process of learning and being taught to understand within the home and within the school also differed from most earlier studies. This process, which could be viewed as either an enculturation or acculturation process, led to a variety of school-relevant patterns being identified in the home experiences of these children. The identification of school-relevant patterns in the home seemed to provide an insight into the past experience or knowledge of school patterns. Such past knowledge or experience was thought to form the structure children used to make sense out of present patterns of interaction. The school-relevant
patterns identified in the home were correlated with the children's school performances to see whether a relationship to achievement could be found. It was the view of the researcher that the school relevant patterns identified in the home described some significant facets of the surface level of a classroom enculturation process. The mis-match between these and some children's achievement rates indicated the differences between the children's home enculturation processes and the school enculturation processes. The broad differences in achievement rates between the most successful children in this study and the least successful children indicated some children from apparently culturally similar home environments were placed in a situation at school which could possibly be described as an acculturation situation, (i.e. where their home 'culture' becomes subordinate to the school's 'culture'). As noted earlier, for such children achievement at school was a much more complex task than for those whose home enculturation processes paralleled the school's enculturation processes.

This was a study encompassing both the home and school natural ecological environments. These environments were investigated to determine whether there was a mis-match between the patterns of interaction and the underlying structure of these settings and to discover if such a mis-match existed whether or not this mis-match caused some children to fail at school.
CHAPTER 11

REVIEW OF THE LITERATURE

Studies of the social and emotional demands of adjusting to school (Widlake, 1971; Thompson, 1975; Hughes, Pinkerton & Plewis, 1979), have shown that in the first year classroom the frequency of 'poorly adjusted' children could be disturbingly high. For example, Hughes, Pinkerton & Plewis (1979, p.193) stated the proportion of children experiencing general difficulty 'coping with school' after half a term at school was approximately 13%. This proportion changed very little over the next eighteen months (14% reported). Studies of adjustment were not necessarily concerned with achievement at school but there was an implication that the kinds of disturbances reported in these studies (e.g. behaviours associated with social relationships, language, persistence at activities, and physical skills) affected the achievement rates of these children and that these 'disturbances' were brought by the children from home to school. The implication of a relationship between the ecological environment of the home and the ecological environment of the school indicated that studies which incorporate both environments are necessary in order to discover why some children fail at school.

Many studies have addressed the question of lack of achievement at school and its related issues in a variety of ways. Those appearing most closely related to this
present study looked at the effect of socio-economic status, ethnicity, language studies, studies which included other home experience factors, culture, schema theory and studies which gathered data in both the home and school ecological environment and used an holistic approached and/or schema theory. The following exploration of the literature does not attempt to be a comprehensive review. Sources of more comprehensive reviews will be noted where applicable. However, the categories of studies which appeared most closely related have been explored separately to establish whether this present study had something of relevance to contribute to our knowledge in the areas of school success and failure, and how this was related to the home environment.

1. SOCIO-ECONOMIC STATUS

Studies concerned with pupil learning in schools (e.g. Philips, 1972; Bisseret, 1979; Marjoribanks, 1979; Clay, 1979 A & B; Cullen, 1980; Laos, 1982; Watson, 1983; Gottfried, 1984) pointed out learning was affected by many home-related variables such as: maternal and paternal behaviour and expectations, intellectual activities in the home, family size, birth order, family networks of relationships and interactions in the home. Of these variables Gottfried and Gottfried (1984) found, like many others, that measures of the socio-economic status of the family were the single variable with the consistently highest correlation to school achievement. Socio-economic status was usually based on estimates of family income,
parental education and the relative status of the male partner's occupation or some combination of these factors.

The relationship between socio-economic status and academic achievement was described by Coleman, et al., (1966) who concluded, by using a regression model including family environmental factors and school achievement factors that a child's background and general social context had a major impact on his/her academic success rate at school. Many researchers found evidence to support this conclusion (e.g. Charters, 1963; St.John, 1970; Boocock, 1972; Bernstein, 1974; Iverson & Walberg, 1982; Hattie & Hansford, 1984). By the early nineteen-seventies several studies (e.g. Klein, 1971; Jencks, 1972) suggested caution because the correlations between socio-economic status and achievement showed a substantial variation (with values ranging from .10 to .80) which was difficult to explain. A number of reviewers (e.g. Neff, 1938, Loevinger, 1940; Havighurst, 1961; Lavin, 1965; Bryant, Glazer, Hansen, & Kirsch, 1974) failed to provide any adequate explanation for this magnitude of variations in the correlations.

In a study reported in 1982 White used meta-analysis to estimate the general magnitude of the correlation between socio-economic status and academic achievement. The results reported in all of the studies he could find were subjected to a common descriptive statistical process. This meta-analysis suggested the average relationship between socio-economic status and academic achievement (r = 0.25) was much weaker than many people had previously assumed. A multitude of reasons was put forward in
explanation for this relatively weak correlation, none of which provided a definitive direction for further study in this area.

One reason the reviewers were not able to reach agreement on the magnitude of variations in the correlations of school achievement and socio-economic status might be as Deutsch stated:

When SES category is related to individual or familial characteristics, it is not simply level of income or occupation which is considered to be correlatively or causatively related to the characteristics, but rather the entire collection of variables which are assumed to covary with income and occupation (Deutsch, 1973, p.240,)

Deutsch believed it was important to look at the process which underlay the variables identified. Examination of the process was the second step for any socio-economic status study. Deutsch believed too many studies stopped at the first step. This step was 'discovery of any SES-behaviour relationship' with school achievement (ibid, p.244). The second step was to identify the relationship between this 'behaviour relationship' and process. The 'process' was not, however, underlying structure and the relationship of this structure to present patterns of interaction in a general sense. Rather it was, for example, the specific skills thought to facilitate reading and the presence of those skills in, for example, specific socio-economic categories (ibid, p.242).

The difficulty of demonstrating the process in static variables was debated very early in the literature (Bronfenbrenner, 1958). This difficulty of accounting for
change over time led to a debate about the comparability of indexes of socio-economic status (Deutsch, 1973, p.250).

It was perhaps in the combination of the emphasis on specific variables, the concept of the process as the presence or absence of a set of skills and the difficulty of comparing static sets of variables which were really variables at one point on a continuum of change, that White's meta-analysis (1982) demonstrated socio-economic status was not truly as powerful an indicator as was first thought. It was still of interest because the weight of evidence of those factors associated with achievement in school and socio-economic status, indicated that when combined with some as yet unknown others, there must be at least some superficial relationship to achievement.

If there was a relationship between socio-economic status and school achievement there must be significant differences in the way variables affecting achievement or learning were managed in families of different socio-economic statuses. Since estimates of family income, parental education, and relative status of the male partner's occupation alone could not be the reason for this, socio-economic status must be an indirect index of other factors with a more direct effect on achievement. One possible indirect cause for the significant relationship between school achievement and social class, discussed in the literature (Bisseret, 1979; Gumperz, 1981; Wells, 1981; etc.), might have been that the school system was adapted to children from a particular class in society. This meant children from one particular social class were
more likely to succeed than those from significantly different classes. The school environment, it seemed, formed a sub-culture more closely aligned to the sub-cultural environments of some families than others. If the school environment formed a sub-culture more closely aligned to the sub-cultural environments of some families more than others, then the way the sub-culture of the home affected children's ability to adapt to the sub-culture of the school was critical for understanding achievement (Leichter, 1978, p.569-570).

Although 'cultural difference' was a research tool developed to explain the apparent variations in the way people interacted within differing societies it has been widely accepted that cultural difference existed. This 'cultural difference' has manifested itself in a variety of ways, for example, in non-verbal communication, kinship, religious and child rearing beliefs (Cairns & Valsiner, 1982; Ioane, 1982; Harkness & Super, 1983; Holland & Quinn, 1987; Johnstone, 1987; Valsiner, 1987). It has been recognised such differences 'block' communication between people from different cultures or sub-cultures in some way (Cleave, 1984; Metge & Kinloch, 1984; Metge, 1986). What had not been so commonly recognised was that it was not only the outward signs of a culture which might be different. From the perspective of a child expected to achieve within a particular sub-culture (i.e. school), it was possible the most important differences were in how a culture was taught and was expected to be learnt. This did not mean the child had to be overtly aware of the processes of teaching and learning cultural behaviours and beliefs.
The child needed experience in the specific processes of teaching and learning a particular culture or sub-culture's behaviours and beliefs, in order to interpret with some accuracy, what learning was expected. For learning of a culture to be optimised, it was critical the learner experience how the culture was transmitted.

It might be possible for a particular family in a low socio-economic status position to transmit the sub-culture associated with this status in a way which was similar to the way the sub-culture of the school system was transmitted by the teachers and others within the school system. It would also be possible for a particular family in a middle or high socio-economic status position to transmit such a sub-culture in a way different from the way the sub-culture of the school system was transmitted. The idea that home environments might act as individual sub-cultures was very close to the Gottfrieds' idea that cognitive development might be influenced by some indirect 'quality of social relationships'. In their article on middle socio-economic status families they said:

A major role or influence of the social climate of the family may reside in its indirect rather than its direct relationship with cognitive development. The quality of social relationships in the home may influence the level and quality of the home stimulation provided for the child, which in turn may account for individual differences in children's developmental status (Gottfried & Gottfried, 1984, p.110).

The researcher believed that if the manner in which a culture was transmitted was significant for school achievement, and if individual family transmission systems varied markedly within a sub-culture, then individual
children who might have been expected to fail (because of their low socio-economic status) might have succeeded and individual children who should have succeeded (because of their high socio-economic status) might have failed. The view of the failing children (no matter what their backgrounds) of what was occurring was different from the teacher’s view and this difference could result in what the teacher perceived as failure. Such children might be the exceptions to a general rule which may say the majority of the children from a particular class in a society will fail within the school system.

Because it was evident from White’s (1982) and other studies socio-economic status did not fully explain the variations or exceptions found within each study, by the early nineteen-eighties many researchers had moved their focus away from socio-economic status. However, the studies of socio-economic status pointed to a number of home-related variables which appeared to affect the learning potential of some children.

Most studies of socio-economic status employed family income, parental education and the relative status of the male partner’s occupation or some combination of these as indicators of socio-economic status. These were structural variables and not necessarily direct indicators of internal family processes. The processes underlying these family variables could be more direct indicators of achievement in school. It was possible the underlying processes of the school system were adapted to children from a particular class in society. If this was true then how the sub-
culture of the school system was transmitted was possibly of significance to achievement at school. In addition to underlying processes and sub-cultural transmission systems the apparent relationship of socio-economic status to a host of variable (maternal and paternal behaviour and expectations, intellectual activities in the home, family size, birth order, family networks of relationships and interactions in the home, etc.) indicated a much more inclusive or holistic approach might yield more information about such underlying processes.

2. ETHNICITY

By the time of White’s review, researchers were becoming more interested in ethnicity as a focus for research into achievement at school. Some reviewers of these studies claimed children were socially and educationally disadvantaged because of ethnicity (e.g. Clark, 1983; Deyhle, 1986; Plewis, 1987) whereas others considered ethnicity to be a non-significant factor (Brewer & Haslam, 1987). In New Zealand Metge (1980) considered cross-cultural skills might be more readily transferable once bi-cultural competency had been firmly established and Brooks (1973), Chapman (1973) and Medley (1978) showed differences in achievement between Maori and Pakeha appeared to be related to ethnicity rather than socio-economic status. Mitchell (1988), like Ausubel (1961) before him, found peer pressure to be a significant element in achievement of Maori boys at secondary school. Despite differences in emphasis, the majority of these studies
found evidence that being ethnically different from the majority of a society was a disadvantage for school achievement (e.g. Gadd, 1976; Ramsay, 1982; Ramsay, Sneddon, Grenfell & Ford, 1981 &1983; St. George, 1983; Harker & McConnochie, 1985; Edgar, 1985; Snook & St. George, 1986; Mitchell, 1988). In spite of the evidence that most of children who were ethnically different from the majority did poorly in school, a significant number of ethnically different children achieved at school. Explanations for this phenomenon ranged from a concept that some teachers allowed 'the children to speak in participation structures comfortable to them' (Au & Mason, 1981, p.149), to concepts of 'comembership' (Erickson & Schultz, 1977 & 1981, p.176) and specific family difference (Gottfried & Gottfried, 1984, p.110).

A number of researchers (Gibson & Levin, 1975, p.360-372; Barr, 1975; McConkie, 1977; Doyle, 1983) discovered that the way students formulated what was required of them to complete academic tasks was dependent on the way a task was presented to them. The cognitive formulation of the task was critical for success at school. For example:

Tasks influence learners by directing their attention to particular aspects of content and by specifying ways of processing information. These effects are clearly apparent in the contrast between semantic and nonsemantic processing, that is, the processing of information for meaning versus the processing of information for surface features (Doyle, 1983, p.3).

Whether a task was recognised as needing semantic or nonsemantic processing depended on how the student viewed the task. Cummins review of studies concerned with
empowering minority students (1986) suggested the reason for using of nonsemantic processing when semantic processing was essential for successful completion of a task, was related to the way teachers interacted with the children and communities they served. Cummins stated:

Students will succeed educationally to the extent that the patterns of interaction in school reverse those that prevail in the society at large (Cummins, 1986, p.7)

Achievement at school was thought to depend on the degree of 'fit' between home patterns of interaction and school patterns of interaction.

Both studies concerned with academic task and those concerned with empowering minority students pointed to the possibility of a mis-match in the processes of learning between some home ecological environments and the school ecological environment.

There were clues in the literature (allowing the children to speak in participation structures comfortable to them, Au & Mason, 1981; comembership, Erickson & Schultz, 1977 & 1981; specific family difference, Gottfried & Gottfried, 1984; the non-significance of ethnicity to achievement, Brewer & Haslum, 1987) and clues from the researcher's personal observations (the changing of achievement positions within a class simply by changing the way achievement was recognised) which indicated it was possible that something of a different order from ethnicity occurred enabling some ethnic minority children to succeed while others failed in school. It was possible ethnicity,
like socio-economic status, was an indirect indicator of other more significant underlying causes.

Measurements of ethnicity included people's physical appearances, ancestry and what people said about their ancestry (Gadd, 1976, p.21-22). Yet in New Zealand at least, the appearance and belief of being ethnically different from the mainstream did not necessarily mean a person was actually different. This was brought to the researcher's attention with clarity by a quote from (Gadd, 1976, p.21) which stated, "All that is Maori about many Maori children brought up in the city is their appearance. They have no knowledge of Maori culture." This statement implied that being ethnically different was not a simple phenomenon. It was also difficult, if not impossible, for an ethnic group to remain in isolation within a large, multi-cultural industrialised society. Contact implied some degree of acculturation occurring within the ethnic group. It was a complex task to control for the level of acculturation and yet still account for individual family variation.

Because children's learning styles sometimes appeared to be unique and specific to their ethnic group (Laosa, 1977; Ramirez & Castaneda, 1974) and because not all children benefited equally from a particular teaching style, researchers (Brophy, 1976; Medley, 1977; Good, Ebmeier & Beckerman, 1978; Cummins, 1986) studied the relationship of ethnicity to achievement. The results of such studies indicated ethnicity alone could not account
for the differences in achievement among all ethnically different children.

If the relationship of ethnicity to achievement was to be clarified perhaps a different perspective was needed. It was possible more information about the process of school failure might be learnt from groups more likely to be successful within the school system. The complexity of the differences among all ethnic groups and the school system might make it difficult to identify specific causes of success and failure by this measure alone. From the literature it seemed there was an apparent relationship between achievement and particular ethnic situations (e.g. the Hawaiian study of Au & Mason, 1981; the American Indian study of Erickson & Schultz, 1977 & 1981; Cummins, 1986). However, to be ethnically different implied a situation where the study people were in a minority position within a multi-cultural society. It was possible the complexity such situations produced prevented a clear picture of the processes of achievement.

3. OTHER HOME AND SCHOOL EXPERIENCE FACTORS

Young-Loveridge (1988) discovered that the development of number concepts were affected by experiences and activities a child encountered in the home. She noted it was not the particular activities but the variety of the activities which were significant for development of number concepts. The children in her study who scored highly in her numeracy tests all had a variety of experiences with,
for example, baking, shopping, board games, card games, dealing with money, time and temperature. In addition to experiential factors Young-Loveridge found that parents of high scoring children considered the learning of mathematics to be very important; whereas the parents of low scoring children did not appear to consider mathematics to be very important. Therefore Young-Loveridge concluded that exposure to numeracy experiences in the home and parental concepts about the importance of mathematics were significant for children's achievement in the curriculum area of mathematics at school.

The influence of home experiences on achievement in curriculum subject areas in school have been demonstrated in a number of studies. For example, the importance of reading and being read to in the home (Clark, 1976; Fry, 1977; Heimberger, 1981; Awatere, 1982; Heath, 1982; Taylor, 1983; Wall, 1982; Biddulph, 1983; Clay, 1984; Schnur & Lowrey, 1986), and the apparent relationship of time spent viewing television to the attainment of literacy skills (Stein, 1972; Palmer, 1980; Sharman, 1980; Hodge & Tripp, 1987; Burton, 1988), demonstrated that home experiences were important for achievement in curriculum subject areas at school. These studies and studies such as Taylor (1983) and Young-Loveridge (1988) on the affects of home experiences on numeracy and literacy and studies noting the significance of the amount of time involvement a child had in specific activities (Sharman, 1980; Schnur & Lowrey, 1986; etc.) raised important questions about achievement at school. For example, was achievement affected by the content of numeracy and literacy activities and experiences
or was it affected by the way the content of numeracy and literacy was presented to children in the home? That is, was achievement affected by the process of learning how to learn? These questions about content versus process meant the researcher had to decide if all subject area studies concerned with achievement in school warranted individual investigation for this study of success and failure in school.

This present study was a study of a more general phenomenon. Subject areas and the skills necessary for achievement in those subject areas could change over time. However, it was conceivable that the mechanisms used to discover what was essential in order to achieve within particular ecological settings would not change. Such mechanisms must be more general phenomena which were embedded within the structure of patterns of interaction common to situations within classrooms. Therefore, although some studies of specific curriculum areas confirmed that home experiences were related to achievement in school they could not describe more general phenomena.

The process of learning how to learn within the school environment was, the researcher believed, a more general process than the process of learning which was described in terms of skills or tasks. For example, the specific process of learning how to read may include a set of tasks in which the child had to become competent. Such a set of tasks might include the learning of directionality (i.e. the directions words follow), recognition of letters, recognition of words, recognition of punctuation marks, the
significance of punctuation marks, etc. The general process of learning how to learn within a school environment did not appear to be able to be described in the same clear, skill-based or task-oriented categories. This process might be a collection of, for example, processes which required recognition of teacher control techniques and quality of work expectations, the recognition of the rules for how and when to talk to a friend, to locate information for oneself, to enter and leave the classroom, etc. Such processes generalised to any content area. They probably derived from the culture of the classroom and as such it was hypothesized a child must first become competent in this generalised learning process before competency in, for example, the specific learning processes of literacy and mathematics could occur.

It was noted earlier that the process for Deutsch (1973, p.242) was specific skills which were thought to underlie, for example reading, and the presence of skills in specific, possibly socio-economic, categories.

The other type of process discussed here was concerned with phenomena common to all learning situations. It was more general than the 'process of content specific skills'. This more general process could be said to underlie the process described by Deutsch. It was more difficult to identify and was possibly unknown to the participants in a learning interaction. It was possibly the type of process present in the experimental studies of Au and Mason (1981) and Barnhardt (1982) where teachers of the same ethnic origins as the children taught children
using patterns of interaction common to the ethnic groups being taught. The Hawaiian study of Au and Mason, in particular, showed the achievement rates of children who were involved in such a programme improved at a greater rate than children in a 'regular' classroom programme. In both studies it was discovered through participant-observation and by subsequent analysis of videotapes, the teachers organised instructions and interacted with the children in culturally appropriate ways. They appeared to have different processes from the usual classroom practices that generalised to a number of classroom situations (e.g. overlapping speech turns). The presence of these general processes implied the classroom patterns of interaction modelled in the Hawaiian and Alaskan studies were closer to the patterns of interaction with which the children had the most experience. This general learning process is close to Erickson's statement on cultural difference:

Taken together, cultural differences between home and school that have been identified at the level of basic structural properties in the organization of interaction, and at the level of global differences in assumptions about appropriate role relationships between adults and children, involve fundamental building blocks, as it were, of the conduct of classroom interaction as a medium of subject matter instruction and for the inculcation of culturally specific values - definitions of honesty, seriousness of purpose, respect, initiative, achievement, kindliness, reasonableness (Erickson, 1986, p.135).

Expressed briefly schools could have different organisations of interaction (patterns of interaction) from homes. These derived from differences in beliefs about the roles, and therefore the conduct of adults and children in the learning process, and beliefs about culturally specific values of, for example, respect, initiative, achievement,
kindliness and reasonableness. General phenomena requiring a general learning process appeared to function within any learning situation. If the difference in achievement of the children in the studies of Barnhardt (1982) and Au and Mason (1981) was because of cultural difference and if this difference manifested itself in difference in patterns of interaction, then it was possible that the children must first become competent in a more general learning process before they could be successful in a specific learning process that underlay specific skills or tasks of, for example, literacy and numeracy. From the literature it was possible to demonstrate this general learning process (or the process of learning how to learn in a classroom) derived from cultural beliefs, values and ideologies (Au & Mason, 1981; Erickson & Schultz, 1977 & 1981). Demonstrating just what this process was, however, proved more difficult.

4. CULTURE, ENCULTURATION AND ACCULTURATION

Culture and its associated processes of enculturation and acculturation were referred to a number of times within the preceding discussion. This section explores what was meant by these terms and why they were of value to this study.

(1) Culture

In this section, for the sake of simplicity, the term culture will be used to refer to culture or sub-culture.
The concept is the same for both except that a sub-culture is a subset of a culture.

It was noted by Kaplan and Manners in *Culture Theory* (1972, p.3) if an exhaustive review of the concept of culture was carried out, "One will find well over one hundred different definitions of culture." Despite the difficulty of finding a definitive definition for culture they said, "Only in examining those mechanisms, structures, and devices lying outside of man [sic] – the means by which he achieves his own transformation – can we learn why some groups differ in their beliefs, values, behavior, and social forms from others (ibid, p.3)." By this means alone would the similarities and differences of cultural maintenance and cultural change become explicit. The difficulty of defining the concept was not seen, by anthropologists, as a sufficient reason for abandoning the concept as a research tool.

One general definition and one Wolcott (1988, p.189) found appealing for educational research, was a definition by Goodenough:

The culture of any society is made up of the concepts, beliefs, and principles of action and organization that an ethnographer has found could be attributed successfully to the members of that society in the context of his dealings with them (Goodenough, 1976, p.5).

This definition appealed to Wolcott because it had several important components. These were the concept of culture as an anthropological construct and not something 'real' and 'observable'. The value of the concept was in
how much it explained and not in the method itself, being a professional task (i.e. because of the need for training, knowledge of the anthropological literature and experience 'in the field'). It was a task chosen by the anthropologists themselves.

Wolcott’s view of an appealing and useful explanation of culture was consistent with what he viewed as the most appropriate way an anthropologist should work. Which was:

What one looks at and writes about depends on the nature of the problem that sends one into the field...; on the personality of the ethnographer; on the course of events during fieldwork; on the process of sorting, analysing, and writing that transforms the fieldwork experience into a completed account; and on expectations for the final account, including how and where it is to be circulated and what its intended audiences and purposes are (Wolcott, 1988, p.191)."

This view of culture was what Harris (1980, p.258-286) called 'cultural idealism'. Of this view of culture Harris says:

No amount of knowledge of "competent natives" rules and codes can "account for" phenomena such as poverty; underdevelopment; imperialism; the population explosion; minorities; ethnic and class conflict; exploitation, taxation, private property; pollution and degradation of the environment; the military-industrial complex; political repression; crime; urban blight; unemployment; or war (Harris, 1980, p.285).

Anthropologists who held Wolcott’s view would possibly reply they did not see culture as determining particular events or styles of living. They saw the culture as establishing particular social 'environments' in which such things could occur.
However, there was a more encompassing view of culture which included observable phenomena and the underlying system these phenomena occurred within. This is seen in the quote from Sahlins:

The "concrete reality" after all includes as coordinate and influential elements such things as tools, techniques, tenure arrangements and the like. They are in the system. They enter into functional relations with social structure; in these relations, they, and not social elements alone, may be forces of constraint. It is a system of things, social relations, and ideas, a complex mechanism by which people exist and persist (Sahlins, 1963, p.49).

It was this dichotomy of observable phenomena versus largely unconscious structures that led people like Frake (1961), Wallace (1962), Sturtevant (1968) to develop an explanation of culture which included the underlying rules of culture (viewed as largely unconscious cognitive structure) and observable conscious actions (viewed as societal networks of interaction). It was this view of culture this study utilised because it seemed to be most useful for the problem at hand. It was possible to observe the interactive phenomena which were the 'tangible' elements of the societal networks of interaction which appeared to be of interest to achievement at school. The underlying rules, the apparent recognition of which possibly led to school achievement, might be inferred by the data obtained from observing the networks of interaction. However, it must be stressed that because this study was interested in examining 'underlying patterns of interaction', alternatively termed the 'process of patterns of interaction', it did not attempt to identify the cultural rules which established the particular social environments which enabled school failure to occur. It was
more useful to try to identify which patterns of interaction appeared to be in association with achievement in school and to establish whether some children were more successful at school than others because of these patterns of interaction. If some children were more successful at school than others because of the patterns of interaction then it was reasonable to examine why this happened. Such a finding would lend credence to the view that children must first become competent in a general learning process of how to learn in classrooms before they could become competent in the specific learning processes underlying the skills of tasks necessary for achievement in, for example numeracy and literacy.

Considering schools as having a unique culture raised the question whether schools could be considered as cultural settings differing from surrounding ecological environments. There were a number of studies indicating schools might be viewed in this way. Illich (1971) identified schools as 'having age grades, rituals, myths, cargo cults, particular ideologies and values which were held by both teachers and pupils. Sarason (1971) took the culture of the school as 'existent' and examined whether change within a subject area (e.g. new mathematics) created a change in the process of schooling. His book claimed the more things changed the more they stayed the same. The ideologies and values of the principals and teachers prevailed no matter what changes occurred. Philips (1972, 1983) study agreed with Sarason's perspective, considering schools and homes to be two different cultural environments. However, because her study group was clearly
culturally different (American Indian Reservation children) the primary focus of her study differed from this present study. Ramsay (1982) stated culture not only existed in schools but was a way of controlling pupils' access to knowledge. This was also the underlying theme of the paper in which he Sneddon, Grenfell and Ford collaborated (1983). This paper indicated schools were most successful when 'goals and aims' were overtly known to all the participant teachers. Purkey and Smith (1985) accepted a school culture existed and that this culture strongly affected student academic performance.

If there was any doubt education within the school system could be viewed as having a specific 'culture', Sacks and Smith stated:

(The) forms of consciousness, knowledge, sentiments and values that teachers use as part of their cultural repertoires in schools are the result of social constitution. The 'social' is composed of a number of overlapping discourses that are characteristics of schools everywhere. 'Teacher culture' is a signifier for the production of consumption of these discourses. Recent trends to emphasize the plurality of teacher cultures are countered by a review of work that suggests more uniformity in teacher culture (Sacks & Smith, 1988, p.423).

Therefore it appeared reasonable to view schools, or in the least school classrooms, as having a culture unique to the school ecological environment. If this 'culture' was 'unique' it was possible it was very different from the 'culture' of some home ecological environments.

(2) Enculturation
interaction which caused failure in school for some children. If school culture was 'unique' it was possible the process of patterns of interaction of most importance was that of 'acculturation'. Acculturation implied the need for a participant within a society to be from a different, possibly ethnic, environmental background. However, it did not seem essential for a person to derive from a particular ethnic background in order for acculturation to occur. If this was so a child might have arrived at school with little or no understanding of the patterns of interaction necessary for achievement and after a period of trial and error this child might have discovered that in order to be successful in school a completely new system of learning and teaching had to be acquired. This would mean the child's own culture had to be drastically modified.

The separation of the concepts of 'enculturation' and 'acculturation' worked very well for anthropologists within small mono-cultural societies where virtually every person living within a society operated by very closely defined rules. The division is not so distinct within large, multi-cultural, industrialised societies. This study was set in a small, working-class town within a multi-cultural, industrialised society. Even in such a situation it was possible for children who came from apparently similar backgrounds (i.e. similarity of housing, language, dress, family structure, apparent shared concepts of socialisation and education, etc.) to have held very different ideologies, beliefs and values about the school culture. If the ideologies, beliefs and values of apparently similar
children resulted in misinterpretation of classroom patterns of interaction the children’s ideologies, beliefs and values would have to be drastically modified for successful participation of classroom patterns of interaction to occur. In such cases the process of most importance for achievement in school would be the acculturation process and not the enculturation process.

Although there was no debate in the literature about whether or not schools enculturate or acculturate children there were studies indicating one or other of these processes are at work. Cole and Bruner (1972) were interested in both the enculturation process and the acculturation process when they investigated what accounted for the difference in achievement in participation of classroom patterns of interaction and achievement in intelligence tests. They concluded that if teachers recognised differences in the patterns of interaction of pupils and concentrated on asking children to ‘transfer skills [t]he[y] already possess(ed) to the task in hand (ibid, p.176)’ there would be an improvement in achievement in participation of classroom patterns of interaction and intelligence test results of culturally different children at school. Recognition of pupil difference and emphasis on children using skills they already possessed required changes in the school enculturation process. The lack of recognition of difference in patterns of interaction and skills probably meant the participation of culturally different children in the pattern of interaction in a classroom had to be drastically modified (acculturation) in order for achievement to occur. Because Cole and Bruner
were convinced the changes they were interested in could be made and would result in better achievement for most children, they concluded ethnicity alone was not a sufficient reason for school failure. However, if recognition of pupil difference and emphasis on children using skills known to them and not necessarily the teacher meant changes in the enculturation process of the classroom, unless it could be demonstrated that some of the patterns of interaction occurring in classrooms are non-essential for the beliefs, ideologies and values of the school culture or these patterns of interaction could be generalised and not affect the beliefs, ideologies and values of the school culture, such changes might be difficult to generate. If the acculturation process was causing some children to fail at school then the significance of such patterns of interaction for school culture was essential.

Other studies were concerned with the acculturation process and the enculturation process. For example, Heath's study (1983) examined both the acculturation processes and the enculturation processes within the three 'societies' she studied. The focus of Heath's study on the 'natural' environment of the study's subjects closely aligned it to this present study. Her findings will be examined at length in section five. Clay's study (1986), while not stating she was examining the criteria for becoming 'learning disabled' from a cultural perspective was in fact dealing with the possibility of difference in the acculturation process.
Even though the concepts of acculturation and enculturation are not explicitly noted in the education and psychological literature concerning school failure, by the late nineteen-eighties a number of studies had been published on how to include the cultural perspective in educational studies (Spindler, 1987; Spindler & Spindler, 1987; Valsiner, 1987; Jaeger, 1988). This study is intended to address the issues of the enculturation process and acculturation process and its affect on the achievement of children at school.

5. STUDIES WHICH INCLUDE DATA FROM BOTH THE HOME AND THE SCHOOL ECOLOGICAL ENVIRONMENTS

Earlier in this discussion it was considered that studies which selected specific factors, for example, socio-economic status or ethnicity, which appeared to affect learning may have overlooked a range of other factors which also affected achievement. In addition to this, the socio-economic literature discussed above indicated a research focus of identifying significant underlying causes of school failure which might yield more useful information. The section on other home and school experience factors introduced the significance of differing types of process. At least two differing types of process were identified. These were the process of content specific skills which were thought to underlie, for example, reading and mathematics, and the process of underlying patterns of interaction which were thought to underlie the process of content specific skills. The
process of underlying patterns of interaction appeared to derive from cultural ideologies, values and beliefs and as such was a more general phenomenon. The literature suggested achievement of children at school could be improved by a solution deriving from either the process of content specific skills or the process of underlying patterns of interaction. However, the evidence of why this was so for the underlying patterns of interaction was less clear than it was for the process of content specific skills. Some generalised or holistic studies which examined both the home and school environments and achievement at school offered insights into the process of underlying patterns of interaction which were of significance to this study. The studies examined in detail were those reported by Jackson (1979), Renwick (1984) and Heath (1983). These studies proved particularly relevant because they described particular patterns of interaction which affected or were incongruent with achievement at school.

(1) **Patterns of Racial Blindness**

Jackson’s study (1979) of the effect of racial differences on children entering school in ‘Huddesfield’ England was one of the first ethnographic studies to look at children in both the home and the school environment. It was an acculturation study, both at home and at school, of six children who were ethnically different from mainstream English society.

Jackson observed the children at home and in the street over the three month period prior to school
admission at five and at school during their first day at school. The observation technique he used was, "Classical ornithology: birdwatch, record, meditate, analyse, forecast (1979, p.79-80)."

By his data gathering method Jackson showed it was possible to obtain significant information about family organisation in a natural setting and this family organisation was in some way related to the way children felt and acted upon arrival at school. At school he observed the children on the first day and then tried four experiments related to racial prejudice. The first of these experiments involved the counting of human faces visible in the classroom and corridors over a child’s first term and identifying the colour of those faces. The second of these required children to draw and colour in pictures of their mothers and the class teacher and to analyse them according to the colours the children used for their mothers and the class teacher. The third experiment required the children to select lollipops in different wrappers, then the researcher asked the children why they elected their particular lollipop choices. In the fourth experiment Jackson noted the way the teacher and the children discussed and used colour terms in the classroom. These experiments showed both the children and the school teachers were 'racially blind'. In other words the children and the teachers did not know they were discriminating on the basis of a person’s colour or ethnic origin. It meant their vision focused selectively. Those people who did not appear to be similar to themselves were unnoticed because the observer's eyes did not focus on
anyone who was different from themselves. Even a twenty year old in the street did not 'see' her neighbours who were racially different and those people who were racially different from her did not 'see' her. Jackson concluded racial difference could prevent communication because of the way in which people different from each other seemed not to exist for each other.

The ability of people to avoid interaction with people who are racially different from themselves gave an indication of the extent of the problem encountered by children entering a school society which was racially different from their own society. If Jackson was correct then such children would be inclined to ignore anyone, including the teacher, who was racially different from themselves and the teacher would be inclined to ignore such children. Neither the children nor the teacher would be aware such a process was in operation, therefore, it would become difficult, if not impossible, to create a relationship. If achievement at school was dependent on both the children and the teacher being involved in the same patterns of interaction it was difficult to see how this could occur. The concept of 'racial blindness' must have implications for the enculturation process of the school culture. Although Jackson did not comment on this, it seemed reasonable to assume that unless the children who were racially different from the majority had characteristics which included patterns of interaction which appeared similar to the school culture's patterns of interaction, then a racially different child would not succeed. From the literature on ethnicity we already know
that although many children who were racially different from the majority, did not achieve there were some who did achieve at school. If racial blindness was a general phenomenon it could not, the researcher concluded, be the cause of school failure. It was possible it was not as general a phenomenon as Jackson suggested. It was also possible this phenomenon was not limited to children who were racially different from the majority. Perhaps it extended to children who were considered to be different from the majority in a host of different ways (intelectually, socio-economically, physically, etc.). If this was so then the way the school enculturation process operated to include or exclude such children became critical for the achievement of these children.

(2) Patterns of Emotional Adjustment to School

Renwick’s study (1984) of children’s transition to school in New Zealand investigated those factors which made adjustment to school particularly difficult for five year old children during their first week of school. It was significant to the present study (which was set in New Zealand) because of what it told us about the relationship between home and school in New Zealand.

Children were observed and talked with at home, at pre-school and on their first day at school. Parents, pre-school teachers and school teachers were interviewed and surveyed via three national postal surveys. The results showed the personality and the skill of individual teachers were major factors contributing to the ease with which
children settled into school. Renwick concluded the personality and skill of individual teachers derived more from the way each teacher perceived the status of being a teacher and the experiences each teacher had encountered in life while being a teacher, than from specifically developed skills and knowledge gained at specially designed pre-service or in-service course-work.

In addition to personal factors to do with the new-entrant room teachers Renwick's analysis indicated that the anxiety levels of parents, teachers and children were related to the ease of children's transition to school. For example, a teacher's beliefs s/he lacked specific skills and knowledge created anxiety in some teachers. This was especially so as the pressure to involve 'the community' in the classroom increased. Renwick appeared to assume if teachers were anxious this affected children in some disadvantageous way; and if there was a genuine partnership between parents and teacher which caused this anxiety to disappear, then children were affected advantageously.

The parent's anxieties arose from the change of the children's status as pre-schoolers to school children, the parents' memories of their own entry into school and the fears and excitement felt by the children about this new experience. From Renwick's perspective it seemed the parents anxieties were increased because unlike pre-school teachers, parents perceived new-entrant teachers as not working with parents with any sense of satisfaction. Renwick appeared to assume this combination of causal factors for parental anxieties affected the ease of the
children’s transition from home to school at five years. She also appeared to assume that the teacher’s ‘sense of satisfaction’ in working with parents was the same as understanding and knowledge about the home circumstances of the children entering school.

This study found despite teachers’ lack of satisfaction in working with parents, parental anxieties about school, and the transition time, the transition to school was reasonably smooth for the children. Renwick’s study provided an insight into the anxieties, and other emotional factors which appeared to occur at the transition period for children coming from home, or pre-school, to school in New Zealand. Parents and teachers appeared to have different views about young children’s adjustment to school. If the teacher was the socialising agent for the school culture then there were implication for the underlying patterns of interaction of the school culture. If home expectations of school and teachers expectations of ‘school’ children were different then a mis-match must be created between the way each sub-cultural environment enculturates children. Just how this occurred was still unclear.

The ‘anxiety factors’ and the difference between home ‘expectations’ and school ‘expectations’ described by Renwick were possibly another way of describing difference in the underlying patterns of interaction. They were categories identified from comments about interactions which were perceived by the commenters to occur between teachers, children and parents. These factors were
reminiscent of the concept of comembership put forward by Erickson and Schultz (1981) and the idea of a comfortable participation structure of Au and Mason’s (1981) mentioned earlier in this literature review. These ideas appeared to operate on the principle that association with a person in an emotionally satisfying way was more likely to create communication which led to understanding. One major difference between the ideas of 'comembership,' 'comfortable participation structures' and Renwick's anxiety factors was that Renwick's factors appeared to have no association with the race of the participating people. The lack of association with the concept of race gave an indication that underlying patterns of interaction may be able to be quite different among people who appeared to be racially and culturally similar. It gave strength to the notion that people from the same society could have distinctly different enculturation processes.

(3) Patterns of Socio-linguistic Interaction

Heath's study (1983) was more extensive and was the most closely related of these three studies to this present study. It was, however, more closely aligned to a traditional anthropological study than this present study. Heath carried out an ethnographic study in three different communities in the United States. She tape-recorded interviews with parents and teachers, made extensive observations of community and family interactions and wrote detailed field notes of these three communities over a ten year period. Through observations in the homes, in the communities and in the schools she covered the transition
periods of children from home to pre-school, and to school. She interviewed adults about the transition to work and their views on education. The results showed the limits and features of the situations (i.e. the family’s life experiences, the economic opportunities, the community and family concepts about education, etc.) in which talk occurred in the home environment, affected achievement in school and achievement in school affected choice of work and standards of living in the adult years.

The different social situations of each of the three communities were described in general terms with specific adult and child natural language examples. The aim of the first section of Heath’s study was to show that the existence of these differences between the social situations in which talk occurred was the significant factor for school achievement and not the nature of the differences which existed. Her hypothesis was that if it was accepted different sub-cultures had different language environments then success at school could be affected by teachers setting up language environments which were the same as the children’s sub-cultural language environments.

In the second part of her research, Heath showed teachers could create the children’s home language environments if teachers were taught how to become ethnographers. The teacher’s first task was to discover how they themselves interacted at home and at school. They did this by tape-recording, describing activities in field notes and interviewing family and friends. The focus was always on the ways of learning and using language. Once
the teachers had an understanding of their own habits and beliefs, they were able to see how they brought these with them to school. As a consequence of this, they were able to distance themselves partially from their own belief systems and practices.

The teachers’ research in the schools showed their children’s beliefs relating to specific objects, such as puzzles, could cause frustration and communication breakdown. Specific speech patterns were often misinterpreted by teachers. For example, (ibid, p.277):

Teacher, "Where is Susan? Isn’t she here today?"
Lem, "She ain’t ride de bus."
Teacher, "She doesn’t ride the bus, Lem."
Lem, "She do be ridin’ de bus."

The teacher attempted to correct Lem’s use of ‘ain’t’ but misinterpreted it by assuming Susan did not ever ride the bus. Lem was ensuring the correct message was received. The misinterpretation occurred because of specific verb usage. In addition to specific word misunderstanding less tangible beliefs (e.g. about politeness, timing, discipline) also caused communication problems.

Through ethnographic analysis teachers recognised some communities’ language patterns, both verbal and non-verbal, were different from the language patterns necessary for school. Some teachers devised programmes to extend the children’s language patterns to include some patterns thought to be necessary for success in school. These programmes included broadening the horizons of children by
discussions, and by taking them to visit libraries, art galleries, etc. and parent programmes to show what happened at school. Most of these programmes required a substantial commitment from the teachers and were short-lived. Heath found they had little impact on the children’s ability to succeed in school in the long-term, but they did engender interest and good will in the neighbourhoods.

Heath carried out further experiments which improved children’s knowledge of how to act appropriately in class. However, these experiments did not have a marked effect on academic progress.

From the classroom interventions and the observations within the three communities, Heath concluded for children to be successful in school, they needed the skills of labelling, naming features, providing narratives for items taken out of their context, exposure to stories and situations in which they and adults manipulated environments imaginatively, and children’s exposure to talk about the effects of changing one aspect of a context while holding all others constant.

The findings from the in-community observations, tape-recordings and interviews showed the patterns of language used by the children in two of the communities before they went to school were different from each other and very different from the third community. The children of one community had developed a sequence of habits in language, telling stories, making metaphors, seeing patterns across items and events which did not fit the
developmental patterns of either the linguistic or cognitive growth reported in research literature on mainstream children. The children of one of the other two communities seemed to have developed many of the cognitive and linguistic patterns equated with readiness for school and yet seemed not to move outward from these basics to the integrative types of skills necessary for sustained academic success. The children of the third community appeared to have developed the patterns necessary for readiness for school and were generally successful.

Heath's findings were significant to this study because they demonstrated 'sub-cultural difference' affected linguistic patterns and specific beliefs about, for example, politeness, timing, discipline, and these in turn affected language learning and academic achievement. Her study was concerned with overt practises and so did not address how specific sub-cultural differences in language learning were transmitted within the three communities she studied. Nor did her study demonstrate how the school sub-culture was transmitted. It provided answers for many questions to do with cultural difference and academic achievement but it left unanswered the questions of how cultural and sub-cultural differences were transmitted (enculturation) and how these affected academic achievement. It addressed the effects of enculturation or acculturation but not the processes. This present study has been an attempt to describe the acculturation processes affecting achievement.
6. LANGUAGE STUDIES

The holistic studies and many prior studies discussed focused on language usage and the significance of this to achievement. This section examines some of the language studies which appear relevant to the question of why children achieve at school.

Most studies to do with language and achievement in school have been specific studies of aspects of language set in a specific context (i.e. not holistic). Despite this difference in perspective a large number of relevant language studies included a variety of academic disciplines (e.g. linguistics, sociology, education, psychology). It would add little to this study to include examples of all aspects of language which have been studied. The studies discussed below have been selected because they were believed to demonstrate specific factors considered to be relevant to achievement in school.

Bernstein’s research (1961) suggested the language of working class homes was limited to a ‘restricted code’ and children coming from these homes were handicapped in their understanding of the ‘extended code’ used in middle class homes and in the school. The concept of a ‘restricted code’ was also found in the concept of ‘language experience’ frequently used at in-service training for teachers in the nineteen-seventies and early nineteen-eighties in New Zealand. It was claimed exposure to more and more varied language was necessary for ‘speech
deprived' children in order for them to be successful at school.

In Marion Blank's study (1975) 'language experience' was defined as two orders of questions. The first order consisted of 'where?', 'what?' and 'who?' questions. The second order consisted of 'why?', 'how?', 'when?' and 'which?' questions. She found children's understanding of these types of questions was closely linked to their problem-solving skills. She claimed problem solving skills were important for children's success in school. In addition to Blank's study, Stevenson (1972) and Ekstrom (in Kresh, 1973) also found experience with problem solving was important for achievement in school. If exposure to questions was an important aspect of 'language experience' and 'language experience' was related to school achievement then it was relevant to this study to consider other studies to do with aspects of questions.

The quality of questions was studied by Furrow, Nelson and Benedict (1979). They noted the quality of mothers' questions was positively associated with both linguistic and mental development. Questions to do with 'wanting' were studied by McNeany and Keislar (1966). She found children were able to get what they wanted prior to four years of age through a variety of wanting-type questions. There was an assumption that the ability to get what one wanted was related to achievement in some way. 'Why' questions were studies by Hess (1970). Her results (ibid, p.92) corroborated in part Blank's findings that children with, "More exposure to 'why' questions will be
more skilled in drawing inferences from the text." Hess discovered mothers’, "Tendency to elicit verbal rather than non-verbal responses from their preschool children...is correlated with letter knowledge and mathematics ability in kindergarten and first grade (Hess, 1970, p.92-93)." 'Eliciting' did not necessarily imply exposure to questioning. It had been noted by this researcher, however, that questioning was the most common form of eliciting which was most likely to gain a verbal response in the home observations of this present study. Hess’s findings also indicated experience with verbal responses was relevant for achievement in school. These findings all supported the existence of a relationship between school achievement and the extent to which mothers used, or children had exposure to question types.

Exposure to specific language factors, such as question types, was one aspect of language experience. Another language factor having apparent significance for school achievement was the frequency of talk in which a child participated. Brown, et al, (1984, p.7-9) suggested 'casual talk' or 'chat' did not have to be taught because all mothers 'chat' to their children. However, "Information-related talk differ from social chat in that its purpose is primarily to transfer information to a listener who needs it for some purpose (ibid, p.101)". Since information-related talk was a critical element of language in classrooms, it would seem from Brown’s findings that those children who were exposed to a variety of different types of information-related talk would be better able to understand what was going on in the classroom and
learn from what the teacher was saying. In addition to 'chat' and 'information-related talk', McDonald and Pren (1981) stated mothers used language to control children but children's exposure to language which controlled, although apparently of importance to the way classroom operated, was not found to be relevant for achievement at school.

A more comprehensive study of the language of children at home and at nursery school was carried out by Tizard and Hughes (1984). They observed each of thirty girls of similar socio-economic status one afternoon in the home and two mornings at nursery school. The results of these observations showed similar proportions of control remarks were made by mothers and teachers. They stated:

However, the control centered around rather different issues in the two settings...The mothers' disciplinary efforts were mainly directed at preventing damage or waste to the content of their home, teaching good manners, and protecting the child from danger (Tizard & Hughes, 1984, p.183).

The teachers' control remarks centered on the days' routines and tidying up (Tizard & Hughes, p.184). Unlike McDonald and Pren (1981) they did not relate this to possible achievement. Indeed it would have been difficult to do so at the nursery school level, in terms of the school system. However, they found the emphasis, by the teachers, on a classroom routine form of control curious because:

In view of the fact that most nursery school teachers give "furthering the children's social development" as their first aim, relatively few staff-child interactions were concerned with this issue. As a form of control - telling children to take turns, share, be kind, not to quarrel, etc. - it came up rather infrequently (on average 1.3 time an hour), much
less frequently than instructions to follow the day's routine and to tidy up (6.5 times an hour) (Tizard & Hughes, 1984, p.184).

Not only were teachers' remarks less concerned than mothers' remarks with the social development of the classroom children, there was less adult to child talk than in the homes, fewer conversations instigated by children in the classrooms and conversations were kept going by the nursery school teachers. Teachers attempted to keep the conversation going by asking questions. Such question occurred much more frequently at nursery school than at home. Because many of these questions went unanswered Tizard and Hughes questioned the value of these questions as a teaching tool. They concluded that, "Home was by no means an inferior substitute for school (ibid, 1984, p.235,)."

At the nursery school level, at least, Tizard and Hughes (1984) found it had to be concluded that the language experience questions of Blank (1975) were more likely to occur at home than at nursery school. This raised questions about the importance of question types for cognitive growth. A number of studies had found a relationship between question types and cognitive development (e.g. McNeany & Keislar, 1966; Hess, 1970; Blank, 1975) and yet it appeared from the Tizard and Hughes study that the nursery school environment was no better than the home environment in the successful application of a variety of question types. In addition to these factors the 'information related talk' of Brown et al (1984) did not seem to occur more frequently at nursery school than in
these homes. If there was a value in the nursery school education of the Tizard and Hughes study then the value appeared to derive from the children's exposure to a large and varied group of children. Perhaps the teachers were truly the facilitators of the educative situation and not the instigators. If this was so then the teachers' remarks would focus on organisational factors.

Because it was considered the ability to respond was related to achievement in school (and such a relationship was demonstrated by Hess et al later in 1982) Von Kleeck and Street (1981) posed an interesting question when they asked, "Does reticence mean just talking less?" Their study showed there was no relationship between the achievement rates of children and the amount of talk they engaged in. Responding when required and the amount of talk a child engaged in were not equivalent aspects of language. However, if a child responded when required it could be considered the child was capable of talking whenever required. A child who responded appropriately was seldom considered to be 'reticent' by the classroom teachers in this study. Von Kleeck and Hess's studies showed this apparent relationship was not significant for achievement in school. It was possibly because Hess, Von Kleeck and Street demonstrated that reticence did not appear to have a relationship to achievement in school that Tizard and Hughes did not consider the lack of child responses to the teacher questions as relevant to achievement in school.
Studies concerned with 'restricted codes' and 'language experience' generated an interest among researchers of a variety of specific aspects of language. These specific aspects of language included studies about exposure to a variety of question types, studies to do with quality of questioning by mothers, the eliciting of verbal responses by mothers and how aspects of language were related to problem solving. Other studies considered less specific aspects of language, for example, the frequency of talk a child engaged in, the type of talk a child engaged in (e.g. casual talk, information-related talk), what reticence really meant and the use of controlling talk by mothers. All these studies had significant findings related to achievement in school which raised the question how these, and other aspects of language (e.g. statement types, non-verbal language) fitted together to form the totality of verbal and non-verbal language present in classroom interactions and which of all these aspects and combinations of aspects were important for achievement in school.

Exposure to the specific language factors noted above and the idea time spent reading, being read to and watching television appeared to have a strong relationship to achievement at school. Although this present study was concerned with the processes of why these factors appeared to relate to achievement, the possibility of such items being explanatory in themselves could not be overlooked. Exposure to the language and literacy factors were explored. The results of this analysis are to be found in Chapter V.
7. METHODOLOGY

The preceding sections have demonstrated that the research into factors affecting achievement in school was extensive. The methodologies used in these studies ranged from traditional psychological or educational research of specific problems which could be answered by a quantitative analysis of the data, to participant-observation research with an interpretive analysis of the data. Because the research question of this study was of a generalised nature, this research was originally conceived as an interpretive study which sought to maintain ecological validity (cf. Erickson, 1986). This decision was influenced by the anthropological background of the researcher and the fact that at the time this study was instigated a number of researchers inside psychology and education were arguing for less narrowly defined empirical research and for more ecologically valid and interpretive studies. For example, Bronfenbrenner wrote:

The emphasis on rigour has led to experiments that are elegantly designed but often limited in scope. This limitation derives from the fact that many of these experiments involve situations that are unfamiliar, artificial, and short-lived, and call for unusual behaviours that are difficult to generalize to other settings (Bronfenbrenner, 1979, p.18).

and McCall wrote:

What value is our knowledge if it is not relevant to real children growing up in real families and in
real neighbourhoods...the process of development as it naturally transpires in children growing up in actual life circumstances has been largely ignored (McCall, 1977, p.334).

Research requiring ecological validity does not have to be interpretive but the more general the research question the more difficult it becomes to design an effective traditional quantitative study. The exception to this would be studies which test the validity of the findings of previously conducted interpretive studies. For example, if an interpretive study was carried out on home background factors affecting achievement of children in school and that study found that children with more exposure to adults structuring their activities were more likely to achieve well in school, then subsequent quantitative study could be mounted which set out to test the original findings by recording the number of times adults structured children's activities in the home environment and by correlating these totals with the achievement of these same children at school.

Interpretive research was a term used by Erickson for a 'whole family of approaches to participant observational research' (1986, p.119). Erickson found it necessary to use this term because it did not imply the research had to be qualitative. He noted quantifications of various kinds were often employed in interpretive research.

Interpretive research was often associated with a data gathering technique termed 'continuous narrative description'. Although this was one of the data gathering techniques employed in this research it was not this
technique which made the research interpretive. As Erickson stated:

Continuous narrative description can be used by researchers with a positivist and behaviorist orientation that deliberately excludes from research interest the immediate meanings of actions from the actors’ point of view. Continuous narrative description can also be used by researchers with a nonpositivist, interpretive orientation, in which the immediate (often intuitive) meanings of actions to the actors involved are of central interest (Ibid, 1986, p.120).

What made 'interpretive' research interpretive was the research question. Such a research question might seek to explain a problem appearing to have its origin in underlying patterns which derived from the beliefs, ideologies and values of particular people. Such research questions were usually of a general nature, for example, why did some people succeed while others fail in a particular educational situation? The answers would be sought from an analysis of observational data. The process of this type of analysis required decisions to be made about the type of observations to be carried out and how the data was to be analysed before the researcher was in full possession of the facts. This meant the researcher had to make decisions based on knowledge of the literature, on his/her own experiences and intuition. Such an analysis was specifically interpretive because, for example, in order for the observations to be counted in any way, an interpretive decision had to be made about which kinds of categories were meaningful to the research question. Even if categories or divisions of occurrences within the data were not counted then the way the data were going to be discussed had to be decided by the researcher. Research
questions which required interpretations would lead the researcher to look for a method which would be appropriate for the study of the question. Because interpretive research attempted to answer a research question in an ecologically valid way the methodological analysis had to be developed from the observed natural situation. The, "Specific categories for observation are not determined in advance...and the researcher always identifies conceptual issues of research interest before entering the field setting (Erickson, 1986, p.121)." According to Erickson these conceptual issues were neither obvious nor trivial.

They concern issues of human choice and meaning, and in that sense they concern issues of improvement in educational practice. Even though the stance of the fieldworker is not manifestly evaluative, and even though the research questions do not take the form "Which teaching practices are most effective?" issues of effectiveness are crucial in interpretive research (ibid, 1986, p.122).

The research question of this study was a question of the type described by Erickson as 'interpretive'. Why some children failed while other succeeded when they came from apparently similar backgrounds and had apparently similar abilities was about the ways parents raised their children, the beliefs which lay behind their child rearing, and the ways their children interpreted, understood and learnt from this behaviour. This research question was not asking which choices parents and teachers made were the most effective but suggesting the choices the teachers and parents made were of concern and raised questions about effective parenting and effective teaching. Perhaps the most important information sought was held in the heads of the children and the teachers. Put another way, the way
children were socialised in the home created in the children a particular way of looking at new situations and new information. Teachers were also socialised into a system which involved a particular way of acting by the teacher which might or might not make sense to children who had been socialised in different homes. It was possible that the difference between these two systems was a major cause of success and failure in school. If this was so, the reasons for success or failure could not be observed directly but must be inferred from observations made in both settings. According to Bronfenbrenner:

In terms of research method, the child’s evolving construction of reality cannot be observed directly; it can only be inferred from patterns of activity as these are expressed in both verbal and non-verbal behavior, particularly in the activities, rules, and relations in which the person engages (Bronfenbrenner, 1979, p.11).

Many interpretive studies have been conducted eliciting parent ideas, expectations and attitudes (e.g. Hess, 1970; Goodnow, 1984; Miller, 1988) and some of these studies indicated that under some condition parents ideas, expectations and attitudes were also held by their children (e.g. Cashmore & Goodnow, 1985; Ladd & Price, 1986; Alessandri & Wazniak, 1987). A review of many of these was found in Goodnow (1988). Although these studies told us a great deal about the socio-environmental setting in which a child was developing, they told us little about what effects these ideas, expectations and attitudes had on achievement in school and why some children achieved differentially. However, they led into a line of investigation which has proved to be of significance to cognitive development of children. Using interpretive
analysis of children's reactions to specific actions of researchers Bryant (1974), Donaldson (1978) and others demonstrated that children's apparent failures in thinking could be caused by misunderstanding what the adult wanted them to do. Feldman's study (1987) demonstrated by looking for underlying patterns of meaning in a dialogue that it was possible to reconstruct the development of cognitive tasks necessary to increase understanding of a topic. She said:

The capacity to construct representations can be seen by looking at dialogues for newly created topics and for steps along the way to the construction of topics. In the dialogues of adults, one can see the epistemic being converted into the ontic, as earlier-occurring comments are turned subsequently into topics (Feldman, 1987, p.138).

This was an interesting technique which furthered understanding of the process of measuring and understanding cognitive social development of a topic. It was an exciting procedure but because of its reliance on verbal speech it was one which was difficult to generalise to all social interactions. Indeed, this was not Feldman's aim. She was interested in measuring the cognitive development of understanding and not in how these understandings relate to cultural beliefs, ideologies and values.

School culture certainly has an emphasis on language but it is much more than language. School culture includes values, ideologies and beliefs which are expressed in the way schools and classrooms within schools are organised and structured, and which are also expressed specifically in teacher expectations and verbal and non-verbal actions. Information about school culture might be transmitted
verbally. It could be modelled, transmitted non-verbally or be expected to be recognised through negative communication. However, Sacks and Smith pointed out just how verbal a culture school culture was when they said:

...forms of consciousness, knowledge, sentiments and values that teachers use as part of their cultural repertoires in school are the result of social constitution. The 'social' is composed of a number of overlapping discourses that are characteristics of schools everywhere. 'Teacher culture' is a signifier for the production and consumption of these discourses. Recent trends to emphasize the plurality of teacher culture(s) are countered by a review of work that suggests more uniformity in teacher culture (Sacks & Smith, 1988, p.423).

This statement showed school culture was expressed in a predominantly verbal ways and was very similar across many classroom situations. However, 'forms of consciousness, knowledge, sentiments and values' suggested that although the verbal language appeared to hold all the message, much of it was hidden. It was hard for this researcher to accept that teachers were consciously aware of all their own values, sentiment and knowledge. School culture was complex and as Valsiner pointed out, it was the complexity of this system that led researchers into conceptual difficulties. Of the complexity Valsiner stated:

The conceptual difficulties with the idea of development that child psychologists have persistently encountered make it imperative to address difficult issues first theoretically (although in close connection with the observable phenomena), and then proceed to construct scientific methodologies that fit the developmental nature of the phenomena that are studied (Valsiner, 1987, p.x).

The issue with which this study was concerned was first analysed for its theoretical implications. The
general nature of the research question and a belief that the answer would be found if the sub-cultures of the home and school were explored in a systematic way, led the researcher to adopt an ethnographic inquiry methodology. Such a methodology enabled a dialogue to be maintained throughout the observational stages of the research, between what was being observed and the theoretical issues. The results of this stage of the research were then able to be subjected to a variety of analytical methodologies which took account of the data itself within its ecological environment, related literature and whether the results of the methodologies employed were able to include the effect of the environment on the data. Wolcott said of this type of approach that:

It is an inquiry process carried out by human beings and guided by a point of view that derives from experience in the research setting and from the knowledge of prior anthropological research (Wolcott, 1988, p.191).

and,

The anthropologists' trade secret...is that he or she would never...rely solely on a single observation, a single instrument, a single approach. The strength of fieldwork lies in its "triangulation," obtaining information in many ways rather than relying solely on one (ibid, 1988, p.192).

This study did not 'rely solely on a single observation...a single approach'. The researcher spent an extended time in the field and used four different data gathering approaches, described in detail in Chapter III. There was a difference in emphasis from anthropological ethnographies. The focus was not on generating a theory of how a culture, "The socially acquired and shared
knowledge...that enables members of the society to behave in ways deemed appropriate by their fellows (Frake, 1980, p.26)," was organised in the minds of its users and manifested in their behaviour, especially their speech. Rather, the emphasis was on developing a conceptual analysis of the research problem in such a way that the data could be systematically explained. The problem did not consist of 'socially acquired and shared [cultural] knowledge' but rather how that knowledge was transmitted and whether the way that knowledge was transmitted affected the achievement rates of some children in school. Both the anthropological problem of how culture affected social interaction and this research problem, required patterns of some kind to be identified. These patterns could be both quantified and qualitatively analysed. Quantification would enable clear comparisons to be made within the data (e.g. through rank order comparisons, scattergrams and correlational analyses). Qualitative analysis would ensure that the research maintained ecological validity by, for example, comparison of the quantitative results with the ecological data. The identification of patterns implied a systematic analysis of the data in a way which took account of both the researcher's perspective and the participants' perspective. In total an ethnographic inquiry process required a defined theoretical construct within a theory which could be applied to the data to ensure systematic analysis and maintain ecological validity of the data. Such constructs were seen, for example, in the studies by Feldman in her analysis of dialogue, the studies of Frake, etc. which utilised domains and folk taxonomies and in schema theory.
The methodology employed used strategies of data triangulation (Denzin, 1978, p.295) and theory triangulation (ibid, p.296) in order to maximise the validity of the results. The most significant results were derived from a combination of the analysis of the non-participant observational data and the test results explained by a theory of scripts and schema generated from the data. Thus the theory generated was 'grounded' in the data (Glaser, 1978) and the total methodology employed conformed most closely to what Haig has called a holistic theory of method (Haig, 1987, p.23). In his paper, 'Scientific problems and the conduct of research' he stated:

Thus RHI [retroductive - hypothetico - inferentialism] method is to be thought of as a distinctively structured complex of related cognitive tasks that includes problem formulation, data collection, data analysis, theory generation, theory development, and theory appraisal (Haig, 1987, p.23).

However, because the process of such a methodological investigation was not linear (i.e., there was a constant dialogue between data, method and theoretical constructs) it seemed simplest to consider the methodology as what Erickson termed 'interpretive' (cf. Erikson, 1986).

8. SCHEMA THEORY

The purpose of this study was to address the research question of why some children failed while others succeeded at school when the children have apparently similar
backgrounds, and similar abilities. This question involved the problem of the relationship between two sub-cultures, that of home and that of school. It addressed the problem of the underlying causes for school failure and not the problem of the cultural ideologies, beliefs and values which established the environment within which failure occurred. It did not address the problem of how failure occurred in specific curriculum content. Because the problem required an interpretive methodology the type of data gathered allowed for an etic analysis of 'natural' patterns of interaction. That was an analysis of data, gathered in the natural setting, from the researcher's perspective. The interpretive ethnographic method required a theoretical construct (in this case 'patterns of interaction' and their subsets, the components of scripts) to structure the research analysis.

A number of analyses of the data were attempted with limited success. The results of the most significant of these is be reported in Chapter V. Through a process of triangulation a theory of schema (and its component parts - i.e. the theoretical constructs) was generated.

Schema theory provided a framework within which differences between the patterns of interaction of two sub-cultures could be explained. It was assumed that the patterns of interaction were the observable manifestations of the way in which a culture was transmitted. If differences existed between the patterns of interaction of home and school, and these differences presented an obstacle to the successful transmission of the subculture
of the school for some children, then these differences could be explained.

The origins of the schema theory generated in this study were to be found in those studies in both the fields of cognitive anthropology and cognitive psychology which had been influenced by linguistics. The specific version of schema theory which formed the initial framework for the schema theory generated in this study, was generated by Schank and Abelson (1977) for application to a specific problem in the field of artificial intelligence.

(1) History of Related Research

The history of research related to schema theory showed that at various points in time, anthropologists generated parts of the theory, while at other points in time psychologists generated the theory. As early as 1936, Gregory Bateson suggested the cognitive aspect of culture could serve as an important focus of anthropological thought. By this he was implying detailed study of the cognitive aspects of culture could clarify the underlying rules of social interaction and ideologies. At the same time a group of anthropologists (Benedict, 1934; Boas, 1938; Sapir, 1957 - reprinted articles; etc.) working in the area labelled 'culture and personality' were searching for underlying psychological laws of culture. Although they were strongly influenced by Freud, they utilised a linguistic model in generating their theory.

In the nineteen-forties Levi-Strauss (1945) argued for 'global structures' which could be identified by using
a linguistic model. These structures were, "Basic social and mental processes of which cultural institutions are the concrete external projections or manifestations (Levi-Strauss, 1963, p. viv)."

Although it appears from the above, that cognitive anthropology, and schema theory, could have developed during the nineteen-thirties or nineteen-forties they did not. According to Ulric Neisser (1962) they did not develop at the time because cognition was considered to be a part of psychology, and the psychology of that time was primarily behavioural and had little to offer anthropologists. Anthropologists did not use the term 'schema' but analysis of the cognitive aspects of culture coupled with the concepts of 'underlying patterns of culture' (Benedict, 1934), 'underlying psychological laws' (Boas, 1938), 'global structures' (Levi-Strauss, 1963), etc. noted in the studies cited above described a growing awareness that a strategy which used schema theory would be useful to anthropology.

Casson (1983) described the term schema as, "'Knowledge structures' that are 'the building blocks' of cognition (Casson, 1983, p.429)". Minsky said, "There is general agreement that schemata are mental representations located in memory that are frameworks selected from meaning when new situations are encountered (Minsky, 1975, p.439)". There probably came to exist as many definitions of schema as there were researchers who used the term but these two definitions contained the essence of what was similar across most definitions of schema. Schema became a term
used to explain the way new knowledge was processed in the mind, transferred to memory and made sense of (or understood). Schema were the structures of past information or knowledge which were used by the mind to explain a present situation.

In contrast to the anthropological literature the term 'schema' was found in psychological and educational literature in many forms. It was seen in the works of de Saussure (translated by Wade Baskin in 1959) around the turn of the century and in the nineteen seventies in the works of, for example, Schank and Abelson (1977), Minsky (1975), Rumelhart (1975), Fillmore (1975) and Schmidt (1975).

A theoretical reading which utilised schema was first used for the comparison of different cultural groups by Bartlett (1932). In his work on cognitive memory structures, he contrasted the memories of the Swazi people of South Africa with the memories of his English subjects.

Beginning in the 1930's (at the same time as Bartlett) Piaget (1952 & 1962) made use of the term schema in his theory of the development of cognitive structures in children. He used the term schema in his explanation of developmental stages. For Piaget the development of cognitive structures occurred through reciprocal processes of assimilation of reality into the child's cognitive structures, and accommodation of the child's cognitive structures to reality. The structures which develop from
this accommodation to reality and which served to assimilate experience he called 'schemata'.

The work of the earlier anthropologists and psychologists led to the cognitive studies of cognitive anthropologists of the nineteen sixties, (e.g. Frake, 1961; Wallace, 1962; Sturtevant, 1968). The cognitive anthropologists were also influenced by the linguistic studies of, for example, Whorf (1956) who claimed that, "The phenomena of language were background phenomena, of which the talkers are unaware or, at the most, very dimly aware (ibid, p.221)." According to Whorf the 'talkers' were only aware of the units of meaning which could be heard. The 'phenomena of language' were the underlying structures that strung the units of meaning together. It was this 'pattern' of which the talkers were unaware. Cognitive anthropologists used the idea that language phenomena had 'surface structure and deep structure' to develop an explanation of culture as the combination of underlying rules which were a largely unconscious cognitive structure and observable conscious actions which were the societal networks of interaction.

According to this view of culture the hierarchical cognitive frameworks generated within a culture were termed 'domains'. A domain was a concept a society held for a group of similar objects. For example, a society might hold a series of growing things to be alike in some way and might classify them as such. This domain could then be analysed for internal distinctions. By questioning the
people in a society about, for example, 'trees' a 'folk
taxonomy' of 'trees' might be generated (Table 1, below).

These anthropologists hoped through this ethnographic
inquiry method, descriptions of cognitive belief structures
would become replicable and accurate. Comparisons could
then be made across and between societies in a more
systematic and replicable way.

Table 1
A Folk Taxonomy of Trees

Cognitive anthropologists were aware the problems
faced by anthropology and linguistics had important
similarities. Languages had rule-governed structures as
their bases but the users were not necessarily able to
describe these rules. In addition these rule-governed
structures needed an adaptability about them if they were
to be applied to all languages. Until the work of the
cognitive anthropologists of the nineteen-sixties,
anthropologists had hardly begun to address the problem of
flexible rule-governed structures of cultures. Frake noted
the similarity of the tasks of anthropology and linguistics when he said:

The ethnographer, like the linguist, seeks to describe an infinite set of variable messages as manifestations of a finite shared code, the code being a set of rules for the socially appropriate construction and interpretation of messages (Frake, 1964, p.133).

The work of the cognitive anthropologist and linguist was the same. That was, they both had to observe the 'sets of variable messages' in the field and to discover the shared codes which underlay these sets. The easiest and most verifiable 'sets' to identify were those which could be derived from questioning informants about particular concepts. From these, 'folk taxonomies' could be identified. This concept of 'sets of variable messages' and 'shared codes which underlay these sets' was very close to the term schema as it was found in the psychological and education literature. This was because 'sets of variable messages' and 'shared codes which underlay these sets' implied that present 'messages' or 'actions' were 'understood' or 'interpreted' because of 'underlying' information.

It was recognised the problem with this cognitive anthropological theory was that it relied on what the people themselves said about how they thought and acted in relation to observable 'domains'. This was what Pike (1954) termed an 'emic' perspective. Because an emic perspective required data to be collected from the perspective of people within a specific culture it meant rules might be derived which were culture specific. Pike
said for the underlying rules or concepts common to all societies to be uncovered, a procedure of data collection must be devised which was culture free. This was data collected from a perspective not bound by or affected by any culture. Such a data gathering procedure would create an 'etic' perspective. The possibility of any data gathering procedure being entirely culture free had been challenged a number of times and by the late nineteen-seventies Harris (1980, p.32-41) had clarified the etic perspective to mean data gathered from the observer's perspective. He noted an etic perspective was not to be confused with 'objectivity'. For Harris, 'objectivity' appeared to mean an analysis which was structured in such a way that the researcher was able to free him/herself from his/her own biases. Harris demonstrated 'objectivity' did not derive from the fact of data being gathered from the observer's perspective alone but that the etic data had to be accompanied by 'the epistemological status that distinguishes the community of observers from communities that are observed (ibid, p.35).’ This implied for 'objectivity' to be maintained the data had to be analysed from the perspective of a particular body of knowledge which contained defined methods and theories. It was not sufficient for the research to be etic it must also be analysed 'objectively' (i.e. by using a structure which took account of a defined body of knowledge). Research carried out in this way could be termed etic research. Although it was possible for emic research data to be analysed objectively it was more difficult to overcome the problem of replication. Anthropologists were searching for underlying ideologies, values, and laws of culture, a task
of enormous complexity. The more specific focus of most educational and psychological studies probably facilitated replication of such studies whether emically or etically conceived.

It seemed reasonable for the researcher to assume there were patterns in the way people functioned socially, and if there were established patterns, these could be changed or altered to suit variable conditions without denying the existence of underlying principles on which the patterns were based. However the emic data gathering techniques of the cognitive anthropologists were limited to those concepts, objects and actions which could be named by people within the society.

The field of cognitive psychology was influenced by linguistics at about the same time as anthropology. The break in the nineteen-sixties from a predominantly behaviourist view of psychology initiated a number of changes. From the perspective of this study, the most important change was the rediscovering and adaptation of the theory of schema. Brewer and Nakamura (1984) cited the year 1975 as significant because of the number of papers concerning schema theory which were published in that year. Researchers in artificial intelligence (Minsky, 1975), cognitive psychology (Rumelhart, 1975), linguistics (Fillmore, 1975) and motor performance (Schmidt, 1975) all published significant accounts of adaptations of constructs common to schema theory. There was little agreement in these on the definition of schema theory or the theoretical constructs which were its component parts. Descriptions
varied according to the nature of the data being analysed. However, there was a central theme. These writers appeared to agree a general theoretical construct was needed to explain phenomena not explained by specific constructs tied to particular types of data. A general construct was needed but not so general a construct as to be meaningless. The construct needed to describe the multiplicity of observable phenomena occurring in a setting. The task was to describe observable phenomena in terms of underlying structures which governed or structured behaviour, and were made up of the residue of past experience common to members of a particular culture or sub-culture.

(2) Schema Theory According to Schank and Abelson

Although it could be said the theoretical constructs of schema theory which were used in this research, derived from the work of Schank and Abelson (1977) it would be more true to say that their theory triggered the idea that it might provide a way of interpreting the data effectively. When their theory was tested by the researcher against data from a 'natural' interactive setting, it became difficult to explain the component parts because the hierarchical structure of the theory did not appear to be consistent with the underlying structure of the data of the natural interaction setting. For example, when the researcher attempted to discover in what way children learnt how to act in the classroom, part of the answer appeared to be concerned with teachers' expectations which appeared to lie behind some teacher comments at script level. Schank and Abelson's theoretical constructs did not provide a way to explain these teacher expectations, therefore theoretical
constructs had to be devised which facilitated consistent explanation of these expectations.

Schank and Abelson were primarily concerned with, "Computer understanding of natural language (1977, p.20)." Because of this, the basic components of their analysis were words and phrases from natural language in spoken or written form.

Schank and Abelson separated schema into four component parts. These parts were 'scripts', 'goals', 'plans' and 'themes'. In order to illustrate these theoretical constructs, one could imagine a situation in which a father was talking to his son about the car his son wanted to buy. The topics covered in the conversation might include the type, size and price of the car and what optional extras were included with the sale of the car. The total language from the beginning of the discussion about the car to the end would be called, for the purposes of this study, a 'language incident'. The specific words spoken by father and son which made up this 'language incident' were the 'script'.

The 'goal' was the reason for the language incident. The primary goal was held by the person who controlled the language incident. In this illustration, the goal might be the father's aim of evaluating whether the car was a 'good buy'. The father would exercise his 'control' by asking questions and generally guiding the way the discussion went. For the father's 'goal' to be reached the son, too, must hold a 'goal' which did not conflict with the father's
'goal'. For example, the son might have a general 'goal' of sharing decision-making with his father.

A 'plan' was the path of meaning traced through a 'script'. It connected one language event to another. For example, the father asked one question about the make of the car and followed it up with a question about the size. The sequence of questions constituted the 'plan'. 'Language incidents' were, however, larger than specific sentence structures. In the above example of a 'language incident', the path connecting the language about model, car size, optional extras and price to the 'goal' was the 'plan path'. The 'plan' was what made the purpose of this or other similar 'scripts', intelligible to the people participating in the 'script'. The 'plan' needed to be identified by both participants in a 'language incident' so that mutual understanding could occur. For example, the son needed to identify the father's 'goal' in order to understand the specific meaning of the father's language and provide the kind of answers the father wanted. The individual sentences did not themselves disclose the father's 'goal'. For example, a question about the colour of the car would not itself reveal that the father was interested in whether the car was 'a good buy' or not. For the father's 'goal' to be met the father did not need to recognise the son's 'goal'. The son's 'goal' (which might be to please the father) needed only to be one which 'fitted' with the father's 'goal'. The son's goal was the reason why the son was willing to participate in the 'language incident'.
The 'theme', "Made sense of a person's behaviour by providing a prior context for his actions (Schank & Abelson, 1977, p.132)." 'Plans' and 'goals' derived from 'themes'. They had more generalised structure than 'scripts'. There were a variety of types of 'themes'. Schank and Abelson would say of the researcher's example that the son was able to access his father's 'goal' because the father used a 'role theme' of being father. This implied he was concerned for his son's welfare and consequently wanted to evaluate the 'deal' his son was doing. The son was able to identify his father's goal and to recognise the 'plan path' because of previous discussions he might have had with his father about buying large items during which his father had expressed concern for his welfare. The present 'script' was understood because the son identified and had experience of this 'theme'. Past experience provided the son with expectations about the 'plan' which enabled him to infer his father's 'goal'.

For Schank and Abelson, 'scripts', 'plans' and 'themes' occurred at different levels. The 'script' consisted of the printed words which were the raw data used as the input to their computer analysis of meaning. In this sense the 'script' was the observable data.

The 'plans' were the 'paths' of meaning traced through each 'script'. They were the elements which held the 'script' together. If a 'plan' was what connected each piece of 'script' (or in Schank and Abelson's view each piece of language) and the plan led to a 'goal', then it
was possible to generate other 'scripts' or parts of 'scripts' from a 'plan' structure leading to the same or related 'goals'. When a 'plan' was recognised it enabled understanding even when the specific language was not explicit.

'Themes' were more deeply held structures. They were learned from past incidents which created structures or sets of ideas in the minds of participants in a script about particular type of scripts and plan paths predisposing people to a particular 'goal'. Themes might be described as a collection of related 'goals'. From these collections, people determined how and why they acted as they did. Schank and Abelson identified several types of 'themes'. These were 'role themes', such as mother, lawyer, doctor; 'interpersonal themes', such as love, hate; and 'life themes', such as success and failure. 'Themes' enhanced understanding. They enabled 'plans' and 'goals' to be created by the speaker. They enabled another person's 'plans' and 'goals' to be recognised.

'Goals' could occur in parts of the 'script', the whole 'script' or a collection of 'scripts'. The 'goals' were the reason for each specific communication or the totality of specific communications. It was possible for more than one 'goal' to be a motivator of a specific piece of communication. A 'goal' could also be changed or modified during a 'script'.

Schank and Ableson described schema as the process in the mind of finding a past structure enabling understanding
of a present dialogue. Such a structure had 'conceptual primitives' (Schank, 1982). 'Scripts', 'goals', 'plans' and 'themes' were the names Schank and Abelson gave to the 'conceptual primitives' making up the content of a 'schema'.

(3) The Major Conceptual Differences Between Schank and Abelson's Schema Theory and This Study

Two major conceptual differences between Schank and Abelson's schema theory and this present analysis emerged. These were:

(i) In this study only two 'levels' of organisation were identified instead of a complex hierarchical structure;

(ii) The first level of organisation in this study was divided into a number of categories which facilitated consistent explanation of the second level of organisation. The second level of organisation was the underlying structure (i.e. the source of specific sets of social expectations or sets of rules) which appeared to link patterns of action to cultural beliefs, ideologies and values.

The researcher was attracted to the schema theory of Schank and Abelson because the culture of the school system appeared to have an organisation similar to the structure of language and Schank and Abelson's theory analysed language within a social context. However, the complexity of the social 'expectations' or 'rules' of 'natural' patterns of interaction led the researcher to trial an approach to schema theory more closely aligned to the
linguistic and anthropological theories of Sapir (1931), Benedict (1934), Whorf (1956), Levi-Strauss (1963), etc. (i.e. viewing the patterns of the observable action as one level of organisation and viewing the structure which links patterns of interaction to cultural ideologies, beliefs and values as a second and deeper level of organisation).

Vygotsky said:

Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category (Vygotsky, 1978, p.162).

In this study the 'social plane' or the 'interpsychological category' was termed a 'script' and the 'psychological plane' or 'intrapsychological category' was termed 'schema'. The intrapsychological category or schema were the structure of the source of sets of specific social expectations or rules.

Vygotsky (1978, p.173) noted that anthropologists viewed rules and their justification and legitimations as being, "Structurally embedded within action and interaction, language and metaphor, and [anthropologists consider] the child accesses the cultural framework through action as well as through language." From this view patterns of interaction were both language and action and possibly rules. It was more probable that rules were individual people's expectations about, or individual people's ways of portraying actions and outcomes of action which had become social expectations. From this
perspective then rules were not language and action. They were embedded in or derived from the structure which determined language and action. Rules were learned sets of expectations about action and outcomes of action which became embedded within a person's schema.

Children had, it had been observed, only limited understanding about rules because their social experiences were more limited than adults. According to Piaget they learnt to understand and use rules by playing games. Piaget noted (1932, p.165), "Part of the child's developing understanding of the rules of games involves appreciating the social mechanisms for agreeing on a normative rule that makes the game playable and 'fair'."

Haste (1987, p.165) said a normative rule was a grammar for making order, "So the child learns the hidden message that normative rules are legitimated by functional explanations." However, Haste said (ibid, p.164) there were the three types of rules:

(i) Moral and conventional rules, termed prescriptive rules,
(ii) Map-making rules, termed descriptive or normative rules, and
(iii) Evaluative rules.

An example of a prescriptive rule was, "You shouldn't hit people, it hurts, (Haste, 1987, p.163)." Although it was not generally considered in the early literature on rules that children understood this type of rule, by 1983
Turiel had found evidence that even very young children understood prescriptive rules.

An example of a descriptive rule could be, "When your family play monopoly, you could collect rent when you were in jail (Haste, 1987, p.163)." Haste called these map-making rules (ibid, p.163). Vygotsky (1978, p.187) said, "Map-making requires the application of descriptive rules governing the representation of space in two dimensions." Although he was referring to physical map-making and Haste was referring to map-making as an abstract phenomenon, it appeared to be a more complex task than prescriptive rules. It was the functional explanation which enabled a child to respond appropriately to a descriptive rule.

An example of an evaluative rule was (Haste, 1987, p.164), "Real men don’t eat quiche." Tajfel demonstrated (1987, p.166) children used this process of categorisation when they classified groups into 'in groups' and 'out groups'. An evaluation was made by assigning people to a good group or a bad group.

The above studies, excluding Piaget, showed children used or reacted to all three types of rules very early on. Haste said:

The social dimensions [of shared social and cultural information] are the ways in which rules are manifested in social interactions and in social structures. At the level of individual behaviour, these are represented in action and rituals for interactions (Haste, 1987, p.166).
Haste's 'social dimensions' were similar to what Vygotsky termed a **sociohistorical system**. Of this he said (Vygotsky, 1978, p.173), "The sociohistorical system provides a framework for thinking and planning, and delineates the tools which are available for these." Haste and Vygotsky's views were closely aligned to the psychological, educational and anthropological literature reviewed in this section. This view would say the schema (sociohistorical system, social structures, underlying patterns of culture) provided a framework for understanding present scripts (manifestations of rules, language and action, patterns of interaction). Rules were not the schema. They embedded within the schema. Rules were not the scripts. Scripts were manifestations of the rules.

Schank and Abelson demonstrated their schema theory could describe the structure of dialogue for non-human intelligence. The ecological data of this study and the literature (e.g. Whorf, 1956; Vygotsky, 1978; Haste, 1987) indicated that the data might best be explained if the data was analysed in terms of the, "'Social' experiences of interpersonal interaction [patterns of interaction]...from the 'social' world of social representation, metaphor and symbol which are the framework of cultural definition, legitimation and meaning [the structure of patterns of interaction] (Haste, 1987, p.193)."

9. **RATIONALE FOR THIS STUDY**
This chapter explored eight themes in the literature relevant to this study. These were the studies concerning socio-economic status, ethnicity, home experience factors such as reading and television viewing, studies to do with culture, enculturation and acculturation, three studies which included data from both home and school ecological environments, language studies and studies to do with schema theory. Research on socio-economic status and ethnicity, while it uncovered structural variables to do with success and failure (i.e., a majority of ethnic minority children and children from lower socio-economic status situations did not achieve in school), indicated that these variables did not explain the underlying processes which led to achievement of children at school. Ethnic difference and class difference were related to school achievement in some way. It was possible that the underlying cultural or class (sub-cultural) learning processes were different from the (sub-cultural) learning processes required for success in school. If this was true then the school enculturation processes (learning processes) needed to be identified and compared to the home enculturation processes of children. To avoid the complexity of identifying all the similarities and differences of ethnic sub-cultures within a society the researcher thought it was probably simpler to examine whether or not school environments were most like the home sub-cultures of children who were successful at school.

The third theme described a specific process of learning, for example, how to read or calculate. This could include a set of tasks in which the child had to
become competent. Some studies describing such a process demonstrated that the ability to be successful in this specific process of learning was affected by the kinds of experiences a child encountered in the home environment. Some research of this kind also pointed to factors which may be common to all content specific learning, for example, time. The way time was used within a context may be affected by sub-cultural beliefs, ideologies and values. If this was so, it might be a component of a more general process of learning. This general learning process in a classroom environment might include a collection, for example, of processes which required recognition of teacher control techniques and quality of work expectations, the recognition of the rules for how and when to talk to a friend, to locate information for oneself, to enter and leave a classroom, as well as the effects of time on content knowledge. This process would not be specific to any one content area. It might generalise to many content areas. It was hypothesised this type of general process of learning had to be learnt before competency in specific learning processes could be achieved.

The fourth theme discussed why culture and the concepts of enculturation and acculturation were of importance to a study observing phenomena within two different social environments and demonstrated these processes should be investigated further.

The themes of culture, enculturation and acculturation were followed by the fifth theme (the home and school studies) which showed:
(i) The way the school enculturation process operated to include or exclude children, who were racially different, was critical for achievement. This was because some racial characteristics appeared to lead people to be unaware of people who were racially different from themselves (racial blindness).

(ii) Beliefs, ideologies and values, as manifested in 'anxiety factors', could be different among people who were apparently similar in background and race. This gave strength to the idea that people from the same society had distinctly different enculturation processes.

(iii) That if children's language patterns were different from the language patterns used in schools most of the children with different language patterns did not achieve at the same rate as children who used language patterns most like those used in schools. It was possible, then, that this was also true for the more general concept of patterns of interaction.

The sixth thread (i.e. the language studies) showed studies concerned with 'restricted codes' and 'language experience' generated researchers' interest in a variety of specific aspects of language. These specific aspects of language included studies about exposure to a variety of question types, studies about quality of questioning by mothers, the eliciting of verbal responses by mothers and how aspects of language were related to problem solving. Other studies considered less specific aspects of language, for example, the frequency of talk a child engaged in, the type of talk a child engaged in (e.g. casual talk, information-related talk), what reticence really meant and
the use of controlling talk by mothers. All these studies had interesting findings related to achievement in school which raised the question how these, and other aspects of language (e.g. statement types, non-verbal language) fitted together to form the totality of verbal and non-verbal language present in classroom interactions and which of all these aspects and combinations of aspects were important for achievement in school.

The seventh theme, the methodology, demonstrated that research which was concerned with a general research question first needed holistic data from a natural ecological environment. The data gathering phase of the research should, the researcher believed, be carried out in such a way that flexibility was maintained and designed so that the data was limited, thus facilitating analysis. The analysis might be both qualitative and quantitative and, because of the broad research question, it was probably best to be interpretive. In this way a dialogue could be maintained between the data and each phase of analysis to maintain ecological validity.

Finally the theory of schema was discussed in historical perspective to demonstrate why it appeared to be useful to explain the data of this present study. This section concluded with a discussion of the schema theory of Schank and Abelson. This seemed to be the theory most useful to this study because it explained and interpreted the structure of dialogue for non-human intelligence. However, the data and the literature suggested it could not deal as effectively with the complexity of patterns of
social interaction and their structure. Because of this difficulty the schema theory of Schank and Abelson was rejected but it provided the framework for a theory which was generated from the data of this study.

This chapter has indicated the need for a study examining individual family difference to see if causal factors could be identified to account for the differential achievement rates of some children. There was an indication that such a study should study process and not content. However, there were variables which the results of some content studies showed were significant to achievement at school in a general sense and those factors (time, language variables, home inventories) had to be addressed before a new method was explored.

The next two chapters describe in detail the method used to obtain the data, the search for an appropriate method to analyse the data, the exploration of differing data analyses and the data analysis which was used to analyse the school classroom patterns of interaction which were compared to the home patterns of interaction in order to identify the underlying structure of in-school communication incidents.
of the methods used to develop measures of the home variables. These measures of home variables included the measures of language data and measures of the environment. The methods used to develop a measure for school achievement are also discussed in this chapter. This measure for school achievement includes assessments of reading and mathematics. Chapter IV describes the method used to develop and apply the theoretical constructs of schema theory to the data.

1. THE SETTING

In order to limit the geographical size of the area from which the children would be selected it was decided to focus on a small, working-class town community with a population of approximately 5,200. This town was chosen not only because of its size and the bounded nature of the social interaction of its inhabitants, but also because the researcher had been associated with it as a teacher for approximately five years. She was well known and it was believed that this would enhance her access to families and to the schools involved.

2. THE SUBJECTS

The subjects consisted of ten children. These ten children comprised a cohort who had adjacent birth dates from the end of January (1979) to March (1979), and because of a break in the observations, from the end of June (1979)
to the middle of July (1979). Their names were obtained from the records of the pre-school dental clinic in a small working class town. This was the only pre-school dental clinic in the town and so had the most extensive list of four year old children in the town. Because the school adjacent to the dental clinic was the largest school in the town, it was expected the majority of the study children would attend that school. In order to include an equal number of boys and girls one of the original ten children, a girl, was excluded and replaced by a boy.

The exclusion of one girl and the replacement of that girl by a boy meant a selection procedure was necessary. Because the home observation procedure was exhausting it was decided to take advantage of this natural break in the selection of sample families and to resume at a point on the list where the appropriate number of boys and girls occurred consecutively. This meant there was a three month break in data gathering.

Each child's name was changed in this study to provide the families with anonymity. The children's socio-economic classes (obtained from a measure of the household wage earners' occupations and incomes) ranged from middle class to working class. One family could be described as middle class and the remaining nine families as predominantly working class. At least two of these families were 'emerging' middle class families. This was because the occupation of the wage earner in each case allowed for upward mobility and these wage earners appeared
to be taking the best advantage of that mobility at the
time of the observations.

The children in the study lived in single family
homes. Seven of these homes were on sections of
approximately one quarter of an acre. Two sections were
larger than this. One was large enough for the family to
operate a small market garden. The other was a farmlet of
about twenty acres. Nine of the families owned their own
homes, while one rented. At the time of the intensive home
observations, one of the ten families lived in a small,
poorly-constructed holiday home on a small section. All
but one had a garden and large outside play areas for the
children. The homes varied in market value from below the
average housing available in the town at that time to above
average housing.

The age range of the parents was from approximately
twenty-one years to thirty-five years. However, the
majority of the parents were in the twenty-eight to thirty-
two year old age range. Six of the parents were in their
first marriage, two families were reconstituted families
and two families were single parent households. All but
one of the children were with their natal mothers. The one
exception was adopted at birth by the adoptive parents.
The children’s positions in each family ranged from the
eldest child in a two child family to the fourth child in a
five child family. There was also a range in ethnic
backgrounds from two families with at least one grandparent
of Maori extraction to two families with one parent born in
Europe. The language spoken in all families was New Zealand English.

This variation in incomes, parents' occupations and family structures, described above, demonstrated that although these families were apparently similar in housing (i.e. single dwellings on their own sections), language, dress, family structure (i.e. a nuclear family), and apparent shared concepts of socialisation and education the individual families in this study were significantly different from each other.

The following is a list of the code names of the children and the dates when the home observations were begun. The schools the children attended have been code named according to the following code: school A = a full-primary town school (+500 pupils), school B = an integrated Catholic school (+100 pupils), and school C = a full-primary rural school (-100 pupils). By the time the children had reached six years of age, they had attended at least nine schools. The list of children, the dates each home observations began and the schools each child first attended were:

<table>
<thead>
<tr>
<th>NAME</th>
<th>DATE OBSERVATION BEGAN</th>
<th>SCHOOL FIRST ATTENDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan</td>
<td>24/1/83</td>
<td>A</td>
</tr>
<tr>
<td>Kirstie</td>
<td>14/2/83</td>
<td>A</td>
</tr>
<tr>
<td>Lorelei</td>
<td>21/2/83</td>
<td>A</td>
</tr>
<tr>
<td>Sam</td>
<td>28/2/83</td>
<td>B</td>
</tr>
<tr>
<td>Kerry</td>
<td>7/3/83</td>
<td>A</td>
</tr>
<tr>
<td>Michael</td>
<td>14/3/83</td>
<td>A</td>
</tr>
</tbody>
</table>
3. DESIGN

This study was conceived as a non-participant-observation study (cf. Pike, 1954). That is, the researcher was to observe and record as much as was possible of all the patterns of interaction and the environmental features in which the interactions occurred in the lives of ten, four-year-old children, and observe and record the patterns of interaction and the environmental features in which the interactions occurred in the classrooms in which the children participated during their first year at school. The aim was to attempt to simulate an ethnographic approach common in anthropological literature. Such a simulation was difficult to achieve in an urban setting because artificial boundaries had to be established in order to ensure that the quantity of data obtained would be manageable.

The 'boundaries' referred to here are best described in the words of Barth. He said that there were two types of boundaries.

One concerns the way in which a person completes/consummates a successful role performance by selecting from his total repertoire those gestures and idioms which will serve his needs for 'impression management'...The other type of problem [i.e. a definition of the boundaries between structures within social interaction]...is that of institutionalization:
how a multiplicity of individual decisions under the influence of canalizing factors can have the cumulative effect of producing clear patterns and conventions (Barth, 1966, p.3).

In this view of the boundaries of social interaction, people acted as individuals or as collectives and exercise choice while being influenced by certain constraints and incentives. The constraints and incentives caused social interaction (or empirical behaviour) to cluster into observable patterns of action. The difference between individual patterns of action and collective patterns of action was that individual choice was determined to some extent by the role they played within the social interaction, whereas collective choice was determined to some extent by the institution (which may be briefly described as a complex of behaviour patterns organised about some dominant single interest) in which the social interaction was occurring. The significant roles in this study were those of: teacher, pupil, mother, father, sibling, son, and daughter. The significant institutions in this study were the institutions of educational organisation and family organisation.

By utilising the above view of boundaries the boundaries of individual social interaction established were those occurring naturally between the ten focal children and their other family members (i.e. mother, father, siblings) and between the ten focal children, their peers and their teachers. The boundaries of institutional social interaction established were those occurring naturally between each of the ten families and the community surrounding them and the boundary between the
school classroom and the wider community. This meant that it became a study of selected home environments (including that part of the community each family frequented) and selected school classroom environments. Thus, the school classroom patterns of interaction could be compared to a variety of home patterns of interaction without unmanageably large quantities of data being accumulated.

Although only ten subjects were selected for the focus of the study the design meant many more people, of all ages, were included in the study. These included siblings, parents, some grandparents, aunts and uncles, friends, shop-keepers, supermarket personnel, librarians, medical doctors, kindergarten teachers, primary school teachers, and all the other people who interacted with the focal child during the observation time. In short, any people that the four year old children in the study came in contact with during their observation week, or that the researcher came in contact with at town functions (e.g. Christmas parades, trik-a-thons, health week displays) during the two and a half years of the study. It was hoped this breadth of people and events would enable the researcher to make an informed judgment about whether the experiences of each family was specific to them or typical of a variety of people within the town.

The natural, ecological data was collected in three ways (data triangulation, cf. Denzim, 1978). These were:

(i) Continuous hand-written narrative recordings of all that the other children and adults did and said in the presence of the focal child (cf. Pike, 1954) in the
home setting and in the school setting. The content of these recordings included notes on the environment in which the narrative recordings occurred. These recordings were not pre-determined in any way and were limited only by the researcher’s speed of handwriting.

(ii) Field notes were made each night after every visit to the homes and immediately after visits to the kindergartens, schools, or town functions throughout the two-and-a-half years of the study. These field notes recorded the researcher’s personal feelings about the events which had been observed, about the nature of the relationships which appeared to exist and about the researcher’s health and emotional state during the observation time.

(iii) A list of variables identified as significant for school achievement in the literature, or that the intensive family observation time indicated might be of significance to school achievement, was kept. This list consisted of toilet training procedures, home management practices, family histories in relation to ethnicity, religion, socio-economic status, parental upbringing and education, parental occupations, incomes and social interests. Brief notes on each item were recorded under headings. This list was not constructed during the intensive observation time. It was completed after the subsequent home visits which occurred during the study children’s fourth year.

The recording techniques used meant that both emic (i.e. in this case from the perspective of the parents
obtained through questions) and etic (i.e. from the perspective of the researcher obtained through observation) data were obtained. Both kinds of data were collected because the literature indicated such variables as birth order, parental education, parental occupation, parental philosophies of discipline, child rearing, etc., might be of significance to school achievement and because the emic data could be used to supplement and enlighten the results of the analysis of the etic data.

At the time the observations were recorded, the literature review pointed to three types of variables which might be related to school achievement. These were:

(i) types and use of language in the home and experiential literacy factors (e.g. reading, being read to),
(ii) the home environment as measured by the HOME Scale, and
(iii) the difference between the patterns of interaction and their underlying structure in both home and school environments.

Consequently each method for the analysis of these three types of variables was explored systematically (methodological triangulation, cf. Denzin, 1978). In addition, several other variables were explored (e.g. sentence structures used by the children and other family members, social networks surrounding the children) and discarded because the initial findings did not appear to be related in any way to achievement at school.

A variety of methods for the analyses of the observational data were explored in order to discover which
Theoretical constructs were most consistent in providing a framework for the observational data. Theoretical constructs were considered essential for analysis of ethnographic data in order to maintain a dialogue between the analysis and the data (cf. Wolcott, 1988) and although this study could not be considered typical of ethnographic studies, it was closely aligned to ethnography. That is, this was not a study of kinship, religion, social structure, etc. It was a study of 'patterns of interaction' and their underlying 'structure'.

The language measures and the home environment measures produced significant results, but they did not address the research problem of the difference between the patterns of interaction and their underlying structure in both the home and school environments. The method which transformed the conceptualisation of the patterns of interaction and their structure into theoretical constructs were generated from schema theory. Although many subjective decisions must be made in any research of this interpretive type (cf. Erikson, 1986) the theoretical constructs of schema used helped the researcher to maintain a systematic analysis of the data.

It was decided that the only tests used to measure the children's achievement at school would be those tests the schools normally used to determine whether the children were achieving. The reason for this decision was that the research focus of concern in this study was the problem of achievement at school. This required achievement to be
defined in terms of what the schools themselves considered achievement to be.

4. PROCEDURES FOR THE HOME DATA GATHERING

The parents of the children were sent a letter describing the research, its aims and expected outcomes. Each letter was followed with a contact by telephone making an appointment to discuss the possibility of the family's participation in the research project. At the initial interview, the research was discussed. The impact on the family of the particular style of the family observations and the expected outcomes were discussed. It was stressed that the outcomes would not be very likely to benefit the focal child, but that it was possible that they would have a beneficial effect on future young children involved in the school system. Despite the intrusive nature of this study, the families welcomed the researcher into their homes.

So that families could accept the researcher into their homes under these conditions, it was necessary for the parents to account for the researcher's presence, firstly (and most importantly) to themselves, and secondly to friends and relatives. The way the families did this appeared to vary. From the way each family appeared to relate to the researcher it seemed that in some homes the researcher was accepted as a family friend, in others as a teacher, in one as a welcome stranger, and in still another, as a researcher.
Observations and recordings were made in each family on Monday, Tuesday, Wednesday and Friday during one week. The observations began when the four year old child got out of bed in the morning and ended either before dinner or at the child's bed-time. Initially it was considered possible to continue recording until the focal child went to bed each day of observation. This eventually proved too long for both the researcher and the families concerned, so an observation until bedtime was carried out on one of the four days. Continuous hand-written narrative recordings of natural communication incidents were made of all the oral language and activities of the focal child, and of the language and activities of other children and adults when what they said and did was in the vicinity of the focal child. Notes were made of the location, atmosphere, body language, people present, focal objects, etc. throughout the time of the observations.

During the observations the researcher tried to interact as little as possible with the families involved. It was important the families did not feel threatened by the researcher's presence. For this reason, breaks in recording were made when the family indicated that they would like the researcher to be included in some event. These events varied from having morning-tea, to being introduced to a neighbour, friend or relative. At such times written narrative recordings were begun again as soon as the researcher returned to the periphery of family activity.
It was decided to make a hand-written record of natural communication incidents because of the intrusive nature of a tape-recorder and the sensitive nature of the intervention of the researcher within each family. The written narrative recordings were divided up into communication incidents. A communication incident was defined as all interaction, verbal and non-verbal, which occurred in relation to a particular topic.

Some of the language was not recorded verbatim because of the difficulty of recording all spoken language and actions. A record was kept of how much language was lost and whether or not the missing language consisted of more than one language incident. The incident in progress at the time when the researcher began to write began the recording of communication incidents.

Although this part of the research was labelled 'home observations', the researcher did not limit observations to the home. The families had been asked to carry on with as many of their normal activities as possible during the observation time. Consequently observations were made in picture theatres, at kindergartens, in shopping centres and all the other places the children went during the period of observation. Hence, as complete a picture as possible was obtained of the total language environment of these four year old children.

The following is a one page excerpt from a home observation:

10.05 am Jordan: Where's your car? Upstairs? (As Sam brings
in Lego).

D3/F1  Sam: It’s upstairs.
LOUNGE  Jordan: Where’s ’nother thing? (Banging Lego
        pieces. Looks intently at them. Smiles at
        Mum. Nods and smiles at Sam as Sam quietly
        closes door.)

Jordan: Mummy where’s Brian? (She explains
        the boys are going to cut lawns. Jordan
        continues to smile at door. Mum sees Sam
        through gap.)

Mum: What are you doing? (Sam yells)

Jordan: You do. (Finds in box. Jordan is now
        intent on making something - an army car -
        blowing mouth back and forth. Looks up as Mum
        Come in with laundry.)

10.10 am  Jordan: Look at that. (As pushes track machine
        round.)

10.14 am  (Looks out window at cat going by. Wanders.
        LONiGE  Then falls back on Lego. Rushes track
        machine round.)

10.16 am  (Talks quietly to cars - acting out people in
        the cars.)

Jordan: Gyday! Gyday! (Yells and Mum discusses
        him with researcher.)

10.24 am  (Jordan suddenly joins in conversation. Hops
        away from toys and Mum discusses toys on the
        cat’s mat. Lacking attention he is suddenly
        aggressive and throws toys down and yells.
        Ignored. Yells he is going to older brother
        and runs outside. Yells at Mum. Runs down
        street and back as Mum goes to look for him.
        Comes back as hears phone.)

MUM’S  Jordan: Mum the phone. (Pleasantly. He comes
BEDROOM  away from the phone and jumps on mattress and
        pulls things on bed apart. Aggravated at
        apparent lack of attention yelling, "Urring,"
        noises and hides under Mum’s mattress.

10.30 AM  Jordan: I’m stuck. (To researcher.)
MUM’S  Researcher: Oh. (Jordan is acting happily now
BEDROO M  playing with head/couch pieces.)

Jordan: Look at me I’m stuck. (To researcher,
        rolling over top.)

Jordan: I can’t get out. Now I’m pushing the
        couch out first. Heave! Heave!

10.35 am  Jordan: I’m getting my toys and do that.
        (Rushes to get Lego. Plays momentarily.)

Jordan: My stock car. I’m going to race. (Racing
        noises as races car round and over couch.
LOUNGE  Dunlop type mattress pieces. Brings car back
        to lounge)

Jordan: NOW, I’m going to do another one.
        Heave! Heave! (As pushes couch to make a
        tunnel.)

The weeks of home observations were followed by
further visits to the homes once every three months until
the children’s fifth birthdays. These were friendly visits
where the parents and children discussed family events and
changes in the focal children’s developments. Field notes were made after each visit.

Additional information was gathered during the home observation weeks and the three-monthly visits. This information covered a range of factors which were not readily observable, for example, toilet training timing and practices, philosophies of child rearing and disciplining, frequency of holidays and family outings, parental home background and education. So that the same kinds of information were gathered from all ten families during the three monthly visits a list was kept of these items for each family.

Children who were at kindergarten during this period were observed in the kindergarten every three months until their fifth birthdays. These observations took place during a morning or afternoon, depending on when the children were attending the kindergarten, and were of approximately two hours long. The kindergarten teachers were interviewed after each observation time about their perceptions of each child’s progress in interpersonal relationships, responses to authority and readiness for school. Field notes were kept of these interviews.

Over three hundred and twenty hours (i.e. an average of approximately thirty-two hours per child) of home observations were made in total.
5. PROCEDURES FOR DERIVING THE HOME LANGUAGE AND HOME INDICES MEASURES

(1) Language and Other Related Measures Derived From The Home Observation Data

The language in the homes was divided into four categories. These categories were questions, types of statements, the amount of talk each child was involved in and other home language experiences. The other home language experiences included the amount of time spent reading or being read to and the amount of time spent watching television.

(a) Questions. One important aspect of the language used in school was the use of questions. Teachers frequently used questions in discussion with children to elicit responses from children, to teach ideas or to draw a child's attention to what was happening in class. Children were expected to ask questions at appropriate times and to respond in ways that were acceptable to the teacher. For these reasons and because other studies (cf. McNeany & Keislar, 1966; Blank, 1975) indicated there was a relationship between questions and school achievement, it seemed important to identify the frequency of all questions and of different question types in the home observation data in this study.

The question types identified were those discussed in the literature (cf. McNeany & Keislar, 1966; Blank, 1975; McDonald & Pren, 1981; Laosa, 1982) and those appearing to be of interest because of related research data. Marion
Blank (1975) pointed to the importance of knowledge of and exposure to 'where', 'what', 'who', 'why', 'how', 'when' and 'which' questions for language experience. Because it was found in the home observations that the frequency of 'want' questions (or requests) was at least as frequent as the question types noted by Blank, it was decided to include 'want' questions in this analysis.

'Where', 'what', 'who', 'why', 'how', 'when' and 'which' questions were not difficult to identify in the data by defining them as those phrases or sentences which began with one of these words (e.g. "Where is my truck?"). The only exceptions were those phrases where the question was implied both in the tone of voice and the response of the person at whom the question was directed. Such phrases had been recorded in the data with a question mark at the end of the phrase or sentence. The question mark alerted the researcher and the form of the phrase or statement and the reply allowed the researcher to place these 'implied questions' into a category (e.g. "We are going to town now?" implied a 'when' question, "Fluffy (the cat) outside Mum?" implied a 'where' question).

The more difficult question type was the 'want' questions. Such questions fulfilled a personal need or desire and might be viewed as a request. They were termed 'want' questions here because the term 'request' could imply a style of questioning which might be associated with concepts to do with politeness. 'Want' questions might be asked politely or impolitely. Their significance was not in how they were stated but in what was desired. Strictly
speaking the word 'want' would not occur in a question unless a person was asking about someone else's wants. However, young children frequently used the word 'want' in statement form and questions associated with 'needs' and 'desires' appeared to be more closely related to such 'want' statements. Such questions with an implied personal 'want' in them (e.g. "Are we going to the beach?", "Can I have a sweet?") were counted as 'want' questions. Decisions had to be made about phrases and statements with 'want' in them to see if they were really implied questions. Some of these were easy to identify. However, it was possible that 'want' questions were used by children in a more subtle way, as for example in the following:

  Jordan, "It's a lovely sunny day. I'd love to go to the beach."
  Mother, "Oh! You'd love to go to the beach, would you?"
  Jordan, "Yes, I would. Would you like to go to the beach, Mum?"

The implied personal 'want' in, "Would you like to go to the beach, Mum?" was only counted if the child expressed a more overt want later in the observation during the same day (e.g. "I want to go to the beach, Mum"). The latter phrase or sentence did not have to be in the form of a question but the presence of the 'want' idea in such an overt form was taken to indicate that the first question was really a question to do with a personal 'want' or desire.

The frequencies of question types per hour used by each child at home are reported in Table 2 (p.118). The order of the children's names is according to a ranking of
Table 2.

Frequencies of Question Types per Hour Used by each Child at Home

<table>
<thead>
<tr>
<th>Question Types</th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>How</td>
<td>.42</td>
<td>.07</td>
<td>.19</td>
<td>.33</td>
<td>.63</td>
<td>.26</td>
<td>.19</td>
<td>.46</td>
<td>.39</td>
<td>.30</td>
</tr>
<tr>
<td>When</td>
<td>.25</td>
<td>.07</td>
<td>.38</td>
<td>-</td>
<td>2.26</td>
<td>.08</td>
<td>.42</td>
<td>.37</td>
<td>.35</td>
<td>.10</td>
</tr>
<tr>
<td>Why</td>
<td>.72</td>
<td>.14</td>
<td>.68</td>
<td>.83</td>
<td>.50</td>
<td>.29</td>
<td>.46</td>
<td>.53</td>
<td>.50</td>
<td>.70</td>
</tr>
<tr>
<td>Want</td>
<td>.38</td>
<td>.37</td>
<td>.19</td>
<td>.80</td>
<td>.13</td>
<td>.34</td>
<td>.07</td>
<td>.34</td>
<td>.71</td>
<td>.88</td>
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<tr>
<td>Which</td>
<td>.08</td>
<td>.85</td>
<td>-</td>
<td>.03</td>
<td>.20</td>
<td>.08</td>
<td>.07</td>
<td>.03</td>
<td>.17</td>
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<tr>
<td>Where</td>
<td>1.41</td>
<td>.07</td>
<td>.69</td>
<td>.30</td>
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<td>What</td>
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<td>.48</td>
<td>1.30</td>
<td>2.24</td>
<td>1.73</td>
<td>2.06</td>
<td>1.00</td>
<td>1.46</td>
<td>2.39</td>
<td>2.01</td>
</tr>
<tr>
<td>Who</td>
<td>.77</td>
<td>.22</td>
<td>.11</td>
<td>.49</td>
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<td>.29</td>
<td>.34</td>
<td>.31</td>
<td>.32</td>
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<tr>
<td>Totals</td>
<td>6.90</td>
<td>2.27</td>
<td>3.54</td>
<td>5.02</td>
<td>6.18</td>
<td>3.95</td>
<td>2.97</td>
<td>3.93</td>
<td>5.75</td>
<td>7.39</td>
</tr>
</tbody>
</table>

Table 3.

Frequencies of Parental Statement Types Per Hour Directed at Each Focal Child

<table>
<thead>
<tr>
<th>Focal Child</th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>-</td>
<td>-</td>
<td>.38</td>
<td>.70</td>
<td>1.10</td>
<td>.11</td>
<td>-</td>
<td>.06</td>
<td>.54</td>
<td>.89</td>
</tr>
<tr>
<td>Father</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.36</td>
<td>-</td>
<td>-</td>
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<td>Encouraging</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>1.02</td>
<td>.29</td>
<td>.38</td>
<td>.55</td>
<td>1.86</td>
<td>1.33</td>
<td>.38</td>
<td>.75</td>
<td>.82</td>
<td>.72</td>
</tr>
<tr>
<td>Father</td>
<td>.21</td>
<td>-</td>
<td>-</td>
<td>.89</td>
<td>.30</td>
<td>.12</td>
<td>.01</td>
<td>.43</td>
<td>.33</td>
<td>-</td>
</tr>
<tr>
<td>Informing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>5.57</td>
<td>2.40</td>
<td>2.61</td>
<td>9.40</td>
<td>5.70</td>
<td>3.95</td>
<td>2.69</td>
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<td>12.09</td>
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<tr>
<td>Father</td>
<td>1.10</td>
<td>-</td>
<td>-</td>
<td>4.58</td>
<td>.20</td>
<td>.11</td>
<td>.80</td>
<td>1.34</td>
<td>2.44</td>
<td>.46</td>
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<tr>
<td>Explaining</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>6.25</td>
<td>.92</td>
<td>2.50</td>
<td>2.95</td>
<td>6.36</td>
<td>2.70</td>
<td>2.11</td>
<td>7.62</td>
<td>5.55</td>
<td>2.06</td>
</tr>
<tr>
<td>Father</td>
<td>.59</td>
<td>-</td>
<td>-</td>
<td>1.29</td>
<td>.26</td>
<td>.05</td>
<td>.70</td>
<td>.21</td>
<td>4.44</td>
<td>.13</td>
</tr>
<tr>
<td>Ordering</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>2.72</td>
<td>1.85</td>
<td>1.65</td>
<td>1.69</td>
<td>3.36</td>
<td>1.93</td>
<td>1.00</td>
<td>2.25</td>
<td>1.04</td>
<td>2.08</td>
</tr>
<tr>
<td>Father</td>
<td>.75</td>
<td>-</td>
<td>-</td>
<td>.64</td>
<td>.70</td>
<td>.08</td>
<td>.10</td>
<td>-</td>
<td>.88</td>
<td>.23</td>
</tr>
<tr>
<td>Eliciting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>2.04</td>
<td>1.48</td>
<td>2.61</td>
<td>4.30</td>
<td>4.98</td>
<td>.05</td>
<td>2.28</td>
<td>4.93</td>
<td>4.04</td>
<td>5.19</td>
</tr>
<tr>
<td>Father</td>
<td>.97</td>
<td>-</td>
<td>-</td>
<td>2.00</td>
<td>.23</td>
<td>.11</td>
<td>.55</td>
<td>.40</td>
<td>1.35</td>
<td>.12</td>
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<tr>
<td>Problem Solving</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>.04</td>
<td>-</td>
<td>-</td>
<td>.15</td>
<td>.63</td>
<td>-</td>
<td>-</td>
<td>.30</td>
<td>.08</td>
<td>.13</td>
</tr>
<tr>
<td>Father</td>
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<td>-</td>
<td>-</td>
<td>.06</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Totals</td>
<td>21.26</td>
<td>6.94</td>
<td>10.13</td>
<td>29.50</td>
<td>25.72</td>
<td>10.54</td>
<td>10.60</td>
<td>28.95</td>
<td>25.78</td>
<td>24.10</td>
</tr>
</tbody>
</table>
the results of the Reading Running Record Test and The Southland Mathematics Test administered to each child at six years which were combined to form a measure of achievement (Table 13, p.153). The child ranked at the lowest end of the measure appear at the top left-hand corner of each table. The rationale for this measure is presented on page 154 of this chapter.

(b) **Types Of Statements.** Because the first year classroom was primarily a verbal world, it was hypothesised that exposure to a range of statement types at home might be an advantage to achievement in school. Because of this the number and variety of statements types made by the parents were counted. These statement types were:

(i) Statements which tried to teach the focal child something (teaching statements). Teaching statements were counted when the adult set out to create a situation where the child would be involved in extending knowledge. For example: "Here is a ...

(ii) Statements which gave the focal child encouragement (encouraging statements). Encouraging statements consisted of statements which communicated the parent’s appreciation. For example: "Good boy," or, "What a clever girl".

(iii) Statements which gave information to the focal child non-emotively (informing statements). Informing statements consisted of comments which required the child to act but were not a direct command. For
example: "When the big hand is on the nine, we must be ready to leave the house."

(iv) Statements which explained something to the focal child (explaining statements). An explaining statement answered a specific request from a child. For example: "I've got some jobs to do." In response to a request for help.

(v) Statements which gave the focal child a direct order (ordering statements). Ordering statements referred to statements which indicated, to the child, that s/he must respond in a prescribed way. For example: "Come to the dinner table now."

(vi) Statements which tried to get a response from the child (eliciting statements). Eliciting statements included all forms of verbal questions where a parent expected a child to respond in some way. For example: "Are you tired?"

(vii) Statements which involved the focal child in a problem solving activity (problem solving). This category was counted when a parent set up a specific situation for a child with the idea that the child must find a solution. This was the one category which included more than a single statement. For example: A mother was helping her child do a puzzle. Mother: "This piece of dress goes here. Where do you think this piece of dress will go?"

These seven different types of statements were distinguished because they represented the range of different types of statements recorded in the natural language samples in the home observations, and were
Table 4.

**Average Number of Communication Incidents in the Home Data Per Hour Involving Each Focal Child**

<table>
<thead>
<tr>
<th>Communication Incidents</th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12.5</td>
<td>6.89</td>
<td>5.94</td>
<td>9.44</td>
<td>11.22</td>
<td>10.82</td>
<td>7.5</td>
<td>12.24</td>
<td>9.33</td>
<td>10.59</td>
</tr>
</tbody>
</table>

Table 5.

**Frequencies of Home Communication Types Involving Each Focal Child**

<table>
<thead>
<tr>
<th>Types</th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Self</td>
<td>23.42</td>
<td>1.85</td>
<td>5.58</td>
<td>18.47</td>
<td>1.50</td>
<td>23.56</td>
<td>4.88</td>
<td>10.42</td>
<td>1.90</td>
<td>1.82</td>
</tr>
<tr>
<td>With Mother</td>
<td>16.20</td>
<td>9.19</td>
<td>10.52</td>
<td>21.36</td>
<td>24.00</td>
<td>15.55</td>
<td>9.77</td>
<td>32.02</td>
<td>29.70</td>
<td>21.74</td>
</tr>
<tr>
<td>With Father</td>
<td>7.87</td>
<td>-</td>
<td>-</td>
<td>8.96</td>
<td>2.05</td>
<td>.53</td>
<td>4.21</td>
<td>3.12</td>
<td>5.65</td>
<td>4.20</td>
</tr>
<tr>
<td>With Siblings</td>
<td>1.84</td>
<td>20.67</td>
<td>6.31</td>
<td>16.58</td>
<td>5.72</td>
<td>2.02</td>
<td>3.21</td>
<td>10.22</td>
<td>2.67</td>
<td>5.26</td>
</tr>
<tr>
<td>With Others</td>
<td>25.28</td>
<td>11.11</td>
<td>2.39</td>
<td>12.28</td>
<td>11.61</td>
<td>14.73</td>
<td>14.86</td>
<td>29.69</td>
<td>25.53</td>
<td>5.26</td>
</tr>
<tr>
<td>Non-Verbal</td>
<td>6.52</td>
<td>36.80</td>
<td>10.28</td>
<td>1.00</td>
<td>8.05</td>
<td>3.61</td>
<td>10.15</td>
<td>.75</td>
<td>23.86</td>
<td>9.15</td>
</tr>
<tr>
<td>Totals</td>
<td>81.13</td>
<td>79.62</td>
<td>35.08</td>
<td>78.65</td>
<td>52.93</td>
<td>60.00</td>
<td>47.08</td>
<td>86.22</td>
<td>89.31</td>
<td>47.43</td>
</tr>
</tbody>
</table>

Table 6.

**Topics Per Hour Ignored, Understood and Not Understood by each child at Home**

<table>
<thead>
<tr>
<th>Types</th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignored(^a)</td>
<td>25.20</td>
<td>19.20</td>
<td>42.10</td>
<td>3.14</td>
<td>22.31</td>
<td>13.82</td>
<td>5.12</td>
<td>11.83</td>
<td>2.67</td>
<td>18.67</td>
</tr>
<tr>
<td>Understood</td>
<td>73.98</td>
<td>73.07</td>
<td>52.63</td>
<td>96.22</td>
<td>76.85</td>
<td>86.17</td>
<td>94.87</td>
<td>88.16</td>
<td>94.64</td>
<td>81.32</td>
</tr>
<tr>
<td>Not Understood</td>
<td>.81</td>
<td>7.69</td>
<td>5.26</td>
<td>.62</td>
<td>.82</td>
<td>-</td>
<td>-</td>
<td>.81</td>
<td>2.67</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: \(^a\)Percentage of total time.
categories discussed in the literature (cf. Stevenson, 1972; Kresh, 1973; Laosa, 1982).

The frequency per hour of each type of parental statement directed at each focal child identified in the data from each home, are reported in Table 3 (p.118).

(c) Amount Of Talk Each Child Is Involved In At Home. In order to see if there was a relationship between the amount of talk in the homes in this study and school achievement (cf. Von Kleeck, 1981; Hess, 1982) the number of communication incidents was counted in the home data. A communication incident was a conversation involving two or more people and concluded when the topic of the conversation changed or the conversation stopped. The frequencies of the average number of communication incidents in the home data for each focal child is found in Table 4 (p.121).

(d) Time Spent In Communication. Children spend time communicating with other people verbally and non-verbally. Therefore, another way of looking at the amount of talk each child engaged in was to count the number of minutes each focal child spent in communication with categories of people.

Communication was defined as the process of directing information at another person in such a way that the information was expected to be received by the other person. The time each child spent in communication was divided into categories. These categories were:
(i) communication with self; 
(ii) communication with Mother; 
(iii) communication with Father; 
(iv) communication with siblings; 
(v) communication with others; and 
(iv) non-verbal communication.

The categories referred to here as communication with mother, father, siblings, and others involve conversations of some kind with each category of persons. The categories referred to here as communication with him/herself were those times when children engaged in conversations with dolls, other inanimate objects, imaginary friends, and the like. Because this language had the same structural forms as language used with people it was considered that this probably involved the same processes as communication with real people. The category referred to as non-verbal communication included those times when information was directed from one person to another without the use of the voice. Non-verbal communication could include incidents such as a raised eye-brow indicating a child's present action is unacceptable, or outstretched arms indicating the child should run and give the person a hug. There were also quite complex interactions which included nods of heads, fingers pointing in appropriate directions, and eye movements, etc. that were intended to encourage or order a child to (for example) get ready to go out.

Table 5 (p.121) reports the frequencies of the percentage of each child's time in communication with
him/herself, mother, father, siblings, others, and non-verbal communication.

(e) **Number of Topics.** An additional way to evaluate the amount of talk in the home was to look at the number of topics occurring in the home data. In order to evaluate this, a record was made of each new topic introduced by mother or father during each hour of observation. The total numbers of these topics were added together and divided by the number of hours each family was observed in communication with the focal child. These averages were then expressed as a percentage of total observation time. These topics included a wide range of topics such as going to the beach, eating, finding one's own things, crabs having mouths, mothers being able to be interested in cars, etc.

Because the total number of topics would not mean anything to a child if the topics were not understood, as the list of topics for each child was drawn up a note was made of whether each item was understood, not understood, or ignored. A topic was considered to be understood if the child responded in a way that seemed consistent with understanding of that topic. For example, if a comment to do with crabs having mouths was made by the mother, and this was followed by the child commenting on what the crab might eat, it seemed reasonable to infer the child understood that crabs had mouths. A topic was classified as not understood if the child indicated in some way the topic made no sense to him/her. For example, if the child shrugged her/his shoulders when presented with the idea
that crabs had mouths, and shook his/her head in disbelief so that the parent's following remark indicated the parent believed the child did not understand that crabs had mouths, then such a topic would be classified as not understood. A topic was marked as ignored when it was impossible to tell from the child's reaction whether or not the remark was understood or not understood. This meant that some topics which were ignored could be understood, not understood or not even heard by the child. It seemed important to look at a topic in this way because if the topic of the communication was not understood, then it would be of limited benefit to the development of the child's knowledge although it might be of benefit to the child's language development.

Table 6 (p.121) reports the frequencies of the percentages of home topics per hour which were ignored, understood and not understood.

(2) Other Home Experience Factors

Other home experience factors for which there was evidence of a relationship to school achievement included time spent in television viewing (cf. Stein, 1972), reading and being read to (cf. Biddulph, 1983). To see if these factors were significant to the achievement rates of the children in this study the number of minutes each child spent watching television, reading or being read to during the home observation time were counted. These were expressed as a percentage of the total observation time.
Table 7.

Reading and Television Viewing Time in the Home$^a$

<table>
<thead>
<tr>
<th></th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.V. Viewing</td>
<td>4.56</td>
<td>6.21</td>
<td>9.62</td>
<td>11.84</td>
<td>2.50</td>
<td>14.53</td>
<td>4.31</td>
<td>9.42</td>
<td>7.02</td>
<td>5.96</td>
</tr>
<tr>
<td>Being read to</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.20</td>
<td>2.22</td>
<td>2.45</td>
<td>1.58</td>
<td>2.69</td>
<td>1.25</td>
<td>1.63</td>
</tr>
<tr>
<td>Reading</td>
<td>-</td>
<td>1.54</td>
<td>.18</td>
<td>-</td>
<td>2.38</td>
<td>3.41</td>
<td>2.06</td>
<td>1.19</td>
<td>.95</td>
<td>1.16</td>
</tr>
</tbody>
</table>

Note $^a$By percentage of total time.
The gathering of television data was not simple. Television viewing was counted when the child was watching the television and not engaged in other activities in front of the television. A glance was given a rating of 10 seconds to simplify the exercise. This meant a slightly higher viewing time for those children who watched intermittently might have been recorded. It also meant the effect of the audio/aural content of the television programme was not counted independently of visual attention.

Being read to and 'reading' was easier to record. Each minute a child's attention appeared to be entirely engaged with a book, either because someone else was reading to the child or because the child was looking at a book, was counted. Part minutes were counted as whole minutes to simplify the process.

These frequencies of these percentages are recorded in Table 7 page 126.

(3) Family Environmental Scale Derived From The Home Data

In this section, the method used to record the general conditions in the homes and the nature of parental interactions with the children will be described. The
### Table 8.

**Raw Ranked and Standardised Scores of The Family Environmental Scale**

<table>
<thead>
<tr>
<th></th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Income (′000)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Raw Score</td>
<td>9</td>
<td>10</td>
<td>5.5</td>
<td>8</td>
<td>5.5</td>
<td>3.5</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>Ranked Score</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Standardised Score</td>
<td>-0.87</td>
<td>-1.15</td>
<td>-0.44</td>
<td>-0.58</td>
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<tr>
<td>Raw Score</td>
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<td>-0.48</td>
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<tr>
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<tr>
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<td>7</td>
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<td>9</td>
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<tr>
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<td>2</td>
<td>3.5</td>
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<td>5</td>
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<td>0.88</td>
<td>1.54</td>
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<tr>
<td><strong>V. Social and Recreational Environment</strong></td>
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<td>7</td>
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<tr>
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<td>0.80</td>
<td>1.53</td>
<td>0.80</td>
<td>-0.65</td>
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</table>

| Standardised Score Totals | -6.98 | -5.83 | -4.06 | 0.19 | 0.14 | 0.63 | 3.52 | 6.00 | 4.94 | 1.51 |
| Ranked Scores Totals      | 17    | 20.5  | 17    | 25    | 24   | 25.5 | 30   | 30.5  | 30.5 | 28.5 |

*Note:* The rank orders are drawn from the standardised scores in Table 5. 1= highest.
conditions in the homes were measured using the HOME Scale and a family environmental scale developed for this study. This extended family environmental scale was developed from observations of selected examples of those factors shown in the literature discussed in Chapter II as being significant for school achievement and from the way factors in the data themselves appeared to relate to achievement in school (grounded data, cf. Glaser, 1978). For example: income, parental interest in children and exposure to a wide range of experiences have been shown in the literature (e.g., Coleman et al., 1966; Iverson & Walberg, 1982; White, 1982; Hattie & Hansford, 1984; etc.), to have a relationship to achievement in schools and the data appeared to indicate that a wide range of factors which could be called 'family traumas' and 'family involvement' might be related to achievement in school. 'Family traumas' included items such as: serious illness of the income earner; divorce or frequent separations; death of a parent; financial hardship; early marriage; parental rejection by friends and church; mother and child role reversal; etc. 'Family involvement' included items such as parents planning most of the focal child's activities to the extreme of that position where the parents planned very little of the child's activities.

Table 8 (p.128) shows the raw, ranked and standardised scores of the factors which were included in the Family Environment Scale. These total categories included: family income; family traumas; parental involvement with the children; the material environment of
the children; and the social and recreational environment. How these were determined is discussed below.

(a) **Family income.** In most of the families studied, the researcher was told each family's approximate income at some time during the intensive observations in each family. The incomes of those parents who did not tell the researcher their specific incomes were deduced from the occupation of the wage earner and the length of service in that occupation, or from the type of benefit being paid and the number of children in the family. The gross incomes, at the time of the observations, have been ranked (1 = the highest income, and 10 = the lowest income) in order to preserve the anonymity of the families. They ranged from approximately $10,000 to $30,000. This would translate into a range from approximately $13,500 to $50,000 in 1989.

(b) **Family Traumas.** Rankings for family traumas were calculated from the number, and severity, of family crises each family experienced. Each major crisis was given a value of -1. Sets of recurring crises were given a value of -2. Family scores ranged from -1 to -11.

The following is a record of the family crises known to the researcher at the time of the home observations and a record of the numeric value given to each crisis:

Each of the following counted as one major crisis (-1):

(i) Serious illness of one parent which brought serious hardship to the family.
(ii) Divorce or death of a parent.

(iii) Financial hardship over an extended period (i.e. more than six months).

(iv) Break-down of friendship relationships due to a change in family circumstances.

(v) Lack of acknowledgement of paternity of the focal child.

(vii) Mistreatment of one parent by the other parent (e.g. physical or emotional abuse).

(viii) Frequent parental separations.

(ix) Unemployment of the family wage earner.

(x) Early marriage of the parents.

(xi) Break-down of a relationship with a specific Church because the parent’s life-style did not suit the Church.

Sets of many minor crises occurred frequently in some of the families observed. Most of origins of this category of crises appeared to be embedded in events which occurred before the marriage of the parents, or to be the results of a physical problem in one or both parents. The presence of sets of crises derived from any of the following were given value of -2 because of the recurring nature of the crises described.

(xii) These past events included: a parent severely beaten as a child; an oppressive primary family background leading to a lack of close extended family ties; early failure to learn to read and possible dyslexia of a parent; inability to become birth parents.
(c) **Parental Involvement.** Because each of the following structures appeared from the researcher's initial analysis of the data to prevent parent/child interaction in a structural way each of the following was quantified as minus one per item:

(i) A home interaction structure where children usually talked to children and adults usually talked to adults. In such an interaction structure adults appeared to talk to children only when the children's actions could prevent the adult from completing a necessary task. For example, when a mother had to do the shopping it might be necessary for the child to get dressed. If the child had not realised dressing was necessary the mother might ask the child to get dressed.

(ii) A home interaction structure where children organised the majority of their day and adults did not suggest that they do specific things adults viewed as important for the children's development.

(iii) Extended absence of the focal child from the family.

(iv) A philosophy of parenting precluding the initiation of any of the above events. For example, parents might believe they could not intervene in any way in what their children did, because such adult intervention would damage the children's personality development.
If there was no separation between the child and the adult worlds and the parents organised most of the children's activities, and if there had been no extended absence of the focal child from the family, then zero points were given.

Seven of the families were given a score of zero. There was a clear difference between these seven families and the three remaining families. In one of these three families the focal child had been separated for a year from the rest of the family, but the family members were attempting to re-establish their relationship bonds with him. In another family there was a child world and an adult world and, despite the apparent loving relationship between mother and child, the philosophy of what a child's position ought to be led to a low level of parental involvement with the children. The focal child's day was not planned in any way by the mother, unless something from the adult world impinged on it, for example, the need to shop or visit a friend. In the third family parental involvement was lower for the focal child than for either of the other two families because the mother considered it wrong for an adult to try to organise a child. Adult control of children was believed to be harmful to a child's personality development. This led to little parent-initiated involvement, although the child frequently initiated contact with the parents. No events were organised for either of the children in this family. They participated at a child level in adult events but the child world and the adult world were separate.
(d) **The Material Environment.** An index for the material environment was calculated as the numbers of toys included in the nine categories found in the HOME Scale (cf. Gottfried, 1984, p.526-528) combined with a rating of the residence using the HOME Scale rating system (ibid, p.520).

(e) **Social and Recreational Environment.** The estimate of the social and recreational environment of each child was based on the occurrence of: family outings; family holidays; visits of relatives; friends and neighbours; and special trips such as skiing. One point was given for each of the following:

(i) family outings, if the family went out together at least three times per month;

(ii) family holidays, if the family had at least one holiday in the previous two years;

(iii) visits to or by relatives if they occurred at least once per week;

(iv) visits to or by the focal child’s friends and neighbours, if they occurred at least five times per week;

(v) special trips for recreational purposes, if they have occurred at least five times in the previous year.

(f) **Reliability.** It is impossible to test the reliability of the Family Environmental Scale because it was applied to just ten family environments. The results did not indicate that it would be fruitful to administer this scale to a large sample of families. It has been presented because it had appeared to be a promising way to
analyse the data during an early stage of data analysis. It had been hoped that the results would have indicated a direction in which the analysis could have proceeded in the search for the underlying structure of the patterns of interaction in the home. This did not prove to be the case.

(4) The HOME Scale.

Because the research reported by Bernstein (1961), Bisseret (1979), Laosa and Sigel (1982), Gottfried (1984), provided evidence that the HOME Scale measured home conditions related to the cognitive development necessary for achievement in school, it was decided to apply a modified version of the HOME Scale to the home environments of the study children. It was used as an additional measure of the home environment quality. The modified version used was based on that reported by Caldwell and Bradley (1979, p.112-124) called the HOME Inventory for families of children aged three to six years. It has fifty-five items. These items are divided into eight categories. These are:

(i) Stimulation through toys, games and reading materials. This is an inventory of materials available for use by the child.

(ii) Language stimulation, positive social responsiveness. This scale measures how the parents set up social rules and encourage specific learning.

(iii) Physical environment. This scale measures how safe, clean, conducive to development the family environment is.
(iv) Pride, affection, and warmth. This involves scoring the physical and linguistic responses made by the parent to the child during the interview.

(v) Stimulation of academic behaviour. This measures how specific learning is encouraged by the parents.

(vi) Modelling and encouragement of social maturity. This measures the ways in which social rules are learnt.

(vii) Variety of stimulation. This is an inventory of apparatus and how it is used.

(viii) Physical punishment. This measures the way in which parents describe the way they punish their children physically.

(a) **Reliability.** Although the HOME Inventory is conducted as an interview, it relies on the observational skills of the interviewer as well. Categories (iii), (iv) and (vii) are entirely observational, and categories (i) and (ii) have a mixture of items which require the parent to answer questions and the interviewer to observe specific parental interventions. Categories (v), (vi) and (viii) are questionnaires. Caldwell and Bradley said that all the items in the scale were found to have internal reliabilities of $r = 0.30$ and above (Caldwell & Bradley, 1979, p.64) in the extensive pre-trial tests which they carried out. The initial development of the scale was based on data from two hundred and thirty-eight families. However, the reliability reported by Caldwell and Bradley will not apply to the use of the test in this study because the information was not gathered in the way Caldwell and Bradley described and this present sample was not compared to any other large sample of families within New Zealand.
Table 9.

**Raw Scores of The Home Scale**

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<tr>
<th></th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
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<td>3</td>
<td>8</td>
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<td>Games &amp; Reading</td>
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<td>VII. Variety of</td>
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<td>50</td>
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</table>
Care was taken to keep as closely as was possible to the administration procedures of Caldwell and Bradley but the results can only be considered an approximate measure of the original HOME Scale factors and achievement at school.

(b) The Recording of the HOME Scale. Because the study was conceived as an interpretive, non-participant-observation study the information needed for scoring the HOME Scale was not obtained in one interview as required by Caldwell and Bradley. Relevant information was extracted from the hand-written narrative recordings made during the intensive observations. Those sections requiring an interview were scored from interviews done after the intensive observation period. Because of the extended nature of the observations a higher number of objects in the home might have been recorded than would have been possible to record on a single visit.

In addition to this, it was possible to check the validity of the original information during the visits to the homes six months after the intensive observation periods. These later visits were made after the families were known to the researcher and it was possible the families were more relaxed than they would have been if the researcher had been visiting for the first time. These factors might account for some families obtaining higher scores than the scores reported in the United States sample. Two other New Zealand researchers, McMillan (1981) and Champion (1982), found that this scale, even when applied in the prescribed way, did not discriminate well between children at the top end of the scale.
Despite this, the results do give an indication of each family's position relative to the others. The raw scores of the HOME Scale are in Table 9 (p.137).

6. PROCEDURES FOR THE SCHOOL DATA GATHERING

(1) School Observations

It would have been possible to observe the children for the entire school day on four days of a week for the five observation periods. However, because of the time commitment necessary for such an observation schedule and because more research assistants would have had to be employed, this was considered beyond the scope of this present study. It was decided that detailed observations of the time period when most intensive pedagogical activity was expected in classrooms (i.e. the morning) would yield enough information for comparisons between the home data and the school data.

The following describes how the school observation data were gathered.

Each child was observed for one full morning in school, 8.45am to 12.00pm, every three months from the date of entry until the sixth birthday. A decision was made to employ a research assistant (a female) to observe at school, because it became apparent that the researcher was considered by the children to be a person to do with 'home'
and her entrance to the classroom quite consistently created a mild disturbance.

In order to ensure that the research assistant recorded the data in the same way as the researcher, both the researcher and the research assistant observed in one class simultaneously on five occasions. These observations were made through a one-way mirror. This allowed the research assistant to question the researcher and the researcher to point out specific phenomena being recorded differently. The main differences concerned the amount of verbal and non-verbal language that was being recorded. At first the research assistant tended to focus on the teacher and not the focal child and so specific information directed by the teacher and by neighbouring children at the focal child was not recorded. Once the research assistant understood that it was essential that as much as was possible of all language that surrounded the focal child was recorded the difference in the recordings changed to a difference in amount of non-verbal language recorded. This difference had minimal effect on the total observational record because if a specific and significant type of non-verbal interaction was not recorded in one communication incident it was likely to have been recorded later during the observation period. Thus the length of time the research assistant spent recording was an important factor in ensuring the similarity of recordings of the home and school behaviour. When the researcher was sure the research assistant was recording the same kinds of phenomena as the researcher the in-school observations began.
Continuous hand-written narrative recordings were made of the focal child's natural language, the natural language of children surrounding the focal child and any teacher's language which affected the focal child. This language was recorded in terms of communication incidents and hence some language was lost. The amount and types of lost language were noted by the research assistant. As an additional check on the reliability of the research assistant's observations, the principal researcher observed at the same time as the research assistant, in three of the classrooms where the researcher caused the least disturbance.

The following is a one page excerpt from the school observations:

[The children are all on the mat. The teacher is hearing the 'news' each child has brought from home.]

9.21 Lorelei talks about playing cards with her cousin yesterday. Finger in her mouth, very quiet voice. She returns to back of mat.

9.22 Kate has a news-talk. Lorelei is attending a bit more now. The children say, "No," in unison and laugh about the monster book. Not Lorelei. She has a sad face.

9.23 Sarah taps Lorelei's arm and asks something. Lorelei shakes her head.
Teacher "Even my dog can do his shoes up." The children laugh, Lorelei smiles.

9.24 Teacher "Hands on shoulders, head, folded." Lorelei yawns, rubs her eyes, joins in half-heartedly. Teacher "Hands up who haven't brought in reading folder." - Lorelei puts her hand up, runs out to get it.

9.25 Hitches up shorts as she runs back. Rubs eyes. Yawns again.
Teacher writes some names on the blackboard. Lorelei is quiet and watches vacantly.

9.26 Talk about earthquake last night. Lorelei has no comment. Yawns.

9.27 Two children sent to another room for reading. Teacher hands out the reading books. She tells the children what it is about.

9.28 The Smurfs stand, get their reading books and go
back to the mat.
Teacher leaves the group to fetch more books.
Geraldine comes to show the research assistant
her book.

9.29 Lorelei is sitting alone on mat. She is quiet.
The teacher returns. She hands out the books to
the remainder of children. Lorelei takes a book
with no comment.

9.30 The children on the back of the mat are noisy.
The teacher reprimands them and removes Tom.

9.31 The teacher pointed to the words on the page of
the book. The book is facing towards the
children. She asks the children what they are.
Lorelei does not comment. Others call out.

9.32 The teacher asks about the pictures in the book.
Lorelei does not have her hand up.
"Black and white," the group says in unison.
Lorelei too.

9.33 The boys are very noisy at the back of mat.
Lorelei reads in unison, attending to teacher.

9.34 The teacher speaks quietly to the noisy boys.
This quietens them. Back to mat. The boys are
still noisy. Tom, Sam, Heidi and Bill.

9.35 The teacher is still reading with her group,
Lorelei is attending. She joins in but does not
put her hand up. She rubs her eyes.

9.36 Lorelei is asked to read the page. She does so
hesitantly but correctly.
Teacher - "Thank you Lorelei."

9.36 Tom is removed from the back of the mat. Things
quieten down.
Teacher - "What else wakes up at night Lorelei?"
Lorelei, "Snails." (From picture in book.)

9.38 The teacher tells the children what to colour in
on the work sheets.

9.39 Lorelei is quiet and attending.

The geographical location of the children’s homes and
the mobility of three of the children meant that at least
nine different schools were attended by these ten children.
However, two of the schools were attended briefly, and one
was not in New Zealand. Observations were not made in
these latter three schools because of the location of one,
and the fact that the children’s observation times did not
coincide with their visits to the other two schools. Eight
out of the ten children began school at the same full-
primary school. The children started school on or soon
after their fifth birthday, all on different days over a
seven month period.
The schools the children attended included two full-primary urban schools with about 500 pupils, two full-primary urban schools with about 300 pupils, one full-primary rural school with less than 100 pupils, and one integrated Catholic school with just over 100 pupils. Eight of the focal children attended the same large urban full-primary school, for at least part of their first year of school.

The classrooms the children were in over the first year of school included new-entrant classrooms, junior one classrooms, junior two classrooms, and composite classrooms consisting of children with an age range from five years to seven years. In all, the ten children passed through thirteen different classrooms and were taught by seventeen different teachers. The eight children who attended the larger schools in this study passed through new-entrant rooms and junior one classrooms. One of the children, who was considered by her teachers to be more successful, experienced some time in junior two classrooms as well. The two children who attended smaller schools continuously for the year of observation experienced one classroom only during their first year of school. The practice of moving children to another classroom when the children were perceived to be at a particular level of 'readiness' and the mobility of three of the focal children were the reasons for the range of classrooms involved in this study.

The classrooms observed were all physically similar with child-sized tables and chairs sufficient for each
pupil. Typically, one child-sized table seated six pupils. The tables were all grouped in some way. All rooms had a large, partially carpeted space (i.e. the 'mat') usually physically close to the teacher's desk. A range of equipment including blackboards, display spaces, tape recorders and sinks, was present in all rooms. All rooms had library corners with many visually attractive books, mathematics areas where equipment was stored at child height, art spaces with art equipment, and centres of interest, for example science tables. Children's work was colourfully displayed in all rooms although there was some variation in the style, size, and aesthetic atmosphere created. The rooms were all light and airy and reasonably well ventilated. Toilet facilities and cloakrooms were situated adjacent to all classrooms.

(2) Procedure

Once the research assistant was a familiar person in the classroom she was able to move around the room and place herself close to the focal child during the observations. Movement was kept to a minimum in order to avoid drawing attention to the research assistant. The research assistant seemed to be viewed by the children as a rather unusual mother-help or teacher, because she refused to offer the children the help they expected of her. The children dealt with this by bringing work to her for her appreciation. Most of the time the research assistant appeared to have been considered by the children as just one more of those incomprehensible phenomena which occur in classrooms. Visitors were not uncommon in first year classrooms, and so the children appeared to accept her.
In most of the classrooms, the pattern of activities was very similar. The day began with an introductory time which included news-time or morning-talks. Some teachers used this as a time to complete such administrative matters as lunch orders or book club orders. The roll was taken by most teachers during this time and the day of the week, the month and the time of the year was discussed, especially in the new-entrant rooms. These time periods ended with stories read by the teacher, songs, or preparations for the next sessions. Mathematics or reading followed the introductory time in most classrooms. Where the whole class was typically together for the introductory time, mathematics and reading were usually taken in groups. In some of the schools, after the children had attended for approximately six months they were grouped with children from adjacent classrooms as well as their own. So some children left the room at this time to join other groups. Group times tended to end with sessions on the mat involving reading stories related to the group activity, chanting poetry or singing songs to do with reading, or mathematics. These time periods ended with a fifteen-minute playtime.

Programmes after the play-time break were varied. In some, if reading had been taken before play then mathematics would be taken after play and vice-versa. In others, social studies, science, or physical education occurred at this time. These subjects were taken in groups by some teachers and as a whole class by others. Which ever activity occurred at this time it usually lasted about
Table 10

**Raw and Standardised Scores of the Five Year Old Tests**

<table>
<thead>
<tr>
<th></th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Totals</strong></td>
<td>13</td>
<td>17</td>
<td>20</td>
<td>7</td>
<td>33</td>
<td>30</td>
<td>34</td>
<td>32</td>
<td>20</td>
<td>29</td>
</tr>
<tr>
<td><strong>Standardised</strong></td>
<td>-1.18</td>
<td>-0.73</td>
<td>-0.39</td>
<td>-1.85</td>
<td>1.07</td>
<td>0.73</td>
<td>1.18</td>
<td>0.95</td>
<td>-0.39</td>
<td>0.62</td>
</tr>
<tr>
<td><strong>Scores</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                  |         |         |         |           |       |       |         |         |     |         |
| **New Entrant Reading Test** |         |         |         |           |       |       |         |         |     |         |
| **Standardised** | -2.02   | 0.36    | -0.15  | -0.67     | 1.90  | 0.36  | 0.36    | 0.36    | -0.67| 0.36    |
| **Scores**       |         |         |         |           |       |       |         |         |     |         |

|                  |         |         |         |           |       |       |         |         |     |         |
| **The Southland Mathematics Test** |         |         |         |           |       |       |         |         |     |         |
| **Totals**       | 5       | 12      | 16      | 9         | 29    | 14    | 16      | 18      | 11  | 32      |
| **Standardised** | -1.40   | -0.52   | -0.02   | -0.90     | 1.60  | -0.27 | -0.02   | 0.22    | -0.65| 1.97    |
| **Scores**       |         |         |         |           |       |       |         |         |     |         |

|                  |         |         |         |           |       |       |         |         |     |         |
| **Combined Totals of Standardised Scores** |         |         |         |           |       |       |         |         |     |         |
| **Scores**       | -4.60   | -0.89   | -0.56   | -3.42     | 4.57  | 0.82  | 1.52    | 1.53    | -1.71| 2.95    |
### Table 11

**Raw and Standardised Scores of the Five and a Half Year Old Tests**

<table>
<thead>
<tr>
<th></th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previously Read</td>
<td>92</td>
<td>100</td>
<td>100</td>
<td></td>
<td>. b</td>
<td>92</td>
<td>99</td>
<td>97</td>
<td>66</td>
<td>95</td>
</tr>
<tr>
<td>Sight unseen</td>
<td>85.5</td>
<td>82</td>
<td>89</td>
<td>-</td>
<td>75</td>
<td>97</td>
<td>92</td>
<td>80</td>
<td>- c</td>
<td>90</td>
</tr>
<tr>
<td>Reading Age</td>
<td>5-5.5</td>
<td>5-5.5</td>
<td>5.5</td>
<td>-</td>
<td>5-5.5</td>
<td>5.5</td>
<td>5-5.5</td>
<td>5-5.5</td>
<td>5-5.5</td>
<td>5-5.5</td>
</tr>
<tr>
<td>Standardized Scores</td>
<td>-0.74</td>
<td>-0.74</td>
<td>1.32</td>
<td>-0.44</td>
<td>-0.90</td>
<td>1.48</td>
<td>-0.58</td>
<td>-0.82</td>
<td>-0.42</td>
<td>1.40</td>
</tr>
</tbody>
</table>

|                 |           |         |        |           |       |       |         |         |     |         |
| **The Southland Mathematics Test** |           |         |        |           |       |       |         |         |     |         |
| Total           | 6         | 11      | 12     | 6         | 18    | 19    | 18      | 14      | 9   | 17      |
|                 | -1.49     | -0.42   | -0.21  | -1.49     | 1.06  | 1.27  | 1.06    | 0.21    | -0.85| 0.85    |

|                 |           |         |        |           |       |       |         |         |     |         |
| **Combined Totals of Standardised Scores** |           |         |        |           |       |       |         |         |     |         |
|                 | -2.23     | -1.16   | 1.11   | -1.93     | 0.16  | 2.75  | 0.48    | -0.61   | -1.27| 2.25    |

**Note**

- aPreviously read and sight unseen text scores are percentages.
- bGeraldine moved school at this time and so the Reading Running Record was not able to be administered.
- cSam's concentration was poor during the testing of the sight unseen reading book and so the results would have given him an inaccurate score of close to 0%.
- dIn order to calculate a standardised score for the Reading Running Records both reading age level of the text and percentages of sight unseen text and previously read text were used.
### Table 12.

**Raw and Standardised Scores of the Six Year Old Tests**

<table>
<thead>
<tr>
<th></th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading</strong></td>
<td></td>
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<tr>
<td><strong>Running Records</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Test Scores</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Previously Read</td>
<td>66</td>
<td>97</td>
<td>-</td>
<td>85.5</td>
<td>100</td>
<td>99</td>
<td>99</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>Sight unseen</td>
<td>75</td>
<td>83</td>
<td>-</td>
<td>87.5</td>
<td>80</td>
<td>94</td>
<td>99</td>
<td>85.5</td>
<td>79</td>
</tr>
<tr>
<td><strong>Reading Age</strong></td>
<td>5-5.5</td>
<td>5.5</td>
<td>-</td>
<td>5.5</td>
<td>5.5-6</td>
<td>6</td>
<td>5.5-6</td>
<td>5.5-6</td>
<td>5-5.5</td>
</tr>
<tr>
<td><strong>Standardised</strong></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>-1.60</td>
<td>-0.73</td>
<td>-0.15b</td>
<td>-0.44</td>
<td>0.15</td>
<td>1.31</td>
<td>0.73</td>
<td>0.44</td>
<td>-1.31</td>
</tr>
<tr>
<td><strong>Southland</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Test Scores</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>11</td>
<td>-</td>
<td>12</td>
<td>19</td>
<td>25.5</td>
<td>25</td>
<td>26</td>
<td>19</td>
</tr>
<tr>
<td>Standardised</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>-1.56</td>
<td>-0.91</td>
<td>-0.75b</td>
<td>-0.75</td>
<td>0.39</td>
<td>1.37</td>
<td>1.53</td>
<td>0.39</td>
<td>-0.59</td>
</tr>
<tr>
<td><strong>Combined</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardised Totals of Reading Running Records and Southland Mathematics Test</td>
<td>-3.16</td>
<td>-1.64</td>
<td>-0.9</td>
<td>-1.19</td>
<td>0.54</td>
<td>2.68</td>
<td>2.26</td>
<td>0.83</td>
<td>-1.90</td>
</tr>
</tbody>
</table>

**Note**
- Previously read and sight unseen text scores are percentages.
- Based on Jordan's scores at 5.5 years.
forty-five minutes. In most classrooms there appeared to be a more formal time immediately before lunch-times. For some, this was a formal hand-writing period, or composition time, in others, a letter of the day or the week was explored in some detail. All classrooms followed a regular pattern of activities quickly learnt by all children.

Over 150 hours of school observations were made in total (i.e. approximately 15 hours per child) resulting in 400 pages of detailed observational records.

7. PROCEDURES FOR MEASURES OF ACHIEVEMENT

(1) Measures of Achievement Data

In addition to the observations, tests were administered at ages five, five-and-a-half and six. The testing of each child was carried out at school. The research assistant responsible for testing was a trained reading recovery teacher. Because the research assistant was already trained in using all the tests employed, once the researcher had satisfied herself through observation and discussion that the research assistant was competent in the administration of the tests concerned, no further check was made of the her competency. However, the researcher met with the research assistant every three months to discuss the progress of the test programme and the children’s results on each test administered. All the tests were administered individually in an office where there would be no interruptions during the course of the
testing procedures. All of the children, except for two, were known to the research assistant.

(2) **The Tests.**

The tests used at five years were *The Reading Test* (ERIC, 1980) and *The Southland Mathematics Test* (In-services Course on Mathematics, 1980). The raw scores and standardised scores of the tests administered when the children were five years of age are in Table 10 (p.146, the raw score, sub-scale results are reported in Appendix 2, Table 1, p.421). The tests administered when the children were five-and-a-half years of age were *Reading Running Record* (ERIC, 1980) and *The Southland Mathematics Test* (In-service Course, 1980). The raw and standardised scores of the tests administered when the children were five-and-a-half-year of age are in Table 11 (p.147, the sub-scale results are reported in Appendix 2, Table 2, p.422). The tests administered when the children were six years of age were *The Six Year Old Sand Test* (Clay, 1972), *The Letter Identification Test* (in Clay, *The Early Detection of Reading Difficulties*, 1979), *The Word Test* (in Clay, *The Early Detection of Reading Difficulties*, 1979), *Reading Running Records* (ERIC, 1980), *The Southland Mathematics Test* (In-service Course, 1980), and *Biks and Gutches* (Clay, et al, 1983). The raw and standardised scores of the *The Reading Running Records Test* and *The Southland Mathematics Test* administered at six years are in Table 12 (p.148, all the tests scores of the tests administered at 6 years are reported in Appendix 2, Table 3, p.423). These tests were selected because they were the instruments used by the schools in the sample to measure achievement.
The Record of Oral Language Test (Clay, et al, 1983) consists of 42 sentences graded in order of difficulty from 'easy' to 'difficult'. The test was administered by the tester reading out each sentence in a prescribed way and the child was asked to repeat the sentence verbatim. The exact response to each sentence was recorded immediately underneath each sentence on the record sheet for subsequent analysis.

The New Entrant Reading Test (ERIC, 1980) derived from The Concepts About Print Test (in Clay, The Early Detection of Reading Difficulties, 1979) and was popularised in New Zealand through the Early Reading Inservice Courses known as ERIC. The difference between the two tests was that The Concepts About Print Test utilised a standard text, either Sand (Clay, 1972) or Stones (Clay, 1979), and The New-Entrant Reading Test (ERIC, 1980) used any text which included all the items to be tested. The research assistant was instructed to use Big Tracks, Little Tracks (Branley, 1960) for all ten children tested and to follow the instructions for administration in The Concepts About Print (Clay(a), 1979). The test required children to point, so it was not essential that a child could read or be highly verbal to be successful. The 24 items tested concepts about the front of the book, where the print was, the direction of the print, the difference between words and letters, etc. It was administered in five to ten minutes while the story was read to the child. If the tester is sensitive, this test is simple to administer and does not give a child a sense of failure.
The Running Records Reading Test was also popularised by ERIC. It was recommended that a running record be taken employing a graded reader using the language of the children to be tested. The child read a text of 100 to 200 words and the tester ticked each correct word on a prepared sheet and marked incorrect words in a prescribed way. The test was scored in the way recommended by Clay (1979(a), p.99). Each child in this study was tested first on a known text and then an unknown text, every time a running record of each child’s reading was taken.

Biks and Gutches is a set of 36 items each of which tests a child’s capacity to inflect real words. Because it was possible for a child to learn the inflected real word from hearing the real word used and not to have learnt the rule behind the inflections, the inflections were tested by using nonsense words. This test gives an idea of how rapidly a child is acquiring this aspect of the rules of language. It is an indicator of comparative language development. Each item consists of a picture and a series of sentences about the picture. The critical word to be tested is omitted by the teacher and time is allowed for the child to supply the correctly inflected words. No norms are given because these vary according to the characteristics of the children being tested.

The Southland Mathematics Tests (In-service Course, 1980) is a multi-level test devised by the advisors for junior schools in the Southland region of New Zealand. It moves from testing the language used in first year mathematics in association with concrete materials, spatial
relations concepts, numerical concepts, manipulation of mathematics materials to make equations, etc. to the abstract concept associated with simple numerical mathematical equations. A child is scored on the number of items correct within each level. When a majority of items at a particular level are known, a child is considered to be capable of beginning work at the next level. This does not group children according to age. It groups children according to their 'readiness' for specific tasks. The levels are considered to represent a natural progression in mathematical terms. The higher the level a child achieves, the greater the child's competency in mathematics.

(3) The Measure of Six Year Old Achievement.

The scores on each test were transformed into standard scores before being added together to form the total. Figure 1 (p.152) shows the extent of the correlation between the total of all the scores at five years and the total at six years (r = 0.80). The coefficient is similar when the total of all the tests at five years are correlated with the total of the two tests at six years which measure achievement only (The Running Records Tests, and The Southland Mathematics Test). The correlation between these five year old tests and the six year old tests is 0.78 (Figure 2, p.152). This is consistent with the correlation of The Reading Running Record Test and The Mathematics Test administered at five-and-a-half years and these same tests at six years (r = 0.83, Figure 3, p.153). When the children are ranked from highest to lowest at both five years and six years (Table 13, p.153) they do not change relative positions during the
first year of school with the exception of Heidi and Kirstie who went ahead, and Michael and Kerry who dropped back. This suggests that there is a substantial consistency in the relative levels of performance of the children from the time they enter school, although some moving does take place.

(4) **Rationale for Using the Data from Two Tests Administered to each Child at Six Years.**

The two tests used as the achievement measure used in this study were The Southland Mathematics Test and The Running Records Reading Test. These are diagnostic tests but they can be used as an indicator of general achievement. They were the tests commonly used by all the schools in this study to judge a child's achievement rate during the period of school observations. The other tests included in this study were diagnostic tests which indicate the specific skills each child needs to be taught. They were included in case the specific skills which each child needed to learn may have affected each child's overall result.

The six year old testing period was used because the children had completed one year at school and one year seemed a reasonable adjustment period. After one year, school routines and testing procedures would have become normal features of the school environment. There was nothing in the analysis of the test results which suggested any other groupings of the tests were likely to be better indicators of academic achievement.
Identification of the Relationship between School Achievement and Home Experience.

Four methods were used to see if there was a relationship between school achievement and home experience (cf. triangulation of method, Denzim, 1978). These were:

(i) Correlations. Scores on achievement measures have been correlated with measures of home experience. These were calculated using the standard Pearson product moment procedure.

(ii) Rank order comparison. The children's rank on measures of school achievement have been compared with their rank order on home experience measures.

(iii) Scattergrams. Scores on school achievement measures have been plotted on a two dimensional graph against indices of home experience.

(iv) The theoretical constructs of schema theory. These are discussed in Chapter IV.

Each of these methods were used where it seemed appropriate. The first method was used where large numbers of comparisons were involved because it provided an easy method of identifying the strongest relationship without having to consider each child's score.

The rank order comparisons and scattergrams were used where a more detailed examination of the relationship seemed important. For example, where it was important to see whether some children have changed relative to other children in the sample rank order comparison was used, but where it seemed important to identify both the general pattern of a relationship and to identify specific children
who might be exceptions to this pattern, then scattergrams were used.

Test of statistical significance were not used in order to test the generalisability of the data. The sampling of children for the study was not intended to be a random sample of the population as a whole so that the basic assumptions behind tests of statistical significance do not apply. The sampling was intended to be representative of the range of home and school experience occurring within a relatively self-contained community. As such it served the purpose of providing a sample appropriate to the development of theory, but not appropriate to a general survey of children's experience in large city slums, industrial suburbs or outlying farming communities. However, statistical tests were used to provide a convenient method of selecting the stronger relationships within the data obtained for the study from the weaker relationships. In identifying the stronger correlations, a statistical probability of 0.1 was considered to be reliable.

8. SUMMARY

By using the same methods in both home and school the same kinds of data were gathered in both environments (i.e. hand-written narrative recordings of natural communication incidents of all the oral language and activities of the focal child, and of the language and activities of other children and adults when what they said and did was in the
vicinity of the focal child). This was important if the data in one setting were to be compared with the data in the other setting. However, the data gathering did not rely on one method alone. In addition there were field notes made after each visit to home, school or pre-school and lists made of variables identified as significant for school achievement in the literature or from the intensive family observations. The sample had been selected in a way which was biased only in the selection of equal numbers of boys and girls and it was hoped that this data would reflect life for a wide range of children, at least within the community in which the children lived. A number of procedures for measuring the data have been described (measures of home language, home environment indices and measures of achievement) which will be used to identify ways for comparing the school data and the home data. Chapter IV describes the procedures for an analysis of patterns of interaction and their underlying structure and will conclude this discussion on methods.
CHAPTER IV

PROCEDURES FOR THE APPLICATION OF SCHEMA THEORY TO THE SCHOOL DATA

The origins of this study lay in a proposition which said that something was occurring in the communication 'styles' of the homes of some children which was so different from the classroom communication 'style' that achievement at school was more difficult for some children than for others. The literature and the researcher's life experiences pointed to this being a problem of sub-cultural difference, possibly occurring within the enculturation or acculturation process of the school classroom. In order to identify this sub-cultural difference and the enculturation or acculturation processes the researcher embarked on a path of discovery. A number of differing research analyses appeared to be promising (e.g. linguistic analyses, analyses of family status, analyses of networks of family relationships, analyses of home indices, schema analyses). A number of interesting avenues were identified and explored. Some proved to have little relationship to achievement at school (e.g. analyses of sentence structure, analyses of observed topics, analyses of the networks of relationships within families). Others showed a positive relationship (i.e. the language, literacy, and home indices measures, the procedures for which have been discussed in Chapter III and the results of which are reported in Chapter V). However, the researcher was not satisfied with
these results. She considered more was to be discovered if a systematic analysis could be carried out which uncovered a relationship between the surface or observable patterns of interaction of what was occurring in schools which was different from some homes and the underlying structure of those observable patterns of interaction. Because the researcher conceived this as a similar problem to uncovering the structure of an unknown language, a theory which could account for both the linguistic and the social patterns of significance to this research problem was sought. The schema theory of Schank and Abelson appeared to have an apparent fit with the data.

1. PROCEDURES USED TO IDENTIFY THE COMMUNICATION STRUCTURE OF THE CHILDREN'S HOME AND SCHOOL ENVIRONMENTS

Schank and Abelson's 'conceptual primitives' of 'scripts', 'goals', 'plans' and 'themes' (cf. 1977; also Schank, 1982) were used in this study to identify the underlying sub-cultural patterns of interaction which characterised the social interaction of the children in their home and school environments. In applying these conceptual primitives to the patterns of interaction observed in homes and schools in this study, the conceptual primitives (i.e. theoretical constructs) needed to be adapted. In particular, the concept of scripts appeared to need further categorisation in order to describe the factors which appeared to cause some children difficulty. For example, it was not sufficient to describe a communication incident such as 'lining-up' for class in
terms of the language spoken by the teacher and children and the 'plan path' of action that had to be undertaken in order to meet the specific 'goal' of lining-up for class. It appeared necessary to see if there were recurring expectations which were either described or indicated in some non-verbal way and to discover, if such recurring expectations occurred, how a child could recognise such expectations. Schank and Abelson's 'themes' were more general than these expectations. So a different, but related way of structuring the analysis was explored. Hence theoretical constructs which fit the data best were generated from the data (cf. Glaser, 1978). The restructuring of Schank and Abelson's theory involved other concepts from linguistics and schema theory. These other concepts were developed to describe and analyse observable sets of related interactions which made up the communication incidents and their underlying structures. In place of several structures (or theoretical constructs), each more generalised than the preceding structure, two generalised structures were identified. These were: (i) the structure of observable patterns of interactions, and (ii) the underlying structure.

For the purposes of this study the conceptualisations which described the observable patterns of interaction have been termed scripts, and the underlying structure has been termed schema. How a communication incident and the component parts of scripts and schema were identified are described below.
(1) **Identification of A Communication Incident.**

Communication in classrooms could be seen as a series of interactions within identifiable boundaries. These interactions have been termed 'communication incidents'. The following is an example of a communication incident in a classroom, taken from the observations made during the target children's first year at school.

The children are sitting in a small group on the mat. The teacher leaves a group he is working with and comes to sit with them. The teacher arranges some rods in groups of 3+2 and 4+1 while telling the children what he is doing. He looks at Lorelei and says, "Watching, Lorelei, watching here." He goes on to explain that today's job is to bring a magazine from the table and use the magazine to find pictures of things which equal 5 and to cut these pictures out and stick them on a piece of paper. He is demonstrating this while he is saying what to do. When they have done this they are to use the rods. He continues to thumb through a magazine looking for groups of 5. Lorelei is sitting cross-legged watching the teacher find several examples. He says they might have to cut some off if more than five things are in a picture. Or they might have to add some if there are not enough. Lorelei looks a bit blank and whispers to a girl beside her. The teacher reprimands James for fiddling. He is still looking through the magazine. All the children are getting a bit restless. He tells them that they are to go and sit at one of the seats with a sheet of paper on it.

What characterised this communication incident was its single major purpose. The teacher engaged the children's attention, gave instructions and demonstrated an activity. The children went back to their desks and cut and pasted pictures of five objects. This purpose or goal might be described as, 'tell and demonstrate what the children are to do at their desks.'

In order to achieve this goal, the teacher engaged in a sequence of activities. These were:

(i) He left another group and sat with the children.
(ii) He arranged rods in groups of five and told the children what he was doing.

(iii) He told the children that he wanted them to get a magazine and cut out pictures of five objects.

(iv) He demonstrated the activity by looking through a magazine.

(v) He told the children what to do to make up groups of five if they did not find suitable pictures.

(vi) He told the children to go to their desks.

Each of these activities had its own particular goal which must be achieved before the major goal of the communication incident could be realised. For example, telling the children about cutting out pictures of groups of five objects had to be done in such a way that the children understood what he meant and intended them to do. It must be a clear instruction within their range of experience.

While this sequence of activities was going on, the teacher was also engaged in a set of parallel activities concerned with the maintenance of an orderly and attentive group of children.

(i) He talked to Lorelei about watching what he was doing ('Watching, Lorelei, watching here').

(ii) He reprimanded James for fiddling.

These activities form part of a larger pattern of activities which reflected the teacher's concepts of classroom order and the rules the teacher used to maintain this order. They occurred only when the teacher judged
they were needed in order to maintain the requirements of this concept of classroom order. The teacher applied the rule about watching him because the teacher appeared to believe that watching him, and not fiddling, were necessary for the other pedagogical activities to be successful.

Finally, it was necessary to note that while the communication incident had a clear immediate goal (getting the children to cut out groups of five objects from a magazine), this immediate goal was not important in itself. The underlying purpose was pedagogical. The teacher wanted the children to develop their understanding and knowledge of the concept of 'five'. Cutting out pictures of five objects from a magazine was an activity the teacher believed would help them to develop that understanding and knowledge. In turn, it formed part of a larger sequence of activities the teacher had organised as his mathematics programme.

In summary, a communication incident consists of a set of activities which enable the participants of the communication incident to meet the goal of that incident. In classrooms, activities are usually designed to meet a pedagogical goal. Alongside these classroom activities to do with pedagogy, there is normally a parallel set of activities meeting a goal of order. The total sequence of activities intended to meet a pedagogical or order goal is a communication incident.

A different kind of interaction can be seen in this communication incident:
The teacher asks the children to put their hands up for the opportunity to present a news item. Many hands go up for a news turn. A boy is chosen. Kirstie listens to his news with interest. She turns round and looks at a girl talking to another girl and then it is her turn for news.

Kirstie, "Good morning Class."
Class, "Good morning Kirstie."
Kirstie, "Well, my Nanna’s coming today at lunch-time.
Teacher, "That’s nice news."
Kirstie, "So, any more news?"
A boy, "That was short news."
Kirstie, "I know."

As she sits down choosing Michael for the next news person, Kirstie sucks her thumb and rocks in an embarrassed way. She relaxes slowly. She listens intently and responds appropriately as two children give their news talks and then she joins in energetically as news-time ends with an action song.

The sequence of activities making up the communication incident did not involve the teacher so directly. There was, however, a clear pattern of activities consisting of:

(i) Children who wanted to give a news item raised their hands.

(ii) One child was selected from those with their hands raised.

(iii) That child stood up and said, "Good morning Class."

(iv) The other children all replied with, "Good morning, (child’s name)."

(v) The child then recounted her/his own news item.

(vi) The teacher and/or other children commented on the news item.

(vii) The child then selected the next child to give a news item and sat down.
This sequence was repeated until there were no more children volunteering or the teacher decided the activity had gone on long enough.

As with the previous communication incident, there was a parallel set of activities having to do with the maintenance of order and attention.

(i) The teacher reminded the children of the structure of news-time by asking the children to put up their hands for the opportunity to give a news item.

(ii) She complimented Kirstie for her news ('That's nice news') reinforcing the type of news and the manner in which it was presented.

It is probable that the teacher's non-verbal communication activities (smiling, frowning, catching a child's attention, etc.) which were not recorded by the observer of this incident, functioned to maintain the children's involvement and attention.

Again, the sequence of activities in this communication incident are likely to be part of a larger programme of activities forming the teacher's language programme. The intention is that the children are learning to develop their understanding and use of language.

As stated earlier the communication incidents forming the basis of this analysis of school phenomena most commonly have pedagogical purposes. Parallel to these communication incidents are those incidents with the single
purpose of keeping social order. Viewed within a specific communication incident, these may have a similar structure to the pedagogical incident. This is seen in the following:

The teacher claps her hands. "Would you please put your hands on your heads when I clap my hands." Some children, who have been talking rather noisily quickly comply. "When you are finished you are to pack up and go quietly to the mat." The children resume their work.

In this example there was one major purpose or goal, that of moving the children quietly and efficiently to the mat. The sequence of activities was as follows:

(i) The teacher caught the attention of the class by clapping.
(ii) The teacher explained what the children were to do when she clapped her hands.
(iii) The teacher then told the children what to do when they finished their activity.

The incident began with the clapping of hands and ended when the children recognised in some way that the teacher had finished talking to them.

The purpose of this incident was to ensure a smooth transition from one set of tasks to another, or from one lesson to another.

Such 'mini' communication incidents are relatively uncommon. The maintenance of order and attention more commonly involves single comments of the kind seen in the
first example, or non-verbal signals which function as single comments. This means that the maintenance of social order does not occur in an easily identifiable patterned sequence of activities. Instead, the occasional activities are part of an underlying pattern continually developing and changing within each classroom. This pattern is a function of the class teacher's beliefs about well-run classrooms, about learning and other related psychological and personal factors.

To summarise, a communication incident is a sequence of activities with a single major purpose. This purpose is usually pedagogical. The activities may be carried out by the teacher (giving instructions), the pupils (telling a news item) or both. Parallel to this sequence of activities is another set of activities about the maintenance of appropriate order, involvement or attention on the part of pupils. These represent the ways in which the teacher maintains control and ensure that the purposes of communication incidents are achieved.

(2) Identification of Components of a Script

Scripts are the structures or sequences of activities making up communication incidents. Their boundaries are identical to communication incident boundaries. Although it is not essential for a script to take place within a short space of time the first two examples given in this chapter are of this kind. These have been used because the boundaries of short incidents are readily observable. Scripts can be analysed in terms of techniques, plan paths and goals.
(a) **Techniques.** Techniques are mechanisms by which the director of a communication incident establishes what type of communication will occur, ensures the content of the communication incident occurs, and guides the communication to meet the director's goal. Requests are one kind of technique, and may be divided into verbal and non-verbal requests, direct and indirect requests, and simple and complex requests, etc. A direct request states what is required without the need for inference on the part of the child (e.g. 'Bring the book here'). An indirect request states part of what is required but inference is necessary to carry out the action precisely (e.g. 'We are going now,' said in a situation where the parent expects that the child will understand s/he must collect all their toys up and put them away and get necessary out-door clothes on ready to go). The first example is an example of a simple request because there is only one meaning (i.e. the book has to be moved from one place to another). The second example is an example of a complex request because the statement has more than one meaning (i.e. the parent is ready to go and the child must also be ready to go). In the first communication incident example described above, the teacher says, "Watching, Lorelei, watching here." This is the technique (termed in this study a direct verbal complex request) which the teacher is using to change Lorelei's behaviour. This technique is considered to be direct because there is no underlying meaning or agenda. It can be understood directly from the spoken words. The technique is complex because Lorelei is not only asked to watch, she is expected to watch in a specific direction.
She must hear and understand both meanings in order to act appropriately. The varieties of techniques identified in the classroom observations will be discussed in detail in chapter VI.

(b) Plan Paths. A plan path is the particular sequence or 'pathway' of activities used to meet a goal. The activities which make up the plan path vary according to the type of communication incident being analysed. In fact, the descriptions of the sequences of activities of the first two examples (see p.164 & 167 above) are the plan paths for those two communication incidents. This definition differs from the 'paths of meaning' used by Schank and Abelson.

Some communication incidents do not occur simply within a limited time frame. Order maintenance communication incidents tend to be examples of this. For example, in this study scattered throughout one mat-time session, a teacher may indicate that sitting up straight is desirable. This communication incident will begin at the point where the children recognise the teacher requires them to be seated on the mat and ends when the children move away from the mat to another location. The sequences of activities will take the form of a series of statements about the sitting position and non-verbal indications. These may be in a positive or negative form and may be implied or direct. The purpose will be concerned with the teacher's belief that such a sitting style enhances learning in some way. The plan path of the script of such a communication incident is more difficult to identify than
the communication incident where all activities are immediately contiguous. It is possible that the 'mini' communication incident described earlier (p.166) is really part of a much larger communication incident. The plan path's concept 'makes sense' out of communication incidents that seem to appear at random and consequently may appear, to an observer, to have no structure or purpose.

A similar example is seen in the following:

"Johnny, look this way!" the teacher says as her eyes flick quickly to the blackboard and back to Johnny. "Why do you always have to look where no-one else is?"

It was the combination of the three requests (the statement 'Johnny, look this way', the non-verbal statement made by the teacher's eye movement and the question 'why do you always have to look where no-one else is?') in the above example that formed a plan path but it was only part of the story. The rest of this communication incident was embedded in a group of pedagogical communication incidents which occurred on the mat that morning. Earlier the teacher had instructed the whole class to look at the blackboard if she was writing on it or pointing to it. A short while later she told a group of children to look at the blackboard. On each occasion she looked briefly at Johnny. She was now assuming he understood she wanted the children to look at the blackboard when she was writing or pointing towards it. Her goal was met when he looked continuously at the blackboard at the appropriate time.
(c) **Goals.** The goal of the script is the outcome the script director (in the above example, the teacher) expects to achieve by using a specific set of techniques. This goal can usually be inferred from the director's activities, the way the participants react (i.e. in the prescribed way) and from the types of reactions which are positively or negatively reinforced. In the example above, Johnny was being negatively reinforced. He was not doing what was expected of him and attention had been drawn to him. It was clear from the teacher’s comments and eye movements that the expected outcome, the goal, was that Johnny should look at the blackboard. Whether Johnny responded in this way depended on Johnny’s understanding of this script’s requirements. If Johnny had no past experience (schema) appropriate for understanding this type of situation he could misunderstand what he was being asked to do in a number of ways. He might interpret 'this way' as looking at the teacher. He might respond directly to the rhetorical question, and so on. The expectation was clear from the script director’s perspective but the participant’s interpretation depended on his past experiences of similar situations with this teacher or other teachers and his recognition that this was a similar situation. In other words he needed past similar experiences in order to recognise what it was about his actions that was preventing him meeting the teacher’s goal.

(3) **Components of Schema**

Schema are generalised structures of experience. They can be viewed simply as more generalised scripts. They are those structures which include all past related
scripts and are used to make sense of the present script. Recognising that a present script is an instance of a known schema enables a person to identify the goal of a present script. The schema give meaning to the script. Having an appropriate schema gives greater clarity of understanding to a script than having inadequate or inappropriate schema. A director can initiate any script, but whether the participants understand that script depends on their having some prior experience to make sense of the whole or component parts of it.

Schema are varied and are part of any type of communication possible between and among people. More than one type of schema is likely to be operating in a communication incident. This is further complicated by the possibility of more than one communication incident operating at the same time. For example, in the study a communication incident about the number five and a communication incident about when play-time would occur could happen simultaneously.

From the teacher or adult perspective, there appear to be two main types of schema, procedural schema and knowledge schema. These underlie scripts. It is difficult to separate procedural schema and knowledge schema because they seemed to be interdependent. However, procedural schema are about process, whereas knowledge schema are to do with beliefs about how knowledge is acquired. For example, the procedural schema for the first communication incident can be stated as:
If the children -

(i) Looked at what the teacher was doing.
(ii) Had what the teacher considered was a listening expression on their faces.
(iii) Sat in an attentive way.

then the children would be able to complete the task being set appropriately.

The knowledge schema associated with this communication incident could be stated as:

The teacher had a belief that if s/he -

(i) demonstrated what was to be done by:
- pointing out groups of five in a magazine,
- talking about groups of five things,
- cutting out groups of five things,
- showing where the cut out items were to be pasted;
(ii) giving the children time to find groups of five things in magazines and to cut and paste groups of five things;

then the children will learn more about the number five.

It can be seen from this that knowledge schema and procedural schema complement each other. It is difficult to find classroom examples where one operates without the other.

Knowledge schema and procedural schema deal with beliefs. The teacher believes that if 'A', 'B' and 'C' are completed then 'D' will occur. The more frequently a teacher experiences 'D' as the outcome of 'A', 'B' and 'C',
then the stronger the teacher's belief that 'A', 'B' and 'C' will produce 'D'.

(4) **How Schema Affect Understanding.**

In order to understand schema better, we will return to the first example of a classroom communication incident (p.162). In this example the children were sitting in a small group on the mat. In order to do this the children needed to know how to sit on the mat in a way acceptable to the teacher. This involved previous experience of this teacher in other group mat-time sessions. The teacher required the children to attend to him in a particular way and to attend to the subject matter in a particular way.

In the first example, if children were going to be able to process accurately the information which the teacher was presenting, they needed schema for how to act on the mat when this teacher was conducting a group lesson, schema for how to demonstrate they were involved, understood and were interested in what the teacher was saying and doing, schema related to the concept of five, and of cutting and pasting, schema about the way teachers acted and the kind of goals teachers had, etc. This suggests that the number and variety of schema a child requires in order to understand just one communication incident must be very extensive if the communication incident is to be successful.

The teacher's comment in the communication incident on page 162 implied that listening involved watching in a particular direction. The teacher might believe the
children needed to look at him in order to listen effectively, but the children were not told this. They were meant to know this somehow. Although most of the children in the group have had past experience with and understand the direct complex request and actions, there was much that was implicit. The children needed appropriate schema in order to identify and understand what was implicit.

This could be elaborated as:
If the children had past meaningful experiences with

(i) how to act on the mat at group lesson time;
(ii) how to demonstrate involvement, understanding, and interest in what the teacher was saying and doing;
(iii) how teachers acted;
(iv) what teachers were likely to have as goals;
(v) the concept of 5;

then the children’s understanding of what was occurring was likely to be closer to the teacher’s expectations than children who did not have such past experiences.

(5) **Behaviour Codes**

Behaviour codes are structures more generalised than techniques. They are mechanisms with beliefs and expectations about the 'how', 'when', 'where', 'who' and 'what' of actions. Behaviour codes apply to patterns of activity which are usually smaller than a complete communication incident. A behaviour code has its own techniques, plan paths and goals. It may be a belief about a specific behaviour, such as the way to sit at a
particular time, or it may be a belief which is more generalised, such as the belief that a social setting requires a set of rules in order to limit conflict. Other examples of behaviour codes are beliefs about 'correct arrival times', 'sitting correctly', 'how to attend' and 'what to do with apparatus'.

An example of behaviour code is seen in the following excerpt:

Teacher, "Suz please place your feet firmly on the floor and sit up straight while you’re printing. Swinging back on your chair will not make beautiful printing."

In this example only part of the whole behaviour code was given. It was enough for Suz to understand that the teacher thought she should sit differently from the way she was and that the teacher had a specific idea about just how she should change her sitting position. Not all behaviour codes were described as explicitly by teachers. More commonly only a small indication was given of what was expected. The teacher might indicate with a hand-movement that a child was to sit up straight and put the feet flat on the floor, hold the pencil in a particular way and put the other hand on the paper to hold it in place (if printing was in progress) or to fold the arms (if instructions were being given) and so on. The correct way to sit also included head positions. The required head and arm positions changed according to the activity in progress. The required back and feet positions seldom seemed to change. This example demonstrated that behaviour codes were complex and most were not taught explicitly.
Behaviour codes are important because they explain why the communication director sets up the process of communication incidents in the way that s/he does. The variation in the way a behaviour code is communicated explains individual classroom variation because the structure of a behaviour code derives from personal belief systems. These personal belief systems are probably derived from a more generalised cultural belief system. Such a system is influenced by religious beliefs, acculturation, differing personal cultural and sub-cultural backgrounds, and many other factors.

2. THE CHILDREN'S UNDERSTANDINGS AND REACTIONS TO CLASSROOM COMMUNICATION INCIDENTS

Up to this point scripts and schema have been described from the perspective of the observer and it was certainly from this perspective that the data were primarily analysed. However, during the data analysis the differences noted in the literature between children’s and adults’ ways of acting became apparent (cf. Au & Mason, 1981; Erickson & Schultz, 1977 & 1981; Cummins, 1986; Feldman, 1987). In addition, this perspective became significant when an explanation for individual difference was sought. Because the data focused on the language and action surrounding each focal child, it was possible to hypothesise how communication incidents might look from the children’s perspectives. The identification of possible child communication incidents led to the recognition of
some elements which in this study have been termed 'options'. These 'options' appeared to give children strategies or ways to enable them to act within communication incidents so that they maintained their own 'agendas'. The following is a discussion about the child perspective of the communication incident and elements termed 'options'.

(1) The Children's Perspective of a Communication Incident.

The structure of these communication incidents has so far been described from the point of view of the teacher, or of an adult observer aware of the probable educational and pedagogical purposes of the teacher and the school. It is in fact this adult and culturally accepted view which gives them their coherence and purpose.

When these incidents are seen from the child's point of view, they assume a different significance. The structure of activities remains. The children experience the same sequence of activities. But the underlying purpose guiding the teacher's understanding and involvement in them, may not be apparent to the child. In fact, since teachers or adults rarely talk about the purpose or rationale underlying school activities, children are confronted with a mystery they must try to resolve but which they may never completely resolve.

Consider, for example, the first incident described on page 162 above. The children would understand that the teacher was telling them what he expected them to do. They
would understand that it was important to watch what the teacher was doing because Lorelei was asked to 'watch here'. They would also understand that they should not fiddle, because James was reprimanded for fiddling. But they may have no idea why they should be cutting out pictures of five objects, or why they should be watching the teacher and not fiddling, other than to avoid the teacher's displeasure.

Not understanding the goal or purpose of an activity can have a profound effect on what happens during an activity and on its significance for children. If difficulties arise in doing exactly what the teacher says, they will not know how to adapt or vary the activity to meet the teacher's expectations. They will not understand what constitutes failing to carry out the activity successfully, and may not understand why they might be praised or reprimanded for what they do. As with all communication, unless the sender and the receiver are mutually aware of the purpose of the communication and share the same experience so that they understand what is being talked about, possibilities for misunderstanding are endless (note Clark & Marshall, 1980; Smith, 1982).

The child's understanding of a communication incident depends on the relationship between the structure of that incident (what the teacher is saying, what activities are involved, what surrounding children are doing, etc.) and the child's past experience of, and involvement in similar incidents. We normally infer the purpose of an incident from our experience of the occurrence and outcomes of
similar incidents in the past. For example, children learn that when the teacher claps her hands, this means they must stop what they are doing and listen. In the past, failure to do so has resulted in unpleasant consequences. They may understand from past experiences that things happening after morning interval are about learning numbers (mathematics). No matter how strange the activities might seem, the children have learned to presume that the activities have something to do with numbers unless they are told otherwise.

This implies that there are two levels of generalisation which need to be taken into account in understanding how a child interprets or understands classroom activities. First, there is an underlying level made up of past information or knowledge (remembered past occasions of what happened when the teacher clapped his/her hands, etc.) that interacts with and is used to interpret new information or knowledge. Second, there is the surface level made up of the child’s experience of on-going activities (clapping hands by the teacher overrides an interesting conversation with friends, etc.). The underlying level of past information or knowledge is structured. It functions in a way which is similar to the ‘deep structure’ of linguistic theory. The experience of each new activity is similar to the ‘surface structure’ of linguistic theory.

The ‘surface structure’ of classroom activities and the new information or knowledge can be identified directly by observation. The specific language used, the sequence
of the activities, and the results of these activities in each of the three communication incidents described above fit together to form a structure analogous to the way words are structured in a meaningful sentence. A child interprets meaning from what is happening by observing the pattern of the communication incident in process. However, how closely aligned that interpretation is to the interpretation which the teacher expects the child to have, will depend on the type of past experiences which have affected the child’s understanding and how successfully the child can relate those past experiences to the present communication incident. This influence of past experience on present experience facilitates understanding of a communication incident in a similar way to a child’s experience of hearing and responding to language, developing a child’s knowledge of language, and facilitating understanding of individual sentences. An example of the effect of past experience on present action can be seen when, for example, a child who has experience of an activity involving the counting of numbers of objects in a magazine and cutting and pasting pictures of such objects on a prior occasion, acts appropriately when a teacher requires him/her to carry out a similar task on a subsequent occasion. This is consistent with Bartlett’s definition of schema. He described schema as, "An active organisation of past reactions, or of past experiences, which must always be supposed to be operating in any well-adapted organic response" (Brewer & Nakamura, 1984, p.3).
(2) Identification of Safe, Soft and Disruptive Options.

If a communication incident is unknown to a participant in whole or part, then the participant can choose a 'safe' option, a 'soft' option, or a 'disruptive' option as a way to react to a communication incident. Options appear to be generalised elements operating in a variety of social environmental settings to answer the question for a script participant, "What do you do when .... ?"

A 'safe' option is usually employed by a child who has a good knowledge of school patterns of interaction. When such a child encounters an unrecognised situation s/he will choose to act in a way s/he believes to be appropriate for school in a general sense, for example, looking as though s/he is paying attention or reading but is actually day-dreaming. S/he says or imitates language and actions that s/he perceives to be most common for the particular classroom pattern of interaction which is in progress at the time. In this way s/he can appear, from the teacher's perspective, to understand. Repeated actions of this type establish a belief, in the teacher's mind, that this child knows what s/he is supposed to be doing.

When children who can act like this act inappropriately it is often not noticed by the teacher. Children who are not so successful will sometimes employ 'soft' options, for example, smiling, asking to help the teacher, sitting very straight, etc., and are successful to the degree that the teacher accepts what they are doing.
'Soft' options are most commonly actions children perceive as being praiseworthy from the teacher's perspective. Other children choose 'disruptive' options, for example, pinching a child, wiggling, moving a chair noisily, etc. These are options children perceive as negatively sanctioned by the teacher.

The main differences between 'safe' options, 'soft' and 'disruptive' options are:

(i) 'Safe' options are designed not to draw the teacher's attention to the child. 'Soft' and 'disruptive' options are designed to draw the teacher's attention to the child.

(ii) 'Safe' options require an extensive knowledge of normal classroom procedures. 'Soft' and 'disruptive' options require only a limited knowledge of the normal classroom procedures.

The use of 'safe', 'soft' and 'disruptive' options make it difficult for a communication incident director to know if participant reactions indicate comprehension of the total communication incident.

3. SUMMARY

Communication incidents, from the observer's perspective, are bounded patterns of interaction with a specific purpose. There is a specific or actual structure
and a generalised underlying structure to each communication incident. These have been termed scripts and schema respectively.

Scripts can be understood without the aid of schema but only the surface meaning can be identified. Hidden implications from past interactions with similar scripts cannot be understood. This is why participants can fail to understand each other. The director expects the participants to act in a particular way but the participants act because of the way they interpret the script, because of their understanding of the techniques, the plan path and the goal, and because of past apparently similar scripts (schema). This means they may not act as the director expects.

A script may be understood in part or as a whole. That is:

(i) A participant may believe s/he understands what is happening in a script because a particular technique is already known to the participant.

(ii) A participant may believe s/he understands what is happening in a script because a particular series of techniques is already known to the participant.

(iii) A participant may believe s/he understands what is happening in a script because a particular goal has been identified in the past.

(iv) A participant may believe s/he understands what is happening in a script because of any combination of the above three points.

(v) A participant may believe s/he understands what is
happening in a script because of the recognitions of all the component parts of a script.

A script is understood more accurately by a participant if the participant's and the director's schema are similar. The greater the variation of the schema held by participant and director the greater the possibility for misinterpretation.

This view of schema theory, then, assumes that in order for information to be transferred successfully, people in communication with each other must hold the same or at least similar cognitive notions in their heads of the ways of communicating about the topic and of the topic itself. For example, in the sentence, "The man is walking along the road," it is unnecessary to state, "The man is walking on his feet along the road." Past knowledge of how people walk makes the elaboration unnecessary. It is possible to say, "The man is walking along the river," not, "The man is walking on the path beside the river." The elaboration is unnecessary because people do not expect others to be walking on the water and so no confusion occurs. People hold a schema of 'walking' which excludes the possibility of walking on water. This foreshortening of a message is possible at all levels of complexity. However, the more complex the message the greater the cognitive knowledge necessary for those involved in the communication.

Schema theory is not unlike the structure found in Bandura's social cognitive theory. In his theory, "People
are neither driven by inner forces nor automatically shaped and controlled by external stimuli. Rather, human functioning is explained in terms of a model of triadic reciprocity in which behaviour, cognitive and other personal factors, and environmental events all operate as interacting determinants on each other (Bandura, 1986, p.18)." Schema are the 'cognitive and personal factors' which interact with behaviour and the environment to determine the patterns of classroom communication.

In conclusion, two new communication incidents will be analysed in order to demonstrate how all these pieces fit together. The first communication incident is about the maintenance of order. The second is about the content of a particular classroom topic.

The teacher has been talking to a parent. It is just after morning play-time. The children are all sitting on the mat waiting for her. Kerry has been watching the other children talk. He has recently turned five years of age. He is playing with his fingers and fiddling with his jersey. The teacher turns and looks at the class. Because of the children's recognition of the type of look the teacher gives, the children stop talking. She says, "If you've got a jersey you want off put it in your desk." The teacher commences a mathematics activity. This consists of clapping patterns of sound that the children are expected to copy. While the teacher begins clapping patterns of sound, Kerry stands and walks directly to the door. In order to do this he climbs over a chair and a bookcase. He uses the same route upon his return. He sits on the mat holding his hand-towel and says, "I've brought a hand-towel." The teacher ignores him by going on with the clapping. He joins in.

What characterised this communication incident was that it involved a single major purpose. The teacher engaged the children's attention and gave an instruction in order to settle the children to begin their mathematics
lesson. This purpose or goal might be described as, "A particular look and a remark will settle the children so that they will be ready to learn."

In order to achieve this goal, the teacher engaged in a sequence of activities. These were:

(i) turning in the direction of the children;
(ii) looking at the children in some significant way;
(iii) making sure all are able to be comfortable by commenting on items such as clothing;
(iv) beginning the mathematics activities (the clapping of patterns of sound).

The communication incident began with the teacher turning to face the children and ended when Kerry went to make himself comfortable.

The following were what characterised the script of this communication incident. New terms included are discussed in detail in Chapter VI. The components were:

(i) a non-verbal request (The teacher turning towards the children);
(ii) a non-verbal request (The teacher looked at the children in some way that is significant to the children);
(iii) an indirect complex request ("If you have a jersey you want off put it in your desk");
(iv) an indirect non-verbal request (The teacher’s acceptance that Kerry would do what she had asked was
implicit in her action of beginning the mathematics activity before Kerry returned to the mat).

These were the techniques employed to facilitate the goal of the communication incident. The plan path was the combination of these techniques illustrated above. The teacher’s goal was the same as for the communication incident.

It is apparent from what Kerry actually did that his goal was not the same as the teacher’s. This leads us to the schema underlying this communication incident.

The teacher appeared to have some kind of procedural belief that if she asked the children, in general, to put their jerseys in the closest place (their desks) that Kerry would choose this option and so the teacher would be able to proceed with her lesson in the shortest possible time. Time had already been lost because the teacher was talking to a parent at the beginning of the session. From her short experience with Kerry, the teacher had already learnt that a direct statement to Kerry would not always result in the required behaviour. Her past experiences with children had led her to believe that children could not attend properly if they were uncomfortable. Kerry understood that the teacher had a sub-goal of having him put his jersey away. He demonstrated this by getting up to put his jersey away. However, he did not recognise the teacher wanted this done in the shortest time possible. He did not understand why she had asked him to put his jersey in his desk because he had already learnt the most correct place
to hang a jersey was on the hook in the corridor. He demonstrated he knew better than the teacher by emphasising where he was going by the way he went and returned. He reinforced this by bringing back his hand-towel which could only be hanging on his hook in the corridor. In other words, he chose a disruptive option in order to accomplish his task and to meet his own goal, that of demonstrating he knew better than the teacher. During his fifth year, Kerry often told the researcher how 'dumb' his teachers were. This was not surprising, since his view of the teacher's goal was very close to the teacher's actual goal and so did not allow him to see his misinterpretation. The next example is of an activity of the content associated with the number 'five'. The teacher had already demonstrated what the children were expected to do.

The teacher gives out threaders, pattern boards, rods, etc. There is a general kerfuffle while everyone sorts out what they want to use. Heidi is clutching a Noddy book. She goes with three other children to a table to make more room on the mat. The teacher returns to the mat and another group. Heidi puts cubes in a pattern on the pattern board. She works quickly and tips the cubes out again and puts the board back. She takes Noddy with her to another seat where there are rods set out. She gets four orange rods out and makes a square. She has a sneaky drink from a drink bottle in someone's desk. She puts her hand up for the teacher but he is busy. She puts her hand down. She is making a variety of shapes with orange rods. She makes an 'H' with very brisk movements. After three more minutes of such activities she puts all the rods back and grabs Noddy and two handfuls of rods and moves to another table with a boy. She goes and gets a chair and another box of rods and sits down and opens Noddy and begins to 'read' aloud to herself. She puts Noddy open in a standing position in front of her and begins to arrange rods in a very brisk fashion in front of her. She continues on with variations between reading Noddy and making her rods for nine minutes when they are asked to tidy up. At that time she quickly makes a pattern of five and begins to tidy up leaving her pattern until last. When the teacher says, "All group two on the mat now," Heidi makes a dive off the chair and does a funny, bent-double walk to the mat and sits crossed-legged.
At first glance, this may not appear to be a communication incident but the activity that results from a communication incident. The teacher expected the children to demonstrate by their actions that they were carrying out the tasks which the teacher had set for them when the children were on the mat. The teacher’s controlling statements were nearly all non-verbal and were at long distance. The teacher used facial expressions and remarks to ensure that the children were responding. He gauged the need for his involvement in a direct sense by the way the children demonstrated that they were involved. All the teacher’s remarks to other children have been left out of the above example. It was notable that none of these remarks were directed toward Heidi. The analysis will investigate why this was so.

What characterised this communication incident was that it involved a single major purpose. The teacher engaged the children’s attention by giving out the necessary equipment which would enable the children to reach the teacher’s goal of their learning more about the number five. His purpose of the goal might be described as, experience with tactile equipment would improve the children’s knowledge of what the number five meant.

In order for this goal to be achieved, the teacher engaged in a sequence of activities. These were:

(i) The teacher gave out the equipment and expected that
the children would select appropriate items.

(ii) The teacher waited for this to be accomplished before he went to the group on the mat.

(iii) The teacher looked up from time to time and caught the attention, by look or remark, of children whom he considered were not doing their work correctly.

(iv) The teacher told the children when it was time to tidy up.

(v) When everything was tidy the children were asked to return to the mat.

These were the techniques employed to facilitate the goal of this communication incident. The plan path was the combination of these techniques as illustrated above and the teacher's goal was the same as for the communication incident. Alternatively the plan path could be described in the same way as the sequence of activities above.

What characterised the schema of this communication incident from Heidi's perspective was her use of the teacher's belief about what children were doing and how he knew that they were doing it. Her goal appeared to be to read her Noddy book. She managed to do this without being acknowledged by the teacher in any way by working very hard at what she was supposed to be doing at the beginning and at the end of the communication incident. These were the two times that she knew, from past experience with this teacher, that he was likely to notice her. He was standing both times in this communication incident. So she could easily be observed. When he was sitting with the group on
the mat she appeared, from time to time, to be doing the
correct activity. In fact, she was making the patterns
which appealed to her at that point in time, sneaking drink
from someone else's drink bottle and reading her Noddy
book. She even managed to read out loud at one point and
did not draw attention to herself. She was employing a
'safe option' not because she did not know what she was
meant to be doing but because she knew all too well what
the teacher's goal was and what she was meant to be doing
to meet that goal. She used this knowledge to take a risk
to meet her own goal. Her own goal was quite separate from
that of the teacher. Perhaps this was because she
understood quite a lot about the number five at this point.
Whatever the reason, her personal goal appeared to be to
read her Noddy book. She was successful in this.

These last two analyses describe the way in which
this theory of scripts and schema can be used to 'make
sense' out of classroom interaction structures.

The methodological process of this study began with a
research question concerning achievement at school.
Through an analysis of the literature in conjunction with
the researcher's life experiences this question has been
viewed as a problem concerning patterns of interaction and
their underlying structure. The identification of this
problem led to a search for the best field work method,
data analysis and theoretical framework for clarification
of this problem. Because the problem was of a general
nature, possibly involving the acculturation and
enculturation processes of sub-cultures within an
industrialised society, ethnographic data gathering techniques employing data triangulation were employed. Once the data had been gathered it was necessary to employ a method of data analysis which could facilitate a dialogue between the data and the analysis. Because the study was designed in an interpretive way such a dialogue was seen to be necessary to maintain ecological validity and systematic analysis. A variety of methods were employed (linguistic analyses, home indices, analyses of family status, network analyses, schema analyses). A number of differing research analyses showed a positive relationship with school achievement (e.g. linguistic analyses, home indices). However, the results did not satisfy the researcher. This led to the search for the theoretical constructs the identification of which has been described in this chapter. The theoretical constructs providing the best framework for the data were those generated from the data themselves. The theory behind these theoretical constructs was an adaptation of the schema theory of Schank and Abelson (1977). However, because the theory was generated from the data it could be considered a grounded theory of an interpretive type. The results have been reported as both interpretive and correlational. However, the correlational results are only seen to be useful as an index of the significance of the reliability of the interpretive results.

This chapter concludes the discussion on methods. The next chapter begins the discussion of results related to achievement at school.
Table 14.

Correlations of Question Types in the Home and Achievement at Six Years
(Running Records and Maths)

<table>
<thead>
<tr>
<th>Question Types</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>How</td>
<td>r = -0.05</td>
</tr>
<tr>
<td>When</td>
<td>r = 0.08</td>
</tr>
<tr>
<td>Why</td>
<td>r = -0.20</td>
</tr>
<tr>
<td>Want</td>
<td>r = -0.12</td>
</tr>
<tr>
<td>Which</td>
<td>r = 0.03</td>
</tr>
<tr>
<td>Where</td>
<td>r = -0.49</td>
</tr>
<tr>
<td>What</td>
<td>r = -0.25</td>
</tr>
<tr>
<td>Who</td>
<td>r = 0.34</td>
</tr>
<tr>
<td>Question Total</td>
<td>r = 0.02</td>
</tr>
</tbody>
</table>
Figure 4. Relationship of the total number of questions in the home per hour and achievement scores at six years (running records & mathematics)

Figure 5. The relationship of the frequency of who questions in the home per hour and achievement scores at six years (running records & mathematics)
CHAPTER V

RESULTS OF THE LANGUAGE, LITERACY AND HOME INDICES MEASURES

Chapter III and IV described the research setting, how the subjects were chosen, the research design, the procedures for the home data gathering, the procedures for measuring the language experience of the child environment, the procedures for observing the experiences of the child in school, procedures for measuring achievement and the procedures used for applying schema theory to the analysis of the school observation data.

In this chapter, the relationships between achievement at school and the children’s exposure to language in the home (types of questions and statements, and amount of talk each child was involved in), television viewing, reading experiences, and other measures of home experience (the family environmental scale and the HOME Scale) are reported and discussed. This discussion is concerned mainly with describing the quantitative relationships.

1. LANGUAGE AND RELATED MEASURES AND ACHIEVEMENT

The research reviewed in Chapter II (6. Language Studies, p.57) indicated that one possible reason why
Figure 6. The relationship of the frequency of where questions in the home per hour and achievement scores at six years (running records & mathematics)

Figure 7. The relationship of the frequency of what questions in the home per hour and achievement scores at six years (running records & mathematics)
otherwise able children do not succeed in school is that their experience and understanding of language at home has been limited. In this section, a number of different aspects of the language used in the homes of the children in the sample are examined and their relationship to the children’s achievement in school is analysed in order to identify the extent to which home language experience provides an explanation of the children’s relative success at school.

(1) Questions

Because McNeany & Keislar (1966), Blank (1975), McDonald & Pren (1981), Laosa & Sigel (1982) all considered exposure to a variety of different question types important to achievement in school, and the child’s ability to answer questions appears to be important to teachers, the different types of questions which the children in this study were exposed to in their homes were identified from the home observation records. The correlations between the question types and school achievement are reported in Table 14 (p.197).

There is no apparent correlation of school achievement at six years with the total frequency of all the different question types identified in the home observations at four years ($r = 0.02$, Figure 4, p.198). This lack of correlation with the total frequency of questions may hide the fact that some specific question types are significantly related to school success while others are not. Table 14 (p.197) shows that the incidence of 'why' ($r = -0.20$), 'how' ($r = -0.05$), 'want' ($r = -0.12$)
Table 15

Correlations of Parents' Statement type in the Home and Achievement at Six Years (Running Records and Maths)

<table>
<thead>
<tr>
<th>Statement Types</th>
<th>Mothers' Statements</th>
<th>Fathers Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>0.12</td>
<td>-0.50</td>
</tr>
<tr>
<td>Encouraging</td>
<td>0.22</td>
<td>-0.50</td>
</tr>
<tr>
<td>Informing</td>
<td>0.26</td>
<td>-0.55</td>
</tr>
<tr>
<td>Explaining</td>
<td>-0.25</td>
<td>-0.53</td>
</tr>
<tr>
<td>Ordering</td>
<td>-0.07</td>
<td>-0.83</td>
</tr>
<tr>
<td>Eliciting</td>
<td>0.03</td>
<td>-0.73</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>0.12</td>
<td>0.09</td>
</tr>
<tr>
<td>Total</td>
<td>0.08</td>
<td>-0.66</td>
</tr>
</tbody>
</table>

Total of both Mother and Father Statements = -0.13

Note: Correlation of Total Parent Language and School Achievement is $r = -0.14$
Figure 8. The relationship of school achievement (running records & mathematics) to the frequency of 'explaining' statements by father in the home.

Figure 9. The relationship of school achievement (running records & mathematics) to the frequency of 'ordering' statements by father in the home.
and 'which' \((r = 0.03)\) questions at four years in the home are not significantly correlated with the six year old achievement test results in language and mathematics. Scattergrams of these correlations do not reveal any underlying patterns.

There is an apparently positive correlation between 'who' questions and school achievement \((r = 0.34)\). However, the scattergram in Figure 5 (p.198) shows that the frequency of exposure to 'who' questions is almost the same for nine out of the ten children in this study. The frequency for the one exceptional child creates the apparent relationship.

There is an apparently negative correlation between the frequency of 'where' questions and school achievement \((r = -0.49)\). The scattergram for 'where' questions in the home, (Figure 6, p.200), shows that those children with high frequencies of 'where' questions have lower school achievement. Two of the children are exceptions to this general pattern.

The frequency of 'what' questions in the home also appears to show a small negative correlation \((r = -0.25,\) Figure 7. p.200).

Summarising these results there appears to be no general pattern to the correlations between the children's exposure to different question types and school achievement. The correlations between 'where' questions
Figure 10. The relationship of school achievement (running records & mathematics) to the frequency of 'eliciting' statements by father in the home

Figure 11. The relationship of school achievement (running records & mathematics) to the frequency of 'encouraging' statements by father in the home
(r = -0.49) and 'what' questions (r = -0.25) and school achievement are negative. The apparently positive correlation between 'who' questions and school achievement is (r = 0.34) caused by a single exceptional child.

(2) Types of Statements

The reasons for selecting the categories used to classify the types of statements the children were exposed to in the home, were firstly that they represented the range of different types of statements recorded in the natural language samples in the home observations, and secondly, they were categories which had been discussed in the literature (cf. Stevenson, 1972; Kresh, 1973; Laosa & Sigel, 1982).

Table 15 (p.202) shows the relationships between each type of statement in the home and the reading and mathematics test results at six years. Table 3 (p.118) shows that most of the mothers of these children 'inform', 'explain', 'order' and 'elicit' more frequently than they use any other statement types. Informing and eliciting are the most frequent statement types for fathers. These tables include only those children (n = 8) with fathers or step-fathers living at home at the time of the observations.

(a) Explaining. Table 15 (p.202) shows there is a difference in the relationships of the mothers' and fathers' 'explaining' statements in the home (r = -0.25 and r = -0.53) and achievement at six years. However Figure 8 (p.203) shows that this difference is the result of the
Figure 12. The relationship of school achievement (running records & mathematics) to the frequency of 'informing' incidents by father in the home.

$r = -0.55$

Figure 13. The relationship of school achievement at six years (running records & mathematics) to the frequency of all mother statements in the home per hour.

$r = 0.08$
unusually high frequency of 'explaining' statements by one father (Sam's father). Communication appears to be of very great importance to Sam's family and the high level of 'explaining' statements may be the result of this interest.

(b) Ordering and Eliciting. 'Ordering' and 'eliciting' are interesting categories, because the frequency of the mothers' 'ordering' and 'eliciting' statements in the home are not related to achievement at six years ($r = -0.07$ and 0.03, Table 15, p.202), while the frequency of the fathers' 'ordering' and 'eliciting' statements in the home are clearly negatively related. Fathers' ordering statements correlate -0.83 and eliciting statements correlate -0.73 (Table 15, p.202).

The pattern of these relationships is set out in Figures 9 and 10 (p.203 & 205).

One child's father stood out from the general pattern. This was Chantelle's father. Chantelle's father operated in a significantly different way from the other fathers in this study. He was more likely than Chantelle's mother to be the provider of emotional care and concern. Chantelle's mother saw her role as being concerned with providing for her children's physical needs more than their emotional needs. She believed restriction of a child could cause emotional damage to the child. Her husband said he shared this view, but in practice he restricted Chantelle in a gentle way and attempted to ensure that Chantelle operated within a 'safe' environment. Although some of the other fathers in this study saw this as their role, in
Figure 14. The relationship of school achievement at six years (running records & mathematics) to the frequency of all father statements in the home per hour

Figure 15. The relationship of school achievement at six years (running records & mathematics) to the total number of mother and father statements in the home per hour
practice the emotional caring was usually left to their wives. In effect, Chantelle's father was providing what is sometimes called 'mothering' for Chantelle.

(c) **Encouraging.** 'Encouraging' statements occurred infrequently in most of the homes observed (Table 3, p.118).

Table 15 (p.202) shows that the correlation between 'encouraging' statements by mothers and school achievement stands in sharp contrast to the correlation between 'encouraging' statements by fathers and school achievement ($r = 0.22$ and $-0.50$). The scattergram in Figure 11 (p.205) shows that the frequency of 'encouraging' statements by two of the fathers is different from the frequency of 'encouraging' statements by the other six fathers. These two are Chantelle's and Sam's fathers.

(d) **Informing.** Although the correlation between the frequencies of the mothers' 'informing' statements and achievement at six years is small ($r = 0.26$, Table 15, p.202), there is a larger negative correlation between the frequencies of the fathers' 'informing' statements and achievement ($r = -0.55$, Table 15, p.202). Again, it is apparent that the frequency of Chantelle's father's 'informing' is different from frequencies for the other seven fathers'. This is apparent in Figure 12 (p.207) where his 'informing' pattern does not approach the line formed by the frequencies for the other fathers.

(e) **Teaching and Problem Solving.** The frequency of 'teaching' incidents in the home involving the mothers in
Table 16.

**Correlations of Percentage of Communication Time in the Home and Achievement at Six Years (Running Records and Maths)**

<table>
<thead>
<tr>
<th>Time types</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Self</td>
<td>$r = -0.12$</td>
</tr>
<tr>
<td>With Mother</td>
<td>$r = 0.00$</td>
</tr>
<tr>
<td>With Father</td>
<td>$r = -0.75$</td>
</tr>
<tr>
<td>With Siblings</td>
<td>$r = -0.28$</td>
</tr>
<tr>
<td>With Others</td>
<td>$r = -0.28$</td>
</tr>
<tr>
<td>Non-Verbal</td>
<td>$r = -0.37$</td>
</tr>
<tr>
<td>Total</td>
<td>$r = -0.52$</td>
</tr>
</tbody>
</table>

Table 17.

**Correlations of Verbal Topics in the Home Understood, Ignored and Not Understood and Achievement**

<table>
<thead>
<tr>
<th>Percentage of Topics Per Total time</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignored</td>
<td>$r = -0.08$</td>
</tr>
<tr>
<td>Understood</td>
<td>$r = 0.27$</td>
</tr>
<tr>
<td>Not Understood</td>
<td>$r = -0.51$</td>
</tr>
</tbody>
</table>
Figure 16. The relationship of school achievement at six years (running records & mathematics) to the percentages of total time spent in communication in the home.

Figure 17. The relationship of school achievement at six years (running records & mathematics) to the average number of communication incidents in the home per hour.
this study, has a low correlation with achievement at six years \( (r = 0.12, \text{ Table 15, p.202}) \) while the frequency of fathers’ ‘teaching’ incidents is negatively correlated with achievement \( (r = -0.50, \text{ Table 15, p.202}) \). This is the same pattern of correlations that occur for ‘encouraging’ statements.

Table 15 (p.202) suggests that neither the frequency of the fathers’ or mothers’ ‘problem solving’ incidents in the home are clearly related to achievement \( (r = 0.12, r = 0.09) \). This may be a reflection of the low number of ‘problem solving’ incidents recorded in the homes of these children. Six mothers and only one father were observed setting up ‘problem solving’ incidents with the focal children.

(f) **All Statements.** The correlation for mothers between the frequency of all statements in the home per hour with school achievement is low \( (r = 0.08, \text{ Figure 13, p.207}) \) but the correlation for fathers \( (r = -0.66, \text{ Figure 14, p.209}) \) is clearly negative. The one exception to this general pattern is Chantelle’s father. It seems clear the frequency of these fathers’ statements to the focal child in this sample are quite different from the effects of the mothers’ statements, especially when the distinctive role of Chantelle’s father is taken into account.

Summarising the relationship between school achievement and the kinds of statements made to the children by mothers and fathers, it appears that none of the mothers’ statement types show clear correlations with
achievement whereas all but one of the fathers' statement types show significant \( p < 0.10 \) negative correlations with achievement. This pattern is true for all the mothers and all but one father (Chantelle's father) in this study. When the total of all the statements is considered no pattern emerges. This is to be expected because there appears to be no relationship between the total of all mothers' statements and achievement in school whereas the relationship of the total of all fathers' statements and achievement in school show a significant negative correlation.

(3) **Amount of Talk each Child is Involved in at Home**

(a) **Communication Time.** The percentage of total time each child was observed which was spent in communication activities was calculated by adding together every full minute of time of the total observation data that the child was engaged in communication activities in the home with mother, father, siblings, friends, relatives, self and visitors. This total was then converted to a percentage of the total observation time for each child (Table 16, p.211). This percentage of the total time each child spent in communication activities correlates negatively with school achievement \( r = -0.52, \) Figure 16, p.209).

(b) **Communication Incidents.** Another way of looking at the relationship of language experience to school achievement is to look at the relative frequency with which the child is involved in communication incidents. A communication incident is defined as a conversation which:
Figure 21. Relationship of school achievement at six years (running records & mathematics) to the percentage of time the child spends reading in the home.
Figure 22. The relationship of school achievement at six years (running records & mathematics) to the percentage of time the child spends reading to self in the home.

Figure 23. The relationship of school achievement at six years (running records & mathematics) percentage of time the child is being read to at home.
(i) involved two or more people;
(ii) concluded when the topic of the conversation changed or the conversation stopped.

The correlation between the number of communication incidents per hour and school achievement is very low \((r = 0.08, \text{ Figure 17, p.212})\).

The lack of correlation between the rate of communication incidents per hour and school achievement and the previous finding that there is a negative correlation between the total time spent in communication and school achievement means that school achievement is lower with children from homes where communication incidents tend to be longer in duration.

(c) Number of Topics. Table 17 (p.211) shows a negative correlation between the percentage of communicative incident topics in the home, which appeared to the observer to be not understood by the child, and school achievement \((r = -0.51)\). Figure 18 (p.214) shows that Chantelle is an exception to the general pattern. The three children who achieved most highly in school in this study (Michael, Heidi and Kirstie) do not appear to experience any topics which they do not understand. There is a negative correlation between topics per hour ignored and school achievement at six years \((r = -0.08, \text{ Figure 19, p.214})\). Although this is not a significant correlation, the exceptions to the general pattern are interesting. Figure 20 (p.215) shows that the exceptions are Chantelle, a child who chooses to ignore anything she does not appear
to like, and Sam and Geraldine, two unusually highly verbal children.

(4) **Other Home Experience Factors**

Time spent in the home in television viewing, reading, and being read to were analysed to see if there was a relationship between these factors and school achievement at six years.

Table 18 (p.215) shows highly positive correlations between time the children were observed 'reading' and being read to in the home and school achievement ($r = 0.71 \& 0.65$). These correlations were higher than the correlation between the amount of time spent viewing television in the home and school achievement ($r = 0.17$, Table 18, p.215).

The relationship of the percentage of total time spent on both types of reading activities in the home and the reading running records test is similar for both reading and being read to in the home when correlated separately ($r = 0.76$, Figure 21, p.217). Similar results have been reported in other studies (c.f. Laosa, 1982). These results indicate the higher the exposure to reading in the home the higher the chances are that children from such homes will become successful readers.

(5) **Summary**

These results show some clear correlations between the factors measured and achievement in school, although most factors measured do not show any clear relationship. There is no apparent correlation between the different
question types and school achievement \((r = 0.02, \text{ Figure 4, p.198})\) but it is possible that there is a negative relationship between 'where' questions and school achievement \((r = -0.49, \text{ Figure 6, p.200})\). There is an apparent difference between the relationships to achievement of mothers' statement types and fathers' statement types \((r = 0.08 & -0.66, \text{ Table 15, p.202})\). None of the mother's statement types show significant correlations with achievement, while all but one of the father's statement types (problem solving) shows a clear negative correlation with achievement. It appears that one of the fathers (Chantelle's father) operates in a significantly different way from the other fathers. The percentage of the total time that each child spends in communication activities in the home correlates negatively with school achievement \((r = -0.52, \text{ Figure 16, p.212})\), and there is a negative correlation between the percentage of topics not understood and school achievement \((r = -0.51, \text{ Table 17, p.211})\). Finally, there is a clearly positive correlation between time reading and being read to and school achievement \((r = 0.71 & 0.65, \text{ Table 18, p.215})\).

Most of these findings are not new. The one finding that has possibly not been discovered before is the negative correlation between fathers' statement types and school achievement \((r = -0.66, \text{ Table 15, p.202})\). It would be interesting to see if this is replicated by other similar studies. However, there is only very slim evidence that this negative correlation between fathers' statement types and school achievement is because of the fathers' patterns of interaction. This evidence derives from the
Figure 24. The relationship of the family environmental index and achievement scores at six years (running records & mathematics)

Figure 25. The relationship of the HOME Scale and achievement scores at six years (running records & mathematics)
Figure 26. The Relationship of the HOME Scale to the Family Environment Index

$r = 0.94$
observations of only one father (Chantelle's father). This man appears to act in a way that is more like the mothers in this study.

There is more evidence that the apparent negative correlation between frequency of communication in the home and achievement in school may be because of a difference in patterns of interaction at home and at school. It is hypothesised that these patterns differ because of the larger number of children within a classroom compared to the home environments within this study. The comparatively larger number of children in a classroom must mean it is impossible for all children to talk with the teacher, or anyone else, as and when they want within a classroom. The class noise level would pose difficulties for the working environment of the classroom. In addition to this if high levels of communication exist within a home there is an implication of an absence of an expectation of the need, on occasions, for low levels of communication. Possibly there has never been a time when talking has not been permitted in such homes. Conversely, low levels of talking in the home may indicate that it is unnecessary for the child to learn new rules in school about excessive talking. High levels of personal communication are not expected by that child. The child who does not expect to communicate frequently does not have the same problem of knowing when and how to talk in class that faces the child who expects to communicate frequently. Thus their patterns of communication may fit the classroom interaction patterns more closely.
2. **THE RELATIONSHIP OF THE MODIFIED HOME INDICES TO SCHOOL ACHIEVEMENT**

The correlations between achievement and the family environmental indices \( r = 0.55, \) Figure 24, p.222) and the HOME Scale \( r = 0.68, \) Figure 25, p.222) indicate they are both reasonable predictors of the achievement of the children at school. An examination of the sub-scales which make up each measure indicates that no individual sub-scale is a better predictor of school success than the totals of both scales. The correlation between the total scores for the two measures is 0.94 (Figure 26, p.223) indicating that although they measured different aspects of the home environment, these different aspects are highly correlated with each other.

While these correlations are clearly positive inspection of the two scattergrams (Figures 24 & 25, p.222) indicates that there are four children who do not fit the general pattern. They are the same four children in both scattergrams. Sam does not fit the pattern because the scores for his home environment predicts a much higher achievement at school than is actually the result. Heidi, Kirstie and Michael do not fit the pattern because the scores for their home environments are lower than would be indicated by their achievement scores at school.

These home indices results suggest that there are two different hypotheses to be considered. These are:
(i) If the home indices measure factors which have a direct causal influence on school achievement, then the different results for four of the children suggest that there must be factors not included in the scale which are affecting their achievement at school. Closer investigation of the family experience of the children who do not fit the pattern may identify similarities between them which could explain why they do not fit the pattern.

(ii) Alternatively, if the home indices measure factors which do not have a direct causal influence on school achievement, then the apparent correlations must be explained in some other way. Is there an underlying process which gives the impression of an apparent relationship for one set of families, and also the lack of relationship for another set of families?

In order to evaluate the first hypothesis some additional data need to be considered. The intensive observation data gathered in the homes of these children showed that there were quite different patterns of interaction occurring in the families of the children who did not fit the general correlation between school achievement and the measures obtained from the language measures and these home environment scales. This can be illustrated most clearly by interaction patterns occurring in Sam's family. In Sam's home, verbal communication was very important. This was especially so between Sam and his mother. If Sam was outside playing and his mother was inside the house working, mother and son communicated with each other by yelling. Even in the house, the speech level
was not low. Sam knew that he could talk to his mother at any time he wanted. The only barrier to this was when his mother was talking to a visitor. However, it was unusual for his mother to have a visitor when Sam did not also have a visitor. Consequently Sam rarely had the same need to talk to his mother at such times. This pattern of interaction worked very well in Sam’s home. It was a charmingly friendly place to be. When Sam followed the same pattern of behaviour at school he became confused. This ‘style’ of communication was not allowed at school and he was viewed as a child who was seeking attention and could not settle to any task for long periods. The problem seemed to be one of knowing when, where, and how to communicate. There was a clear difference in the pattern of communicative interaction allowed in the home and allowed in the school and Sam did not appear to find it easy to learn the latter. Because learning the rules behind interaction patterns of this kind may have an important effect on how a child adjusts to the requirements of the classroom, identification of all the potentially relevant interaction patterns could well help to unravel the reasons why some children fail to adjust sufficiently well to realise their apparent potential.

The underlying problem with home environment indices, such as the HOME Scale, is that they measure factors which are thought to affect the development of mental and academic (or cognitive) abilities. They presume that the achievement of the child in school depends on the child having developed the academic skills and learning abilities needed to succeed. It is assumed that the problem is
located in the child's intellect. For example, the HOME Inventory includes indices of intellectual, linguistic and academic stimulation.

However, the fact is that some children who appear to have the relevant academic ability and experience nevertheless do not succeed. This is the original motivation for this research. What the evidence from the home observations (such as that described from Sam's home) seems to indicate is that a major part of the problem is not the child's level of academic ability. It is the conflict or gap which exists between patterns of social and linguistic interaction which the child is familiar with in the home (the home sub-culture) and the patterns the child is expected to adjust to at school (the school sub-culture). Even though reading experience in the home may be an exception to this, if a child cannot make the adjustment to the patterns of social and linguistic interaction the school requires, then such a child becomes an 'outsider' unable to apply his/her abilities to the task of succeeding in academic areas of the curriculum.

3. SUMMARY

The original motivation for applying the above analytic methods to the data was to discover if there were consistent patterns of language, linguistic behaviours, academic task behaviours, or home environment factors which correlated consistently with achievement in school. It was hoped that consistency of results would point to particular
patterns of interaction or behaviours in the home which could be considered as significant for achievement in school. The results show consistency of pattern for reading and being read to which correlate positively and for communication activities which correlate negatively. Fathers’ statement types also correlate negatively except for one father (Chantelle’s father). In addition to this the home indices both correlate positively, however, analyses of the scattergrams show that four children do not fit the patterns. One of these children (Sam) appears not to fit the pattern because of high communication activities in the home and the other three children appear to not fit the pattern (Heidi, Kirstie & Michael) because their socio-economic indicators are not consistent with their achievement rates.

The most consistent results derive from the amount of time spent in communication with various people within the home. From these data a picture can be drawn that fits with both the home communication environment and the school communication environment as noted in the example from Sam’s home. It demonstrates that if more can be discovered about patterns of interaction in both the home and the school further light can be shed on why children achieve differentially at school. However, these data do not provide sufficient insights to further this understanding.

Like many past studies, these data show that there are correlations between some areas of language experience in the home and achievement at school. In the area of reading, a strong correlation with later reading
achievement is apparent. There are also correlations between a range of family environmental indicators and achievement at school. However, the detail of these results appear to raise questions about the nature of the process of achievement at school. Neither the micro factors, represented here by the indicators of language experience (e.g. 'where' questions), nor the macro factors, represented here by the family environmental indices, consistently explain why it is some children who come from apparently similar home environments achieve differentially, or why it is that language factors affect children's achievement differentially. Each of the specific analyses reported above shows that there is a consistency about the way some children do not fit the pattern. These suggest the measures used are really macro indicators of group interaction and fail to describe significant aspects of home experience for all individuals within a group.

Although this study had first been conceived as a study which would explore home patterns of interaction in great detail, as the study progressed it became apparent that the patterns of interaction which appeared to cause failure for some children had not been clearly identified in former studies. Because these school patterns appeared critical for achievement at school the focus of the study changed from home to school. The following chapters will report the results of an attempt to identify how the variety and flexibility of the school patterns of interaction and the structure which underlie them, are
critical in determining how well a child achieves in school.
CHAPTER VI

CLASSROOM SCRIPTS AND SCHEMA RESULTS

The correlational results in Chapter V indicated that the avenues which were first explored did not provide adequate explanations for the school achievement results of the study children. The following three chapters demonstrate that the theoretical constructs of schema theory have provided a more useful framework for interpretation of these data.

This chapter reports the results of the analysis of the school data in terms of classroom behaviour codes and techniques, the frequency of and location in which behaviour codes and techniques occur, the structure of specific classroom scripts, classroom script goals and an overview of how this all fits together within classroom activities.

Chapter IV described the analytic process which began with the identification of communication incidents in the continuous observations of classroom sequences of activities. During this process the researcher noticed that similar communication incidents appeared to occur at specific times and in specific locations within the classroom. The major times and locations were:

(i) times when the children were seated on the mat (mat-time);
(ii) times when children were seated at their desks (seat-work time);
(iii) times when children were free to choose between desks, the mat and centre of interest areas (multiple location times);
(iv) transition time (a period between specific locations);
(v) bell time, the location varied according to the time of day but was specific to the activity which preceded the bell (e.g. being seated or standing behind one's chair after seat-work time, being seated attentively on the mat at mat-time).

It was noted that mat-times tended to occur when the children entered the classrooms at the beginning of the school day and after morning play-times. Either seat-work or a multiple location times followed mat-times. The conclusion of these other times was often followed by another mat-time. This was a frequently observed rhythm of classroom location times.

The communication incidents which occurred during each of these 'location' or 'time' categories (called 'location' categories here) were examined for the structural features which they had in common. A number of these structural features were the same or similar across all classrooms. These similar structural features were identified as the basic elements of classroom scripts. It was probable that the similarity of pattern across the classrooms was a consequence of the fact that the teachers held similar schema in their heads about how classrooms should operate and what was essential or important for learning to occur.
Each classroom script had a specific structure. This structure was made up of techniques, plan paths and goals. The techniques could be grouped together to form more generalised structures termed behaviour codes. These behaviour codes appeared to be the result of individual teacher's beliefs about the way learning took place and about how schools should function. The plan paths were made up of the sequence of techniques or the sequence of combinations of techniques (behaviour codes) that the teachers used in order to achieve their goals.

From the analysis of the data it appeared to the researcher that the teachers held two fundamental kinds of goals. These were goals to do with pedagogy and goals to do with social order. The difference between these two types of goals and how they related to each other is discussed in detail later in this chapter.

In order for children to understand and learn from what is happening in school, it seems important for them to be able to identify and learn the behaviour codes the teachers use. The behaviour codes determine the structure of classroom scripts and are the main features which set classroom scripts apart from the home scripts. This appears to be why children do not fit automatically and easily into the routines and expectations of school classrooms. Because school behaviour codes appear to be the major reason why children do not automatically fit into classroom routines the behaviour codes are examined first. The discussion
about behaviour codes is followed by discussions of techniques, the different 'location' categories and goals.

1. THE BEHAVIOUR CODES

Behaviour codes are more generalised structures than techniques. They include rules about behaviour which are 'imposed' by the teacher to guide or control the behaviour of children. For example, teachers have rules about the correct way to sit, about when and how to attend, and about talking at specific times during class. Children are expected to learn each behaviour code. In order for children to learn the correct behaviour codes they must first recognise that the teacher is using specific behaviour codes. If they come to understand that the teacher is using behaviour codes then they must also learn how to 'access' the behaviour codes. This requires them to understand the teacher's techniques. Neither teachers nor children may be consciously aware that there are behaviour codes to be learned.

Some behaviour codes, however, are 'overt'. That is the teacher tells the children exactly what is required of them. For these behaviour codes, the children need no knowledge other than the ability to understand what the teacher is asking or telling the children to do. There are no hidden or implied messages. Most behaviour codes are not overt and are more difficult to identify and understand.
Some children develop their own patterns of behaviour within the restrictions of the teachers' behaviour codes. This means there is at least one pattern of child behaviour which functions like a child behaviour code (child options) in addition to the teacher behaviour codes operating in classrooms. What the child does is develop a pattern of behaviour which makes it look as though the child is conforming to teacher behaviour codes while, in fact, the child is pursuing her/his own goals.

Behaviour codes require the child to learn to behave in a particular way at a particular time and/or in a particular location. In this analysis, each behaviour code has been defined in terms of what the child has to learn in order to know and follow the behaviour code successfully.

The data gathering focused on the patterns of interaction and environmental features which surrounded each of the ten children observed. From these data it was possible to build a picture of the information available to each child about classroom activities. Because the data focused on each child the behaviour codes are described from the researcher's perspective of how a behaviour code might appear, consciously or sub-consciously, from the child perspective.

Some behaviour codes take precedence over other behaviour codes. Precedence is used here to mean priority or dominance. For example, if children are meant to be sitting on the mat with their knees crossed and their arms folded and this position interferes with the children's
ability to demonstrate that they understand or are interested in what the teacher is saying, then the teacher will not notice some children are kneeling up or perhaps waving their arms around. Appearing to participate in the task at hand is more important than the ‘sitting’ behaviour code in this instance.

All behaviour codes are described in detail in Appendices 3 and 4. For the sake of continuity, unless otherwise stated, only two behaviour codes of each type have been described here.

The behaviour codes listed below are those identified with the four major ‘location’ periods. When the communication incidents occurring in these ‘location’ periods were analysed it became apparent teachers were more likely to use some behaviour codes when in specific locations than other behaviour codes. However, there were also some behaviour codes occurring in any location and at any time. These behaviour codes were identified after the analysis of the specific ‘location’ periods. Initially, because of their generalised nature, these behaviour codes did not seem to be as important as the other behaviour codes. It was discovered, however, that at least one child’s learning seemed to be affected by these generalised behaviour codes, therefore both kinds were important for children to understand and learn.

The purpose of the following discussion is to demonstrate what behaviour codes are and how they function in classrooms.
It is important to reiterate that the significance of teacher behaviour codes is the problem they present to the child who must identify, understand and learn from them.

(1) Generalised Behaviour Codes

This category of behaviour codes refers to the kinds of behaviour codes not tied in any way to a timed period or a physical location. They tend to occur anywhere and at any time throughout the school day. Such behaviour codes have a very generalised structure. For example, there is a behaviour code to do with how a child should respond to requests from the teacher. In order to learn the generalised behaviour code for 'responding' the child might observe how other children have responded in a variety of situations and then try out the observed responses and observe the teacher's reactions to particular responses. A child observing the action of another child, for example, putting his/her hand up in a tentative way when the teacher has asked a question, may try putting up his/her hand on a similar occasion. If this was reinforced by the teacher asking the child to speak, then the observing child may continue to raise her/his hand on other similar occasions. If a teacher has asked someone who was calling out for a response, the child who was observing may try calling out on another similar occasion.

Generalised behaviour codes have both social order and pedagogical goals. Because they are less specific than those behaviour codes which occur in specific 'location' periods it is difficult to separate the generalised
behaviour codes into these two categories. Although some appear to have primarily pedagogical goals rather than social goals and vice versa, others seem to have both. The generalised behaviour codes identified were:

(i) Arriving
(ii) Sitting or standing
(iii) Body positioning
(iv) Responding
(v) Speaking And Not Speaking
(vi) Turn Taking
(vii) Speaking Formula
(viii) Voice Tone
(ix) Topic Consciousness
(x) Attention Seeking
(xi) Concentrating
(xii) Risking
(xiii) Noise Consciousness
(xiv) Signal Consciousness
(xv) Observing
(xvi) Modelling Others
(xvii) Listening to the Adult/Teacher
(xviii) Watching the Adult/Teacher
(xix) Listening/Watching and Acting
(xx) Managing Apparatus
(xxii) Events Have Particular Activities
(xxii) Events Have Structures
(xxiii) Behaviour Code Existence
(xxiv) Adult/Teachers' Control
(xxv) Individuality of Adults/Teachers
The following are descriptions of two typical generalised behaviour codes. The complete list is to be found in Appendix 3.

(i) **Body positioning** - This is a behaviour code which involves the expectation that there is a correct way to coordinate the body in each different classroom situation. For example, when standing in line the body should be held upright, the back should be straight, etc., sitting at a desk the body should not be slouched over the desk, the bottom should be firmly on the seat of the chair, etc. The child who understands this behaviour code knows that s/her must learn what these expected body coordinations are for every different classroom situation or activity.

(ii) **Speaking Formula** - This is a behaviour code which involves the expectation that for every classroom situation there is a correct way to speak and that the 'formula' for speaking will change according to the type of situation concerned.

(2) **The Specific Behaviour Codes**

These behaviour codes have clearly definable structures which are specific to classroom 'location' periods. Two typical examples of each type of specific behaviour code are to be found below. The content of each specific behaviour codes is described in detail in Appendix 4.

(a) **Social Behaviour Codes.** Social behaviour codes are those structures whose goals relate to the need for
order within a classroom. There is specific set of expectations a child has to learn in order to understand and behave appropriately in these behaviour codes. The teacher's expects that if the child follows these behaviour codes, the classroom will be well organised and systematically functioning. The social behaviour codes listed below have been defined in Appendix 4 from the perspective of what the child has to learn. Because these social behaviour codes are the 'how', 'when', 'where' and 'who' of action, they have been grouped together into these categories.

The behaviour codes concerned with the 'how' of actions were:

(i) how to sit;
(ii) how to follow instructions;
(iii) how to use apparatus;
(iv) how to respond with an appropriate social response;
(v) how not to be controlled by the teacher's behaviour codes.

The behaviour codes concerned with timing were:

(i) when to contribute to class discussion;
(ii) when to interrupt;
(iii) when to talk to a neighbour;
(iv) when to call out;
(v) when to prompt;
(vi) when to respond with an appropriate social response;
(vii) when to attend;
(viii) when to bring things with you;
(ix) when to put a hand up or stand;
(x) when to stand or sit.

The behaviour codes concerned with location in the classroom were:
(i) where to sit or stand;
(ii) where to look and where to face.

The one observed to do with the 'who' of actions was:
(i) who to sit with.

(b) The Pedagogical Behaviour Codes. The pedagogical behaviour codes are different from the social behaviour codes. In general each pedagogical behaviour code is more complex, and can include the 'how', 'when', 'where', and 'who' of pedagogical actions. They are teacher-directed behaviour structures. Specific sets of pedagogical behaviour codes are more common in some locations than in others. Their complexity means that they are not so specific as the social behaviour codes. These structures are similar to what Doyle and Carter term 'tasks' (1984, p.130).

The pedagogical behaviour codes identified were:
(i) the introduction or motivation;
(ii) the teaching of specific information and skills;
(iii) the consolidation;
(iv) the evaluation;
(v) when a task was completed.
2. SPECIFIC AND PEDagogical definitions of EACH BEHAVIOUR CODE

Definitions of two typical specific behaviour codes are given below. Each definition is illustrated with examples from communication incidents recorded during the observations of the children during their first year of school.

(1) The 'How' Behaviour Codes

The behaviour code examples to do with the 'how' of action are:

(a) How to Sit. What the child has to learn is how the teacher wants the child to sit when on the mat or at the desk. The common features observed for how to sit appear to be a straight back, folded arms or hands holding apparatus appropriately, crossed legs if on the mat and legs straight with feet flat on the floor if at a desk, the bottom on the mat or chair and the head facing the teacher or object to be worked on.

It is not common for teachers to describe exactly what is required of the sitting position. The most explicit examples are seen in statements such as, "Sit up, backs straight, bottoms on the mat," or, "Kerry! Sit on your bottom, folded arms, crossed legs." It is far more common for a teacher to give a statement that carries part of the message only. For example, "Sit up straight," "Legs crossed please" or, "Good, sit down Sam." The statements which
describe several aspects of sitting up (bottom down, back straight, etc.) do not usually tell the whole story but they say enough for a child to get an idea of what is expected. However, the statement which refers to only one aspect of sitting up implies the whole position. There is no consistency in which aspect of the whole is stated.

(b) **How to Follow Instructions.** The child has to learn how to listen to the teacher, how to watch the teacher, and to respond to the teacher's words and actions.

Instructions may be spoken or sung. The teacher may say, "Stand up. Let's be the wind in the trees," or may simply begin singing a song, for example, "I'm a little teapot." In this example, the words of the song are intended to tell the children they are supposed to imitate the shape of a teapot.

(2) **Behaviour Codes Concerned with Timing**

Two behaviour codes observed concerning 'timing' were:

(a) **When to Contribute to Class Discussion.** What the child has to learn is to speak when asked to do so, not to speak if the teacher is interested in someone else speaking (even if the answer is known), not to speak unless a correct format is followed (for example, putting up a hand), not to have private conversations with other children, not to respond to other children if they speak to you and to use the voice in a way which will not upset other children or the teacher.
The correct time to contribute is often very complex. For example children must learn not to answer for another. An illustration of this is seen in the following:

Kerry is playing with his socks. He answers a question directed at Chantelle. The teacher responds with, "Hello Chantelle," to Kerry.

A child must learn not to anticipate a question. For example:

Kerry is kneeling up, attending to the story. He is kneeling almost up on the teacher’s knee, absorbed in the story. Kerry says, "I know what he is. A bell." The teacher replies, "No," as she puts her hand on Kerry’s head.

The behaviour code for contributing can be complicated, because there are some types of talking which are inappropriate but accepted because other activities even less acceptable may be entered into.

For example:

It is 'news' time. Matthew is at the back of the mat. He is being disruptive by flinging himself about and talking. The teacher asks him to come up and give a talk. Matthew 'walks' on his bottom. Matthew says on the way up, "I don't like walking." He continues to shuffle to the front.

Matthew’s activities are more disruptive than his talking. Even though he continues to interrupt the class with comments as he 'walks on his bottom', the teacher does not comment. She is satisfied with the effect of redirecting his whole activity.
(b) **When to Interrupt.** The child has to learn that interrupting means not trying to change the main topic and not drawing attention to oneself. This means concentrating on what is happening now, and not worrying about something which will occur later, or attempting to meet specific essential needs, for example, the need to go to the toilet or get a drink.

Children learn the correct time to interrupt by discovering when not to interrupt. A child learns interruptions are not to be used to show how clever s/he is or to draw attention to her/himself. For example:

Sam interrupts, "I, I, I, I, know..." The teacher says, "Please Sam."

The way Sam has interrupted indicates that there is more to his message than simply answering a question. The teacher’s words and expression show Sam this is not acceptable.

(3) **The 'Where' Behaviour Codes**

The two behaviour codes observed concerning the 'where' of actions were:

(a) **Where to Sit or Stand.** What the children have to learn is there is a correct location in which to sit or stand for the required length of time for which to use the correct posture. It is possible that 'when to sit or stand' and 'where to sit or stand' are sub-categories of 'how to sit or stand'. They have been considered separately because
children may have difficulties with one or only two of these three codes concerned with sitting and standing.

Children learn these behaviour codes by listening to the teacher and by trialling what they think are the appropriate actions required by the teacher. For example:

The teacher says, "Right, in front of me," or, "Toes on edge of mat, feet together."

(b) **Where to Look and Where to Face.** The child learns that there is a correct direction to look and a correct direction to face. A child’s face should be directed towards the teacher or teacher-specified location, and the eyes should be looking in the same direction. This is related to attending and could be regarded as an element of attending. It is considered separately because children can have an understanding of this activity and not connect it to the more abstract behaviour code concerned with attending. For a child to act out correctly the components of the behaviour code for attending implies some kind of concept to do with attending, regardless of whether the child is actually attending or not. This behaviour code, where to look and where to face, does not imply any knowledge of the concept of attending at all.

The correct direction to look is learnt quite explicitly. Children may be told to, "Turn around, please," or to direct their, "Eyes this way." They may be told to, "Turn around and face me." As for the correct sitting position, frequently only part of the correct direction to face is verbalised. However, this is often accompanied by a
look on the face or the pointing of a finger that indicates what is expected.

(4) **The 'Who' Behaviour Code**

The one behaviour code observed concerning the 'who' of actions was:

(a) **Who to Sit With.** Teachers probably classify children into those who are good models for other children and those who are inappropriate models. The reasoning behind such a classification seems to be that teachers believe that one child's behaviour can influence other children positively or negatively. This classification appears to be hierarchical. The children considered to be the best models are at the top. Children classified in this way appear not to be watched as closely by the teacher for inappropriate actions as children who are at the bottom. As a result, it is useful for children to learn the classifications used by the teacher. What the child has to learn in this behaviour code is the importance of sitting with someone whom the teacher believes will model good attending behaviour. Such a child is one who is likely to sit close to the teacher or in the front of the group, know a great deal about the correct sitting position, the direction to look and how to attend and will probably be considered 'good' at classroom activities.

This behaviour code occurs most frequently at mat-times. During this time the children are allowed to sit where they like. However, if the choice made by the
children is inappropriate then they will be noticed by the teacher. For example:

Suz and Chantelle have chosen to sit together. They are not able to concentrate, however, so the teacher asks if Suz wants to be shifted. Suz says, "No!" The teacher says, "Well, sit still."

Prior observations of Suz and Chantelle show they know that they will be noticed if they sit together. They have still selected to sit together. The teacher has told them what they must do in order to continue to sit together. If they do not conform they will be asked to sit in separate locations.

The following example shows it is possible that the 'free choice' of the sitting position happens only at the beginning of a session.

Kerry crawls to the front of the group. He talks to the teacher about guns. The teacher points. He moves back.

Kerry is not allowed to change his place. He is allowed to make his choice at the beginning of mat-time, but not during the proceedings.

In general, the teachers in the study allow children free choice of a place to sit at mat-times - unless two or more children have recently shown they cannot sit quietly together, or if during the time period two or more children are restless or noisy together.

From both the teacher and the children's perspective, there is something of importance in where children choose to
sit. There is a correct time for children to make their own
decision about where to sit. This should not be changed
until another correct time for change occurs. Once on the
spot of choice, a particular sitting style has to be
maintained and this should not involve others.

(5) **The Pedagogical Behaviour Codes**

The final behaviour codes to be discussed are the
pedagogical behaviour codes. Because there are only five
pedagogical behaviour codes they have all been described
below.

The general pedagogical behaviour codes were:

(i) the introduction or motivation;

(ii) the teaching of specific information;

(iii) the consolidation;

(iv) the evaluation.

The specific pedagogical behaviour code was:

(v) when was a task completed.

The following are definitions and illustrations of
these behaviour codes.

(a) **The Introduction or Motivation.** What the
children have to learn in this behaviour code is that they
must attend because something different is about to happen.
The children must learn no matter how interesting their
present activity, they must stop it. This means children
must know when to stop, how to attend, whether they should
attend to the teacher or an object and so on. The children
must understand the content of what is occurring is not what
the teacher expects them to remember. Classically this is
the time when the teacher tells or demonstrates what the
lesson is going to be about. If this is all that is done,
for example when a teacher says, "Now we are going to have
reading," then it is only an introduction. If the way the
lesson is introduced is intended to create an interest in
the children about what is going to happen, then this
introductory time is classified as motivation. For example:

The children are to read in unison yesterday’s
news from the chart. The news is about colours. The
teacher says, "Hands up if you have a car." Most hands
go up. The teacher asks several children what colours
their cars are. The teacher says, "What colour is yours
Geraldine?" Geraldine says, "Yellow and white." There
is a general discussion about colours before the news is
read.

To be successful in this example, the children must
know when and how to answer questions, how and why to put
their hands up, and they need to have a knowledge of
colours. The teacher is using questions she believes to be
of personal interest to each child to create interest in the
topic. The children become enthusiastic about the topic
before it occurs. The children do not have to understand
this is introducing a topic or motivating, in order to be
interested. But if they do not participate in the
motivation or introduction, they may not fully understand
what is happening as the lesson progresses.

(b) Teaching a Specific Body of Information. What
the children have to learn in this behaviour code is similar
to the 'introduction or motivation'. That is the children
must know how to attend, whether they should attend to the
teacher or an object and so on. The critical difference is they must develop a concept that although what is occurring may appear new or different from the way a motivation usually occurs, this new or different information is important to understand and remember. The teacher presents the new information in a direct activity format. That is, the information is presented verbally or by demonstration and the children are required to respond to this presentation either verbally or by demonstration.

The teaching of a specific body of information commonly occurs after the motivation. It is part of the process of a lesson. In other words, this coupled with the consolidation, is the route the teacher appears to hope the children’s minds will follow to increase their knowledge. An example of teaching a specific body of knowledge is seen below:

The teachers says, "What letter does apron begin with Lorelei?" Lorelei says, "Umm." She has her fingers in her mouth watching Jessica. The teacher says, "Don’t stand if you know a word beginning with ‘a’." Lorelei stands and claps the children who do know with the rest of the class. The teacher continues asking similar questions until some minutes later when the teacher says, "Lorelei, can you find a letter you know?" Lorelei, looks at the ground and shakes her head. The teacher changes to reading a well-loved story.

The specific body of knowledge to be learnt is the letter ‘A’. The teacher hopes by repeated examples in different words and questions the children will grasp the concept of ‘A’. The teacher has chosen the point just prior to reading a story as the best time for this process to occur. She has chosen to associate it more strongly with stories by going through this process in the usual story-
reading location for that classroom. The teacher appears to feel both the teacher and the children are jointly the best transmitters of that information, hence the questioning style and the expected outcome should be the recognition of the letter 'A'.

The activities associated with 'teaching a specific body of information' are not only verbal as in the above example. They can be, for example, reading, printing, story writing, unison speaking or group reading, individual speaking or individual reading, rhythmic movement or singing, and art. No matter what kind of activity is occurring, the children need to recognise the information being delivered is something important to understand and remember.

(c) The Consolidation. What the children have to learn in this behaviour code is similar to 'the introduction or motivation' and 'the teaching of a specific body of information'. The important difference is that the information is not new. It may be presented in a different format, for example, a letter may be meant to be circled rather than pointed to, but the child should have met the information on some prior occasion. This means the child has to recognise the same information in a new context, or recognise that even if it is not new, the teacher has a good reason for repeating that information. The child has to accept or recognise there is possibly something still unknown about this apparently familiar information. This behaviour code is not only asking the child to recognise, understand and remember the activity is occurring. It is
also asking the child to infer a more abstract meaning from what it is the teacher is saying or doing. In this view 'the teaching of a specific body of information' can be learnt from the structure of the script in progress, but 'the consolidation' requires a knowledge of the teacher's schema. For example, the children may be asked to colour in the letter 'A' after a series of activities to do with the letter 'A'. The children need to recognise this activity is not just an exercise to keep them busy. In order to perform this exercise successfully the children should be thinking about the letter 'A', its shape, how it sounds, possibly remembering words which begin with 'A' or have 'A' in them and so on. It is a cognitive activity requiring an expectation that the activity has something to do with 'learning' and that 'learning' is more than colouring in a particular letter. It also requires a concept that no matter how familiar a person is with a particular activity there is still something new and different which is important to be learnt and remembered.

Although the teachers in this study told the researcher that the consolidation usually occurred after the teaching of a specific body of knowledge in practice it was observed occurring at any time and in any place. The consolidation is a way of setting up known information in a way that is 'user friendly'. In other words if the children's brains have accepted a new piece of knowledge, to meet it again in an old familiar place is believed to fix the new knowledge in a more or less permanent way. In the example above if the teacher asked the children to find the letter 'A' in the old familiar story as she read along, the
children were expected to incorporate the new information into the old familiar context of the story.

(d) The Evaluation. What the children have to learn in this behaviour code is similar to the former three behaviour codes. That is, the children may be required to respond to the teacher, to attend to the teacher or an object, to know how and what to attend to, and so on. The children have to recognise that the difference lies in the way the teacher is attending to each individual child, and that the teacher is now learning something about each individual child. The children who understand this will recognise this is not a time for trial and error. This is a time when each child should display what s/he has learned about specific information and about social behaviour codes. The advantage to the child is that the teacher may classify him/her into a ‘high’ classification and thus pay less attention to specific behaviours and the child may receive rewards and praise. The evaluation is the way the teacher has of deciding whether the behaviour codes concerned with teaching and consolidation is successful.

Essentially ‘the evaluation’ asks if the lesson process is successful for each individual child and to the class or group as a whole. It seems sensible this should occur at the end of a lesson script. However, there is a sense in which evaluation can occur continuously throughout the lesson process. The questions of individual children about the letter ‘A’ tell the teacher something about ‘how’ effective this process is for individual children. A type of evaluation is seen in the following example which occurs
at the end of the lesson script illustrated in 'the introduction or motivation' behaviour code.

The teacher writes a sentence on the blackboard about the car in the picture. Gemma reads the sentence, then the class read it in unison.

The teacher was evaluating both the individual and group to see if the specific body of information, that cars and their colours could be written into sentences of interest to children, had been accepted by the children.

Evaluations like consolidations ask the children for a higher level of inference than the first two pedagogical behaviour codes. They require a knowledge of the teacher's schema.

(e) When Is a Task Completed. The child has to learn what completed task means to the teacher. From the teacher's perspective, the importance of a completed task appears to lie in enabling a teacher to know if a child has grasped a concept. If a child cannot demonstrate that one task has been completed before the teacher begins a second task the teacher, cannot know if a child has an understanding of the whole task. An example of this behaviour code occurs when a teacher asks children to carry out a task in a position where the teacher can see the whole class or group's behaviours. Alternatively, the children may be asked to stand when their task is completed. The teacher can assume completion or physically check each completed activity. This behaviour code requires children to follow the teacher's instruction exactly. The importance of completed task will change from teacher to teacher.
(6) **Tasks and Behaviour Codes**

Doyle and Carter (1984) and Barker (1986) used the term 'task' to designate the structures which were intended to organise and direct thought and action. In their view tasks contained the plans for behaviour within settings and plans which were a central part of cognition for participants in the setting (also see Erickson & Schultz, 1977 & 1981). This concept of task is very close to the structures termed 'behaviour codes' in this study. The study of tasks, provides a way to examine how students' thinking about subject matter is ordered by classroom events.

(7) **Summary of Pedagogical and Social Behaviour Codes**

Pedagogical behaviour codes are seldom described to the children in terms of the pedagogical (learning) processes in which the children are expected to engage. Children are often not confronted with a clear message about the learning requirements in the way they are told what they are supposed to do with the other behaviour codes. The lack of a clear message is partly because the goals of pedagogical behaviour codes are to do with mental processes and not just behaviours. When the teacher says, "I want you to learn this," what does 'learn' mean from the child's perspective? A child may have an idea 'learning' means sometime in the future the teacher will require the child to demonstrate 'this' in some way. A child may then puzzle over how s/he is going to remember what 'this' is at some later occasion. The solution may be to go over and over it in the head in the hopes 'this' will thus be 'learnt'. Or
perhaps the child will decide to look at 'this' for a long time, because the child has an idea there is a relationship between the amount of time spent 'looking' and the 'learning processes'. Because no-one can know exactly what is occurring inside someone else's head, mental processes are difficult to specify and understand. Another reason why the pedagogical behaviour codes are not clear messages is because there is not the same need for children to understand the purpose of pedagogical behaviour codes in order to learn.

The large number of behaviour codes to do with social order, compared to the relatively few behaviour codes to do with pedagogy, indicates it is possible classrooms facilitate the learning of order more than they facilitate the learning of learning. No matter what the reasons are for the limited number and general characteristics of these behaviour codes, in all other respects they are similar to social behaviour codes. There is only one pedagogical behaviour code which does not have the more general structure of the other pedagogical behaviour codes and that is the behaviour code for 'completed task'.

3. THE TECHNIQUES

The techniques are initial building blocks of scripts. They consist of requests, commands, question and statements which guide the communication and activities of the participants. They are the mechanisms used by the directors of a script to establish what type of communication is going
to occur, to ensure the content of the script occurs and to guide the communication to meet the director's goal for the script. The pattern of the techniques are the evidence children can use to decode the structure of a teacher's behaviour codes. Understanding both techniques and behaviour codes allows a child to learn how they must behave in a classroom in order to be seen by the teacher as an effective or good pupil. Because understanding both techniques and behaviour codes allows a child to learn about the process of classroom interaction they probably form part of the process of enculturation into the school culture.

In the classroom scripts there are techniques used exclusively by teachers and elements like techniques ('safe', 'soft' and 'disruptive options') used exclusively by children. Because the teacher usually directs a script, the techniques observed were usually those employed by teachers. However, because the data gathered focused on the language and actions which surrounded specific children the techniques, like the behaviour codes, are described from the researcher's perspective of how a technique might appear, consciously or sub-consciously, from the child perspective.

There appear to be two levels of teacher techniques. These are described here as basic level techniques and second order techniques. The basic level techniques are direct and in general can be clearly understood by the children. They do not require the level of inference on the part of the children that second order techniques require.
The basic level techniques include requests, questions, and equivalent non-verbal signals. Those identified were:

(i) the direct simple request;
(ii) the direct complex request;
(iii) the indirect simple request;
(iv) the indirect complex request;
(v) the contracted verbal request;
(vi) the contracted non-verbal request;
(vii) the question - verbal-non-verbal;
(viii) the non-verbal signal.

The second order techniques identified were:

(i) the demonstration;
(ii) the ignoring;
(iii) standing nearby;
(iv) the compliment;
(v) the reward;
(vi) the punishment;
(vii) using children as correct models;
(viii) asking a child to model the teacher;
(ix) the redirection of individual thoughts or ideas to fit in with the group or class;
(x) the redirection of individual activities to fit in with the group or class;
(xi) the redirection of individual activities to be different from the group or class;
(xii) the redirection of group or class activities.

There is a sub-category of second order techniques which because of their greater complexity are difficult to
distinguish from behaviour codes. These are techniques which normally occur inside pedagogical behaviour codes. While they require children to act in a particular way, children can respond to these in the same way as they do to all other techniques. In general their complexity is the complexity of the required activity and not complexity of inference necessary to understand what is required. In order for curriculum learning to occur, a higher level of thinking is necessary, but children can do what they are required correctly without this higher level of thinking.

This sub-category of the second order techniques identified were:

(i) unison speaking/reading;
(ii) individual speaking/reading;
(iii) rhythmic movement;
(iv) the silent reading;
(v) the printing or story writing.

The child ‘options’ that function like techniques were:

(i) child’s eye on the teacher;
(ii) child changing own location;
(iii) child modelling the teacher’s or children’s actions;
(iv) child-instigated action.

Unless otherwise stated definitions of two typical techniques of each type will be given below from the perspective of the observer. Each definition will be clarified with illustrations from the classroom data. The
definitions for the techniques will be followed by a brief section on the four child 'options' observed in classrooms. The full descriptions of all techniques and child options are to be found in Appendix 4.

4. TECHNIQUE DEFINITIONS

(1) The Basic Level Techniques

(a) The Direct Simple Request. The direct simple request requires the child to carry out a single, stated action, for example, "Eyes this way." The children do not have to have any prior knowledge in order to understand what is required. The message is clear. The eyes should be looking in the direction indicated by the teacher.

(b) The Indirect Complex Request. The indirect complex request is an extension of the indirect simple request. The only difference is that the request carries more than one message. For example, the teacher states at news time, "Please choose someone who is sitting up straight, Chantelle." The implications are that everyone should be sitting up straight. No turns are possible unless the correct sitting position is performed. There is the connotation that people who are sitting up straight get rewards. A multiple message is delivered with just one statement.

(2) Second Order Techniques

(a) The Demonstration. The teacher shows what is expected of the children by modelling, in detail, in a
position in the classroom where all who need to see can see. In one example of the demonstration technique observed, the teacher held a book so the children could see the words. She pointed to the book to show where the words were, the direction they went, the relationship between pictures and the written word and that a collection of written words were of interest to children. This provided a physical demonstration of how a child should go about reading a book. In another example, the teacher demonstrated how a word should be written by writing one on the blackboard in front of the children’s eyes. The demonstration is more than a direct request or a non-verbal request, although much of what occurs may appear to be at that level. For a child to decode a demonstration technique, understanding what the teacher is saying or doing is not enough. The demonstration is different from a direct request or a non-verbal request. For a child to decode a demonstration, the child must be able to transfer what they are observing into their own behaviour.

(b) The Ignoring. The child performs an activity or talks in a way the child knows would normally elicit a response and the teacher indicates this is unacceptable behaviour by pretending not to notice. For example:

Sam says while the teacher is talking, "And Sam," with a big cheeky grin. The teacher ignores him and continues on with what she is saying.

For the child to learn what the teacher intended from this technique, the child had to notice that the teacher had ignored him, had to consider why the teacher had ignored
him, and to recognise it was to his benefit to act in a different way on future occasions of this type.

(3) The Sub-category of the Second Order Techniques

This sub-category of the second order techniques is not the same as the basic level techniques of 'the direct simple request', 'the direct complex request', etc. because different methods are used by teachers to instigate the desired actions. These techniques are intended by the teachers to lead to specific goals of pedagogy.

Because of the variety and diversity of activities in which children are expected to engage, these techniques are related to complex activities. The complexity of the activities makes them appear similar to behaviour codes. However, the complexity of actions is not the same as the complexity of understanding the techniques. A child can perform the actions without knowing why they are performing them. Children can go through the motions of, for example, writing words, looking up in dictionaries and asking others for correct spelling in order to write a story without ever understanding this is something that has to be learned and remembered. It is even possible for a child to write a story and not understand the concept of a story and what the underlying purpose of writing one is about. For example:

Lorelei is sitting at her desk writing a story in the third person. She has her dictionary out. She asks the boy next to her to find a word for her in the dictionary. She points to the word and says, "Is this it?" He nods. She writes it on her page. She puts her hand up and asks the mother-help how to spell a word. The mother-help writes it in her dictionary. Lorelei writes this down. She continues in this manner asking for help from her neighbour or from the mother-help until the teacher says it is time to stop. She takes her work to the teacher to be marked. The teacher
corrects the work and asks her to rewrite it correctly. During this whole exercise Lorelei has not written one word on her own. She could not read her story when asked.

Two examples of the sub-category of the second order techniques identified from the observer’s perspective were:

(a) **Unison Speaking or Reading.** The teacher indicates the children are to speak or read together. Unison speaking is used as a technique which enables the goals of the process of pedagogy and consolidation of pedagogy to be reached. For example, when the children in Geraldine’s class were asked to read yesterday’s news in unison, they were reinforcing the memory of that news content in their minds, familiarising themselves with the concept of words and that words have a message for children, and so on. This requires a knowledge of the language and recognition, by the children, they are learning something. Without this recognition the children can say the words and not increase the personal body of knowledge in their heads.

(b) **The Silent Reading.** The teacher indicates, either verbally or non-verbally, a child is required to read silently. The child should understand by this that the child is meant to be by him/herself, to have the pages of a book open and to appear to be looking at the pages consecutively. In addition it may include the selection of the book to read. It is an independent activity having its own set of required activities. It is not simply the result of a basic level technique, because the teacher has a belief silent reading is significant for improving a child’s reading ability. It is included in classwork for this
reason. It is a technique used commonly during consolidation.

(4) The Child 'Options'

Child 'options' act mainly like techniques. For this reason they have been included at the end of this section on techniques. Because there are so few child options they have all be discussed here. At least one of the following options is more like a behaviour code than a technique. It is discussed last, and has been included here for the sake of simplicity. The following is a brief analysis of the child 'options' from the observer's perspective:

(a) The Child Keeping an Eye on the Teacher. This is a child 'safe option' for doing what you want to do without being noticed by the teacher. The child keeps an eye on the teacher at all times. For example:

The next boy gives his news talk. Sam swigs out of his flask that he had for news while he keeps an eye on the teacher.

The teacher can be unaware a child is employing this 'option'.

(b) The Child Changing His/Her Location. Another child 'safe option' for not allowing the teacher to notice what the child is doing, is to change location so that the activity is not able to be watched by the teacher. For example:

Heidi has her hand up, "Can I go to the toilet?" The teacher says, "You just went before, do you really need to go?" Heidi says, "Yes." The teacher says, "Off you go then." Heidi exits (with her Noddy book she has
### Table 19

**Mat-time Type 1: Techniques and Behaviour Codes**

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<thead>
<tr>
<th>Social Behaviour Codes</th>
<th>How to sit</th>
<th>How to follow instructions</th>
<th>How to use apparatus</th>
<th>How not to be controlled by the Social Behaviour Codes</th>
<th>When to interrupt</th>
<th>When to talk to a neighbour</th>
<th>When to promote</th>
<th>When to respond with an appropriate social response</th>
<th>When to attend</th>
<th>When to bring things</th>
<th>When to put a hand up or stand</th>
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<th>Pedagogical Behaviour Codes</th>
<th>The introduction of specific information or skills</th>
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**Note:** a Table 19 in continued on pages 268 and 270.
### Mat-time Type 1: Techniques and Behaviour Codes

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#### Second Order Techniques

- The demonstration
- The ignoring
- Standing nearby
- The compliment
- The reward
- The punishment
- Using others as correct models
- Asking a child to model a teacher

**The redirection of**
- individual thoughts & ideas to fit in with the group orders
- individual activities to fit in with the group orders
- individual activities to be different from group or class activities
- group or class activities

The introduction of specific information or skills

The consolidation

The evaluation

When a task is completed
### Table 19 continued

**Mat-time Type 1: Techniques and Behaviour Codes**

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<tr>
<th>Social Behaviour Codes</th>
<th>The Sub-Category</th>
<th>The Child Options</th>
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Table 20

Mat-time Type 2: Techniques and Behaviour Codes

<table>
<thead>
<tr>
<th>Social Behaviour Codes</th>
<th>How to sit</th>
<th>How to follow instructions</th>
<th>How to respond with an appropriate social expression</th>
<th>How not to be controlled by the Social Behaviour Codes</th>
<th>When to interrupt</th>
<th>When to talk to a neighbour</th>
<th>When to call out</th>
<th>When to prompt</th>
<th>When to respond with an appropriate social response</th>
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<th>The contracted non-verbal request</th>
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Note: a Table 20 is continued on pages 271 and 273.
<table>
<thead>
<tr>
<th>Social Behaviour Codes</th>
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<tbody>
<tr>
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</table>

**Pedagogical Behaviour Codes**

- The introduction or motivation
- The teaching of specific information or skills
- The consolidation
- The evaluation
- When is a task completed
### Table 20 continued

**Mat-time Type 2: Techniques and Behaviour Codes**

<table>
<thead>
<tr>
<th>Social Behaviour Codes</th>
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</table>

**Note:** Table 22 is continued on pages 276 and 278.
Table 22 continued

Seat-work Time: Techniques and Behaviour Codes

<table>
<thead>
<tr>
<th>Social Behaviour Codes</th>
<th>How to sit</th>
<th>How to follow instructions</th>
<th>How to use apparatus</th>
<th>How not to be controlled by the Social Behaviour Codes</th>
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<th>When to talk to a neighbour</th>
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<th>When to respond with an appropriate social expression</th>
<th>When to respond with an appropriate social response</th>
<th>When to bring things</th>
<th>When to put a hand up or stand</th>
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<th>Where to look, and where to face</th>
<th>Who to sit with</th>
<th>Pedagogical Behaviour Codes</th>
<th>The introduction of specific information or skills</th>
<th>The consolidation</th>
<th>The evaluation</th>
<th>When is a task completed</th>
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<td>Asking a child to</td>
<td>model a teacher</td>
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</table>

The redirection of

- individual thoughts & ideas to fit in with the group orders
- individual activities to fit in with the group or class
- individual activities to be different from group or class
- group or class activities
## Table 22 continued

**Seat-work Time: Techniques and Behaviour Codes**

<table>
<thead>
<tr>
<th>Social Behaviour Codes</th>
<th>To sit</th>
<th>To follow instructions</th>
<th>How to respond with an appropriate social expression</th>
<th>How not to be controlled by the Social Behaviour Codes</th>
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### The Sub-Category of 2nd Order Techniques

<table>
<thead>
<tr>
<th>Unison speaking/reading</th>
<th>Individual speaking/reading</th>
<th>Rhythmic movement</th>
<th>The silent reading</th>
<th>The Printing or Story writing</th>
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### The Child Options

<table>
<thead>
<tr>
<th>Child's eye on the teacher</th>
<th>Child changing own location</th>
<th>Child modelling the teachers orders &amp; actions</th>
<th>Child instigated actions</th>
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<table>
<thead>
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<th>Podagogical Behaviour Codes</th>
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<th>The consolidation</th>
<th>The evaluation</th>
<th>When a task completed</th>
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been indicating that she was wanting to read) and returns eight minutes later.

Going to the toilet or, in some cases, to the fountain for a drink, is an excellent 'option' to read what you want or collect a forgotten item from the corridor before the teacher finds out. Because of the numbers of children in a classroom, it is often difficult for a teacher to recognise this 'option' when it is being used.

(c) **The Child Modelling the Teacher's or Other Children's Actions.** Still another child 'option' is for the child to model the teacher's or other children's actions. This takes attention away from the child in question, or enables the child to have better access to something which is in progress. For example:

The children are sitting on the mat. Heidi cannot see the book the teacher is reading because a child is kneeling up in front of her. Heidi says, "Sit down, Kerry, and cross your knees and fold your arms."

Heidi has used the teacher's description of the correct sitting position on the mat to her own ends. Teacher's recognise this for what it is but it does not necessarily occur only within the teacher's proximity.

(d) **Child Instigated Action.** There are a range of activities in which children get involved that have nothing to do with the script in progress. These activities seem to be a child-instigated behaviour code which has an on-going plan throughout classroom time or even throughout the total time a child is awake. Such sets of activities are established by the use of 'safe', 'soft' or 'disruptive
options'. The way the behaviour code is set up is most easily recognisable when 'disruptive options' are employed. For example:

Chantelle pokes the girl in front, who turns and pushes her hand away. Chantelle half lies down, sits, fiddles with another girls' pinny. She turns and says, "Don't!" Chantelle sits back.

These actions were not to do with the teacher's script. They were to do with a behaviour code that Chantelle was setting up.

It is easy to see these types of 'options' can be employed both in classrooms and elsewhere. They have been included here because of their effect on classroom scripts.

4. THE FREQUENCY AND LOCATION OF TECHNIQUES AND BEHAVIOUR CODES

Theoretically all techniques can be used to indicate what pattern of behaviour is expected by the script director and any behaviour code or patterns of behaviour codes can be used to meet any script director's goal. Tables 19, 20, 21 and 22 (p.268-278) show the results of an analysis of the frequency with which scripts occur in four different types of 'location' periods. These tables show that some techniques, for example 'the direct simple request', occur in most behaviour codes across all 'location' periods whereas others, for example, 'the indirect complex request' occur infrequently. The same is true of the behaviour codes. In some of the definitions for these, for example,
'the sitting position', there are indications the location has an effect on the structure of the behaviour code and the techniques used. If children learn that the location has an effect on the behaviour codes and techniques used by teachers then they are more likely to act appropriately. Because it is possible a knowledge of the influence of locations on behaviour codes and techniques affects school achievement, it is important to explore the kinds of constrictions which locations place on behaviour codes and techniques. Because mat-time is divided into three types, a general discussion of mat-times will occur first.

6. MAT-TIME SCRIPTS

The teachers used mat-times to meet many different goals. During the school day they used them to settle down children after a more active time, to teach specific concepts in groups or to the class as a whole, for demonstrations or child participation in demonstrations, or physical activity and for sharing experiences and learning. Few activities occurred in the first year classrooms observed which could not have occurred during mat-times. The multiple uses of mat-times made them complex to analyse.

Broadly speaking the data showed there were three major types of mat-times distinguished by the patterns of behaviour occurring in them. These were:

(i) Mat-times when all the children were required to sit in a group with knees crossed and arms folded looking at and appearing to listen or respond to the teacher or person
at the front of the mat, for example, story-time, news-time and times when a topic was introduced.

(ii) Mat-times when some of the children sat in a group or a circle with knees crossed and arms folded. During these times the attention of the children was usually on the material being demonstrated or on their own participation in the demonstration rather than on the teacher, for example, reading and mathematics lessons.

(iii) Mat-times when all the children were required to act, dance or sing in a prescribed way or to observe other’s acting, dancing, or singing in a prescribed way, for example, poetry, drama, dance, or physical education.

In all mat-times, control might pass from the teacher to a child, student teacher, or parent-helper but the activity structures remained the same within each type.

There were other activities which occurred on or around the mat which have not been included in mat-times because they were part of other activity structures (e.g. choosing times), or they were transitory activities which may have occurred during any activity structure (e.g. the quick 'Simon Says', or a song, both of which were used when the teacher had perceived that the children were restless).

Mat-times involved activity patterns by the participants in a specific setting. The participants were the controller (normally the teacher) and the controlled (normally the children). The setting was the mat area in the classroom. The activity patterns consisted of three types of scripts. These were:
(i) the transition script;
(ii) the script for social order;
(iii) the pedagogical script.

Every mat-time included a transition script, a pedagogical script and some kind of social order script. The transition script was not described here because the features which were internal to mat-time scripts were more closely associated with pedagogical activities.

(1) Mat-time Type One

Those mat-times when all the children were required to sit in a group with knees crossed and arms folded, looking at and appearing to listen to or respond to the teacher or person at the front of the mat were made up of a series of scripts. Each of these scripts comprised:

(i) social order techniques;
(ii) pedagogical techniques;
(iii) social order behaviour codes;
(iv) pedagogical behaviour codes;
(v) plan paths of social order;
(vi) plan paths of pedagogy;
(vii) the combined goals of social order and pedagogy.

Tables 19, (Mat-time Type 1: Techniques and Behaviour Codes, p.268-270) show the teachers observed in the study had a general preference for some techniques and preferred specific techniques in order to establish specific behaviour codes. Why this is so is difficult to explain, but the pattern appeared to be general across all the rooms
observed. The same was true for the other time and location periods occurring in the classrooms.

How each of these seven components operated during mat-time type one is illustrated by the following script.

[In the following script the children were reading poems they have already learned in class. The teacher’s intention was to reinforce that learning. Specific children are asked to come to the front of the mat to recite a poem that they know. The rest of the children are expected to join in when they know the poem.]

Chantelle is sitting with Sarah. The poem is about wriggles. Chantelle joins in. Jason is allowed to choose a poem. Chantelle joins in with Jason’s choice. Chantelle and friend are pulling faces with their tongues out while reciting the poem. The teacher asks them not to. Chantelle and friend repeat their actions during the next poem. John stands to say a poem. He cannot remember the words. He makes it up as he goes along. The children laugh. Chantelle and Sarah are giggling and fooling around.

The techniques used in this script were:

(i) Demonstration - A child was asked to say a poem and other children were expected to copy the words and actions.

(ii) Unison speaking - all the children were expected to recite the poem.

(iii) Individual speaking - a child was expected to begin a new poem.

(iv) Questions - 'What poem do you want, Jason?'

(v) Direct simple request - The teacher asked Chantelle and Sarah not to pull faces.

Of these the first four were for pedagogical purposes and the last two were for social order.
The social order behaviour codes which the teacher used were:

(i) When to sit and stand - John was expected to stand to say a poem. The children were sitting on the mat.

(ii) When to talk to a neighbour - Chantelle and Sarah were not meant to be communicating with each other.

(iii) Where to look - Chantelle and Sarah were not meant to look at each other.

Other behaviour codes were also involved, such as 'when to contribute' and 'how to sit' but these were not specifically referred to by the teacher during this script.

The pedagogical behaviour codes used were:

(i) Consolidation, - The expectations of the teacher appeared to be that the children would demonstrate they knew a poem well enough to recite it in front of the class; that all the children would demonstrate a knowledge of each poem by joining in; and that those children who did not know the words completely would learn them through the repeated demonstrations and children joining in. The children needed to recognise the teacher saw something of importance in this activity even though they may think they knew the poem being recited very well.

The sequence of activities which went to make up the plan path was:

(i) A child was asked to stand in front of the class and say a poem.

(ii) While this was in progress the other children were
expected to join in.

(iii) The child sat down and another child was asked to stand
in the front of the class and say a poem.

(iv) The second child sat down and another child was asked to stand in front of the class and say a poem.

(v) This sequence of activities continued until all the children had said a poem or the teacher decided that it
was time to stop.

(vi) Interspersed throughout the above sequence there were social order techniques, for example, 'where and when to sit or stand', 'when to talk to a neighbour' and 'where to look'.

This sequence of activities shows there is a thread running through the techniques and behaviour codes that they are meant to promote a pedagogical goal of 'knowledge of specific poems'. The social order behaviour codes function to control how that 'knowledge' is demonstrated by the children.

(2) **Mat-time Type Two**

Those mat times when a group of children sit in a circle or large group with knees crossed and arms folded have features in common. They are the same features found in mat-time type one. The difference in how often they occur can be seen in Table 20 (Mat-time Type 2: Techniques and Behaviour Codes, p.271-273). The following script illustrates a typical mat-time type two script.
[In this script the teacher was teaching the children the colours and lengths of the rods as part of a mathematics project that led to the children being able to seriate the rods according to length. The children have been asked to make a circle around the edge of the mat. They were asked not to talk while they were doing this.]

Lorelei makes a circle with her group on the mat. She does this without talking. [When they have made a circle the children are meant to sit down where they are and then cross their knees and fold their arms. There are rods set out in boxes within easy reach of the children. The children are not meant to touch the rods until they are asked.] Lorelei takes a rod before being told to touch them. The teacher tells them not to touch the rods so Lorelei puts the rods behind her. [The teacher holds up a rod and tells the children it is a blue rod. She then holds up a yellow rod and tells the children this is a yellow rod. She does this until all the colour names have been revised.] Lorelei finds a rod 'the same as blue' when the teacher asks. She does this without looking at the others. She finds a shorter rod when asked, very quickly and quietly. She folds her arms as the children have been told to. The teacher asks her, "Is this one shorter than this one Lorelei?" Lorelei shakes her head. She points to the rods but looks at her partner before choosing. [Lorelei is expected to answer correctly and to point to the correct rod.] Lorelei does the next activity but does not stand as they have been asked.

The techniques used in the script were:

(i) the direct simple request - 'Don’t touch the rods';

(ii) the direct complex request - 'Find a rod the same as blue', 'Find a shorter rod,' etc.;

(iii) the question - 'Is this one shorter than this one Lorelei?';

(iv) the demonstration - The teacher demonstrated at the beginning of the script which rods were which by holding up an example of the rod-type she was talking about.

Only one of these techniques, 'the direct simple request', was a social order technique. The others were part of the pattern of the pedagogical behaviour codes.
The social behaviour codes the teacher used were:

(i) where to sit - 'Sit in a circle';
(ii) when work was completed - 'Stand when the activity is completed';
(iii) what to do with apparatus - 'Don't touch the rods';
(iv) when to sit or stand - They should stand if work 'is completed'.

Other behaviour codes, such as 'which direction to look' and 'how to attend', were in operation but not commented on by the teacher.

The pedagogical behaviour codes used were:

(i) The teaching of specific information - In this behaviour code the children must not only have recognised there was a correct way to attend, but there was something new and interesting for them to attend to and which the teacher believed was important for them to learn and remember. The specific items to be attended to were the colours and length of the rods demonstrated by the teacher and the activity the teacher expected the children to do after each of her demonstrations.

(ii) The consolidation - Revising the colours of the rods. In this behaviour code the children were expected to recognise the colours of the rods were important and that it was important that they recognised rods of the same size and shape all had identical colours.
(iii) The evaluation - In this behaviour code the children were expected to understand the teacher was evaluating the way they responded to the required activity. The specific activity was answering questions the teacher's was asking them about the rods.

The plan path of social order was not obvious because this was a pattern of activities which had been used on many occasions in the past. Because it was well known by the children, few techniques were used to maintain the behaviour codes the teacher was using.

The pedagogical plan path contained no introduction or motivation. The teaching of specific information involved instructions and the children's activities following on those instructions. For example, "Find a rod that is like blue," was followed by children carrying out the instruction (i.e. finding the correct rod.) The evaluation followed this action in the form of questioning specific children about specific information. This was all hoped to meet a goal to do with 'colour' and goals to do with 'length'.

(3) Mat-time Type Three

Those times which require children to participate in some physical activity as a whole class or group on the mat area all have a similarity of features to the above mat-times (Table 21, Mat-time Type 3: Techniques and Behaviour Codes, p.274-275). These features are the same as for mat-times type 1 and 2. The differences lie in what specific actions are expected of children at this time. This is the
time when children act, dance or sing or observe other's acting, dancing or singing on the mat. For example:

[The class has become restless because of an extended time sitting on the mat. The teacher appeared to have decided that a series of action songs would help to settle the children. The children have been asked to stand to be ready for the actions which would follow.]

Sam wriggles on his bottom to his place. He stands up. The teacher says, "Turn to a partner." The children comply. Sam has his hands in his pockets, pulling faces. The music is put on. The children dance with lots of action. Sam joins in enthusiastically and falls on the floor. He laughs and stands up. He rejoins a partner. He is dancing very actively, more than most. The teacher switches to, 'I'm a little teapot.' Sam watches the teacher and copies her actions. A bit confused. He pours the wrong way with 'handle' and 'spout' muddled. At the end of this the teacher selects a book from the book corner to read. The children sit on the mat.

The techniques used were:
(i) the direct simple request - "Turn to your partner";
(ii) rhythmic movement - the children moved to the music;
(iii) the demonstration - the teacher performed the actions to 'I'm a little teapot' and the children followed.

It was possible that 'rhythmic movement' was used as a social order technique, but the obvious social order technique was 'the direct simple request' of "Turn to your partner". 'Rhythmic movement' and 'the demonstration' were used for three pedagogical purposes simultaneously.

The social behaviour codes the teacher used were:
(i) Where to sit or stand - This was implied by the comment concerning turning to the partner.
(ii) What direction to look - This was also implied in the comment concerning turning to the partner.
Other behaviour codes were in progress, but these were more difficult to identify than those referred to by the teacher. There was probably a code to do with 'how to follow instructions', 'how and when to contribute', etc. but Sam was not corrected overtly during this communication incident. This meant that the existence of these behaviour codes could be inferred only.

The pedagogical behaviour codes the teacher used were:
(i) The introduction - "Turn to your partner".
(ii) The teaching of specific information and the consolidation occurred simultaneously. This was because some children knew these actions very well because they have been in this classroom for longer than other children. Children who were new to the room were presumed to be new to these activities. The demonstration promoted the learning of any activity for any children who had not met the activity before. Those actions also consolidated information for those who had met the activities before and did not know them completely.

The plan path connected the above behaviour codes and techniques in a way that the appeared to teacher hope will meet a social order goal which appeared to relate to 'releasing some pent-up energy' and a pedagogical goal to do with 'enjoying music and movement'.
Anything which took place on the mat could take place with the children seated at their desks. Teachers teaching children in their first year used a combination of both seat-work and mat-work times.

Across all the classrooms in this study, there was a range of activities which occurred at desks. Writing activities, art activities, craft activities, mathematics activities and reading activities all occurred at the children's desks. The most common activities were writing activities and activities associated with reading skills. This latter had less variety than expected, in that the most common activity appeared to be colouring in. This ranged from colouring in specific objects which showed comprehension of specific letters or words, to drawing pictures which were representative of a story.

Seat-work appeared to be uniform in structure and did not divide into types in the way mat-times did.

The components of the observable patterned behaviour relating to seat-work did not vary from mat-time components at the level of scripts. There was still a controller, those controlled, the setting, and the activity patterns. The setting consisted of chairs and desks which were of sufficient number for every child in the class to have their own desk. The behaviour codes and techniques were similar to mat-time type 1 (Table 19, p.268-270) but were not so many and varied as mat-time type 1.
The scripts were divided into three types of activity patterns. These were the transition script, the social order script and the pedagogical script. The pedagogy for seat-work might be more appropriately termed the actions associated with the task which was supposed to be performed at the desk. The task was commonly the result of another pedagogical script given while the children were on the mat. A description of the transition script are given in general terms because the internal components of seat-work times are the more central to pedagogical tasks.

(1) Seat-work Time Scripts

Seat-work scripts were preceded by a transition script which usually moved children from one location to another. In order to accomplish this, it was not common for teachers to give verbal instructions concerning moving to the desks. If this occurred, it was clear and to the point, for example, "Stand up quietly, tip-toe to your desks and sit down." The most common means children had of knowing when to move to their desks was the giving out of the apparatus needed to perform the task set. This was paper, or a collection of pencils or books, given out by the teacher or a designated child, after the necessary instructions were completed. They may or may not be told during the instructions this was a task which would be performed at the desk. If they were not told, the children knew they were to go to their desks because they usually went to perform tasks of that type at their desks or this was an appropriate time to go to the desks for some other reason.
Seat-work scripts were those activities which took place at the children's desks. They included all the same structures found in mat-time scripts but the content was different. The following is an example of a seat-work time script:

[The children in Lorelei's group were meant to be colouring-in a picture and then they were meant to 'write' a story underneath the picture about it. Because these children have not been at school long they needed the teacher's help for this.]

Lorelei is talking to the boy next to her. They have been discussing who will be the first person home from school. The teacher arrives and says to Lorelei, "What would you like me to write on your picture?" Lorelei says, "Don't know." The teacher says, "Who's this?" Lorelei says, "Father." The teacher asks, "Father who?" Lorelei says, "Father Bear." She fiddles with the paper and says, "Father Bear and Mother Bear are sleeping in bed." She is saying this with the teacher who is writing this story under her picture. Lorelei watches the teacher while she writes the words, swinging her foot. The teacher asks, "Can you help me write it?" The teacher holds her hand and writes the words with her while they read the caption together. The teacher says, "Put your name on the back please." Lorelei turns the paper over and gazes round the room and begins writing her name. Lorelei says to the teacher, "I can't draw my name." The teacher asks, "What does that say? Lorelei. See if you can write that underneath." Lorelei begins copying underneath neatly, beginning at the left.

The techniques used were:

(i) The question - "What would you like me to write on your picture?"

(ii) Demonstration - The teacher has written the caption in a way that Lorelei could see what she was doing.

(iii) The direct simple statement - "Put your name on the back please."
'The direct simple statement' was used to promote social order. The other two techniques were used to promote pedagogy.

The social behaviour codes used were:

(i) How to sit - The teacher held Lorelei's hand while she was writing.

(ii) What to do with apparatus - The teacher held Lorelei's hand while she was writing in a way which helped her learn the correct way to hold a pencil.

Although these were social behaviour codes they also functioned to promote the pedagogical task in progress. They were not essential for that task however.

The pedagogical behaviour codes used were:

(1) The teaching of specific information - Lorelei was expected to recognise that the teacher had come to help her and not to make her the focus of attention. She was also expected to recognise that what the teacher was doing was of importance for Lorelei and that Lorelei should take note and remember what the teacher was intending her to learn. The specific information to be learnt was how a story was created.

(ii) The consolidation - Lorelei was meant to recognise that the colouring-in was intended to be reminding her of the story which was read earlier on the mat. In addition to this, the copying over the top of the story she and the teacher 'created' was expected to remind her of the earlier story and also the structure of story writing. The creation
of the story was bringing back the story content to Lorelei and she was to write over the 'story'.

(iii) The evaluation - In a sense, the teacher was evaluating Lorelei's concept of what stories were when she asked her what she would like for a story. It was important in order for Lorelei to do well, that she recognised this and then responded quickly to the teacher's questions.

The social order plan path was not easy to identify because the only obvious structure was seen in the teacher coming up to Lorelei at a time when she and her neighbour were not absorbed in the required activity. However, there were patterns of behaviour expected of the children when they were sitting working at their desks. These were to do with when they sat, where they sat, how they st, who they talked with, how they talked with others, how they got help when needed and how they let the teacher know when work was believed to be completed, etc. The pedagogical plan path was more clear cut. This was as follows:

(i) the consolidation of activities which occurred earlier on the mat;
(ii) the teaching of specific information seen in the teacher coming at an opportune moment and eliciting a story from Lorelei about her colouring-in;
(iii) the consolidation of the story writing activity which culminated in the writing of Lorelei's name.

This was a larger picture of the script in which all Lorelei's group were involved in an identical plan path. The goal of the pedagogical plan path was something to do
with the nature of stories and interest in stories and how stories 'happen'.

8. THE VARIETY OF IN-SCHOOL SCRIPTS.

Other kinds of scripts occurred in the schools observed apart from seat-work and mat-time scripts. There were hall-time scripts, out-door time scripts which were not play-time scripts, play-time scripts, lunch-time scripts, home-time scripts, choosing time scripts, undirected choice time scripts, swimming time scripts, other sports time scripts, tidy-up time scripts and in private and integrated schools there were prayer time scripts and church time scripts. All had their own behaviour codes and specific techniques. The limitation of time available to the researcher meant that not all aspects of school life could be included in the detailed analysis. However, the majority of the techniques which were identified in the other school data had already been covered by the examples given for mat and seat-work times. Because achievement was traditionally judged by success or failure in language arts and in mathematics, and because both of these were specifically taught at mat and seat-work times, it seemed that relatively less would be gained by examining all types of scripts in the same detail.

Because different types of scripts may overlap with one another and become intertwined in the reality of the classroom, the sequence of activity of one script may be interrupted by sequences of activity of other scripts. This
phenomenon could be called 'script interference'. For this reason, scripts were not always easily identified and analysed with the clarity of the examples described in this chapter.

An interruption in a script could itself be a complete script. Such interruptions occurred when a visitor entered the classroom unexpectedly, or an event occurred which was not predicted by the teacher. These interruption scripts were interesting because both teacher and children in the first year classroom seemed to be able to pay attention to an interruption script almost immediately upon its occurrence, and then to act as if it had never happened when the interruption ceased. For example, in Lorelei's classroom when the teacher began her lesson about the beginning sounds of words and the dental nurse arrived, all the children and the teacher stopped to listen to the dental nurse. Several minutes later when the dental nurse left, the teacher picked up where she left off without an acknowledgement of what she would do and the lesson proceeded without incident. This suggested that the structure of any particular communication incident was well enough understood and known by the teacher and the children for them to maintain its connectedness, despite the break into two separate times and the intrusion of another communication incident.

In-school scripts were numerous, varied and complex. The above analysis described this variety and complexity from a structural perspective.
9. GOALS

The activity structures of scripts guide a script towards a goal or series of goals. If this was not the case there would be nothing of significance to make one series of activities distinguishable from another series. Activities would occur in an apparently random way. But patterns of activities in classrooms are not random. Each script does have a central purpose. This purpose is usually in the mind of the teacher. Teachers have two major types of purposes, those of social order and those of pedagogy. From these they derive specific goals. These goals have been discussed above. However, children also have an input into classroom activity structures. Some activities derive from children’s personal needs and goals.

10. CHILDREN’S SURVIVAL NEEDS OR GOALS

Children need to work out ways to survive in classrooms. The survival needs of each child depend on particular home circumstances, the relationship each child has with the teacher, the relationship each child has with other children in the classroom and each child’s understanding of classroom procedure. For example, a child may arrive at school hungry or having been beaten at home that morning. Unless these events are known to and adequately dealt with by the teacher, the child’s home events will interfere with what is happening at school. The survival needs of each child are personal and specifically
different for each child. For the most part, children must discover ways to accomplish the learning of their specific survival needs for themselves. Children’s survival needs are more important to children than learning the teacher’s behaviour codes or conforming to the teacher’s techniques. In fact, it is difficult to see how children will be motivated to attend to teacher behaviour codes unless they attend to their own needs first.

Analysis of the classroom data in this study suggests that children’s personal in-class goals were concerned with:
(i) emotional needs that are not to do with the activity in progress;
(ii) needs to do with dominance hierarchies within the class;
(iii) needs to do with friendship bonds;
(iv) needs to do with a shortage or surplus of equipment;
(v) needs to do with acquiring desirable objects owned by someone else;
(vi) needs to do with learning and relationships with the teachers.

An example of the significance of maintaining a friendship bond has been illustrated in the example where two children wanted to sit together. The consequence of their friendship was that they annoyed other children or fiddled with each other’s belongings. This ‘friendship’ behaviour not only incurred the teacher’s disapproval but resulted in them not learning any of the information being transmitted. Despite this, they were able to maintain this behaviour for a very long time. The requirements of their
friendship were more important to them than obeying the teacher or learning.

In most of the classrooms, the children needed to learn that there was a particular place for personal possessions at school. Some of their things belonged in their desk, in a cupboard or on their chair. Others should be in the corridor on a special hook or in a cubby-hole. For example, Kerry was told to put his jersey on his chair, but he knew that it should normally be hung on the hook in the corridor. He took his jersey out to the corridor as a way of defying the teacher. It was difficult then for the teacher to tell him he was doing the wrong thing. Michael was told by the teacher when he asked for his handkerchief back that, "You drop hankies everywhere."

Acquiring the necessary tools of trade was an even more important survival need in these classrooms. The following is an example of how one child acquired desirable items.

Sam needs an old Christmas card and felt pens. The Christmas cards are ready on a desk near the teacher. The centre page of each Christmas card has been cut out. The children are to draw their own picture and put their own message on it. Sam gets his card and then takes a felt pen from Simon. Sam draws with this for five minutes in a distracted way then asks Peter if he can use his felts. "Yeah," Peter says and so he does. Some nine minutes later Sam grabs a felt out of Simon's hand and begins a fight. This is stopped by the teacher asking what his story is to be.

Although Sam's example was aggressive it did not appear to be a dominance game. He genuinely wanted the felt pens and had none of his own. His method was not highly
desirable and the teacher eventually redirected this by asking for his 'story'.

In Sam's room the children were meant to have their own pencils, rubbers and rulers in their desks. All else was usually provided by the teacher except for felt pens. If the children wanted felt pens they were meant to bring their own. The teacher monitored the pencils, rubbers and rulers and no problems were recorded relating to these things. Felt pens were the problem area. If the children did not have their own, they had to acquire them by other means.

Kerry and Michael's room was different. Pencils, rubbers, rulers and exercise books were obtained through the school. Felt pens could be brought from home, but then each child was expected to look after their own. The rubbers, rulers and exercise books were kept in the children's own desks. Everything else was supplied by the school. If scissors, paints, crayons, etc. were being used by a group these were normally placed on the children's desks by the teacher or the pupils. This meant all the children should have all the necessary tools of trade for the work in progress. The following showed this was not always the case.

Kerry's group has been told what to do in their exercise books. They go to their desks. Kerry looks in his desk [where his exercise book should be]. "I haven't got one," he calls out to the teacher. "I haven't got one." The teacher gives him a piece of paper [to use in place of his exercise book].
Even when all was in front of the children it was not simple to get what was desired.

Kerry is talking to himself. "Now the middle. All red." He is blowing raspberries. "I wonder what colour that can be." He tests a crayon then puts it back. "We haven’t got black." Makes noises as he draws. Con joins the table. He asks, "Are there any more reds?" Kerry says, "No, you can have mine." Then he continues, "Can I borrow one of your reds, Joseph?" Joseph says, "No." Kerry takes one and brings it straight back saying, "I don’t need it. Silly me." He keeps on selecting different crayons and making noises.

These two examples focusing on Kerry showed a boy with a different goal but it was not in conflict with work. In the first instance the teacher was able to rechannel him simply by providing paper. In the second he was working and learning quite a bit about colours despite, the shortage that was no fault of his. And if a child thought s/he had everything, even that was not always so.

Michael gets a pair of scissors from the pot and goes and sits at his desk. While he is colouring in Sam comes and picks up his scissors. Michael says, "Hey, you pinched my scissors." Sam pulls a face and keeps them. Michael looks uncertain. He looks around the table. He puts his hand up but there is no response from the teacher. She is busy. He resumes colouring. Sam still has his scissors. Five minutes later Michael goes and gets another pair of scissors. He has coloured in his picture quickly. He continues with the next picture. In another four minutes he cuts this picture out. While he is watching the teacher reprimanding Kerry, Tui next to him, takes his scissors. He takes the scissors back from under Tui’s paper. Tui grabs the scissors back, "They’re mine," Tui says. Michael does not comment. He goes to the teacher’s desk for more but there are none left. Sue hands him a pair. Michael does not comment. He just takes them and looks at Susan and cuts out the picture. He pastes the pictures on a card by the teacher and returns to colour yet another picture. Some time later he whispers to Thomas opposite, "Can I have the scissors, please?" Thomas hands them over. Incredibly these are grabbed off him by Angeline. Michael looks resigned and embarrassed. He looks uncomfortable. He reaches over and carefully takes the scissors off Sam who is not looking and cuts out. Sam says, "Michael!" Michael says, "What?" Sam says, "Give us a look." Michael holds up his picture. Sam nods and Michael’s scissors are gone. He reaches
over again. Sam grabs them. Michael grabs them back. He says, "It's not fair, you've got to share." Sam leans over to take them and Michael throws them back to the boy quickly. He looks quite pink faced now. Susan gives him some more scissors and he cuts out saying, "I'm on my last one."

There was no doubt obtaining and keeping scissors was uppermost in Michael's mind as he was working. In all this script the teacher did not know what was occurring from the children's perspectives.

Goals are the reason a script exists at all and it can be seen by the examples above that a variety of different goals can guide whatever is being done in the classroom at any time. Some of these goals appear to be more important than others. In the last example given above, more than one boy had decided Michael was not going to come out on top. He did not become involved in this dominance activity. He wanted to do his work and so he needed scissors. Although many goals derive from the needs of pedagogy, those that take precedence over pedagogy normally are concerned with inter-personal relationships.

11 SCHEMA THEORY AND CLASSROOM ACTIVITIES

Mat-time, seat-work time, tidy-up time and all other periods in these first year classrooms had sets of scripts which related to them. Each set of scripts had a specific location, one controller, the controlled and the activity structures which form communication incidents. Each communication incident consisted of techniques, behaviour codes, plan paths and goals.
This chapter has described the content of scripts in some detail. Scripts may vary in the techniques and behaviour codes employed. This differential usage of techniques and behaviour codes meant plan paths of specific incidents might vary but there was an overall plan path for the script which the teacher had in mind. For example, a script occurring during mat-time type one would include teacher-directed behaviour codes which were concerned with 'when to contribute to the class discussion', 'when to interrupt', 'when to talk to a neighbour', 'when to call out', 'where to look and where to face', 'when to prompt', 'when to respond with an appropriate social response', 'how to respond with an appropriate response', 'when to attend', 'how to sit', 'when to bring things with you', 'when to put a hand up or stand', 'who to sit with', and a child directed behaviour code concerning 'how not to be controlled by the teacher's behaviour codes'.

Behaviour codes were not necessarily explicit in that the children were not reminded of them in each script. The children might not be told the teacher's exact expectations. In order to operate successfully within a behaviour code, children needed to identify all the component parts in some way. If a child has not had prior exposure to the complexity of techniques, behaviour codes, plan paths and goals which occurred in classrooms, then trying to understand what was happening becomes a complex puzzle which each child has to unravel in order to act appropriately.

In mat-time type one it was found a wide range of techniques were used. This contrasted sharply with mat-time
type two, in which it was found teachers used predominantly basic level techniques. The contrast was even greater in mat-time type three where predominantly basic level techniques of a directive nature were observed. At seat-work time, teachers were observed using a wider range of techniques, but these were not identical to the techniques used in mat-time type one.

Figure 27 (p.305) diagrams the relationship of techniques, behaviour codes and goals, to the social order and pedagogical components. The connecting arrows show the plan paths which lead to goals, and how scripts form part of the more generalised structures of schema. The activities of the communication incidents are elements which can be directly observed. Scripts are the patterns of these observable elements. Schema are the generalised structures held in the minds of the actors in a script, which have been learned from past exposure to scripts. Thus ‘past exposure’ operates in the minds of the script director and script participants to enhance understanding of similar scripts.

To reiterate, the teacher’s perspectives and the children’s perspectives differed. The teacher’s perspectives were affected by constrictions imposed by the management of a large number of children, the requirements of a complex curriculum, and the teacher’s personal ideology about learning. The children’s perspectives were, at least initially, affected by their survival needs.

This chapter has described techniques, behaviour codes, plan paths and goals which are available to children to make sense of the school sub-culture. Identifying and
understanding these techniques, behaviour codes, plan paths and goals requires some prior knowledge of the school sub-culture. The only structures which can be identified which do not need prior knowledge to understand they exist are those techniques to do with control. It would be unusual, however, for children to have no concept of the school sub-culture. Even if the child has not attended a pre-school, association with older children, the comments of adults as the five year old birthday draws near, television and other media impart some concepts. It is reasonable to assume children come to school believing:

(i) Classrooms are places which require a child to be good or well-behaved.

(ii) There are ways teachers have of controlling children.

(iii) Teachers are there to teach something. This probably means to the child that teachers are there to teach children 'how' to learn.

(iv) Children go to school to be taught, and that being taught means 'lessons' (the 'what' of learning).

All children will have some specific structured expectations associated with the four beliefs listed above. They will use these to interpret the world around them at school. Difficulties in understanding classroom scripts may occur for a child because:

(i) A child might interpret the classroom patterns of social order to be the main purpose for being at school.

(ii) The child may have an idea there are patterns of social order and patterns of pedagogy, but may not be able to recognise which activity pattern fits the teacher's goal for social order and goal for pedagogy.
(iii) The child may not understand the concept of learning and that learning requires the child’s mind to interact actively with activities prescribed by the teacher and the information provided by the teacher.

(iv) The child may not understand who is the controller and who is being controlled.

(v) The child may not recognise specific differences in organisation between classrooms.

Other difficulties can probably be identified which cause problems for children in classrooms. The above are sufficient to indicate that from the child’s perspective, the classroom situation is a puzzle which needs to be understood in order for classroom life to be free from punishment and to provide a minimum of interest and satisfaction.

The following chapter examines the data obtained from the home observations to see what familiarity and understanding children have of the different kinds of classroom scripts before they come to school. Is it possible that experience in the home which leads to comprehensive knowledge of, for example, behaviour codes and techniques, is a prerequisite for success in school? Does lack of knowledge in these areas lead to failure? The knowledge which children bring to school must have an effect on success at school. But what children need knowledge of, and how much knowledge they need, is as yet unclear. The next chapter addresses the hypothesis that children’s past exposure to school-like techniques, behaviour codes, plan paths and goals are most important for school achievement.
CHAPTER VII

THE RELATIONSHIP BETWEEN HOME AND SCHOOL RESULTS

Chapter VI described the scripts and the components of scripts identified in the in-school data. These data showed that although it was possible for any behaviour code and any technique to occur at any time and in any place within the classroom environment in fact this was not the case. Teachers showed preferences for groups of behaviour codes and techniques when working in specific locations and possibly related to the task which had to be performed.

The scripts identified in the home observations and in and the school observations were different. The difference appeared to be related to the pedagogical goals of the school scripts the numbers of children within a classroom and the social, emotional and physical goals of the home scripts. The scripts in the home which were consistently associated with specific locations, tended to be concerned with physical goals, for example, eating. The scripts in the school which were consistently associated with specific locations, were associated with the goals of pedagogy, for example, printing. The patterns of the majority of the home scripts were not usually as regulated and controlled as school scripts. Timing was frequently not as important. The home scripts were governed by a general daily round of rising-times, meal-times and bed-times. These scripts were governed by a number of different goal types. These
included goals concerned with physical needs, for example, grocery shopping; goals concerned with social needs, for example, visiting a friend or relative; goals concerned with the needs of order, for example, house-work; and goals concerned with recreational needs, for example, swimming for the children.

1. IDENTIFICATION OF SCRIPTS AND SCHEMA IN THE HOME DATA

If schema are the generalised structures held in the mind of the actors in a script which have been learned from past exposure to scripts and this 'past exposure' operates in the minds of script directors and script participants to enhance understanding of similar scripts, then there should be a relationship between past scripts (in this case scripts in the home environment) and understanding of present scripts (in this case scripts in the school environment). It seemed reasonable to examine the home data for scripts which were the same as or similar to the classroom scripts and to compare these to the school scripts to see if such a relationship existed. If the techniques and technique clusters (behaviour codes) are initial building blocks of school scripts, then a total of all the school behaviour codes and the techniques a child has been exposed to through other than school experience should provide an indication of the child's knowledge of and ability to understand the patterns of interaction s/he must deal with in school.

Teacher behaviour codes and techniques are not usually taught at school. Some children appear to arrive at school
Table 23

In-School Techniques Occurring in the Homes Observed

<table>
<thead>
<tr>
<th>Chantelle Lorelei Jordan Geraldine Kerry Heidi Kirstie William Sam Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic level Techniques</strong></td>
</tr>
<tr>
<td>The direct</td>
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<tr>
<td>simple request</td>
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<tr>
<td>The direct</td>
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<tr>
<td>complex request</td>
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<tr>
<td>The indirect</td>
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<tr>
<td>simple request</td>
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<td>The indirect</td>
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<tr>
<td>complex request</td>
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<tr>
<td>The contracted</td>
</tr>
<tr>
<td>verbal request</td>
</tr>
<tr>
<td>The contracted</td>
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<tr>
<td>non-verbal request</td>
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<tr>
<td>The question:</td>
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<tr>
<td>verbal &amp;</td>
</tr>
<tr>
<td>non-verbal</td>
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<tr>
<td>The non-verbal signal</td>
</tr>
<tr>
<td><strong>Second Order Techniques</strong></td>
</tr>
<tr>
<td>The demonstration</td>
</tr>
<tr>
<td>The ignoring</td>
</tr>
<tr>
<td>Standing nearby</td>
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<tr>
<td>The compliment</td>
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<tr>
<td>The reward</td>
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<tr>
<td>The punishment</td>
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<td>Using children as</td>
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<tr>
<td>correct models</td>
</tr>
<tr>
<td>Asking children</td>
</tr>
<tr>
<td>to model the</td>
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<tr>
<td>teacher</td>
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<tr>
<td><em>The redirection of individual</em></td>
</tr>
<tr>
<td>thoughts &amp;</td>
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<tr>
<td>ideas to fit in</td>
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<tr>
<td>with the group</td>
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<tr>
<td>activity to fit in</td>
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<tr>
<td>with the group</td>
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<tr>
<td>activity to be</td>
</tr>
<tr>
<td>different from the group</td>
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<tr>
<td>The redirection of group activity</td>
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<tr>
<td><strong>Sub-category Techniques</strong></td>
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<tr>
<td>Unison speaking</td>
</tr>
<tr>
<td>and reading</td>
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<tr>
<td>Individual speaking</td>
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<tr>
<td>and reading</td>
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<tr>
<td>Rhythmic movement</td>
</tr>
<tr>
<td>Silent reading</td>
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<tr>
<td>Printing and story</td>
</tr>
<tr>
<td>writing</td>
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<tr>
<td><strong>Totals</strong></td>
</tr>
</tbody>
</table>

Note: A sub-category of Second Order Techniques.
at five years of age with effective knowledge of a large number of teacher behaviour codes and techniques. Because of this, some children must begin to learn about behaviour codes and techniques from very early on in life in the home. If this is the case, then the range of different school techniques and behaviour codes which occur in a similar form in each home during the observation times should be related to each child's success at school.

It was decided if an in-school technique or behaviour code was used, or responded to, by a child on at least one occasion in the observations recorded in the home, then it was reasonable to assume the child had exposure to, and past knowledge of, that technique or behaviour code. The period of time when each child was observed (four days) represented only a small part of each child’s total time in the family. One instance of a technique or behaviour code occurring during those four days might represent the equivalent of fifty exposures during a year. Because the observations took place over a short period of time, it was unlikely that the frequency with which they occurred during that period, represented the frequency with which they occurred during the previous four years of the child’s life. Instead, the occurrence of a single incident was taken to imply past occurrences, and an opportunity for the child to have learned how to respond appropriately to the behaviour codes or techniques.

The occurrence of behaviour codes and techniques similar to those experienced in school, was looked for inside the scripts identified in the home observations of
Table 24

**Specific In-School Behaviour Codes Occurring in the Homes Observed**

<table>
<thead>
<tr>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to sit</td>
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<tr>
<td>How to follow instructions</td>
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<tr>
<td>How to use apparatus</td>
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<tr>
<td>How to respond to an appropriate social response</td>
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<tr>
<td>How not to be controlled by the teachers behaviour codes</td>
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<tr>
<td>When to contribute to class discussion</td>
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<td>When to interrupt</td>
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<tr>
<td>When to talk to a neighbour</td>
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<td>When to call out</td>
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<td>When to prompt</td>
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<tr>
<td>When to respond with an appropriate social response</td>
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<td>When to attend</td>
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<tr>
<td>When to bring things with you</td>
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<tr>
<td>When to put a hand up or stand</td>
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<td>When to stand or sit</td>
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<tr>
<td>Where to stand or sit</td>
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<tr>
<td>Where to look and where to face</td>
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<tr>
<td>Who to sit with</td>
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<td>+</td>
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<td>+</td>
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</tr>
</tbody>
</table>

**Totals** 0 0 5 7 5 10 8 10 2 8
children in this study. The behaviour codes and techniques identified in the home observations, were not expected to be identical but the similarity had to be sufficient, however, for it to be possible for children to generalise from techniques and behaviour codes identified in the home context, to techniques and behaviour codes identified in the school context.

(1) Techniques

There appeared to be little difference between home and school use of most in-school techniques used in the homes observed. The major differences lay in who the actors were, and what roles they played. The focal child’s mother or father replaced the teacher or a child acting in the position of teacher. The focal child was the same child, except that the child’s role was no longer a pupil. S/he was, for example, a son, daughter or sibling. If a group of children were referred to, as for example, in ‘the redirection of individual activity to fit in with the group’, the group was not usually a group of children who were all in the same age grade. The group could be the focal child and his/her siblings, or the focal child and friends or relatives, or any combination of these. The in-school techniques which occurred in the homes are reported in Table 23 (p.313).

(2) Specific School Behaviour Codes Observed in the Home

The specific behaviour codes were those behaviour codes occurring during specific time and location scripts in the classrooms observed in this study. The variety
of specific behaviour codes identified in the homes of the families in this study is listed in Table 24 (p.315). In two families, those of Chantelle and Lorelei, none of these behaviour codes was identified during the observation time. In two further families, Sam and Jordan's families, there was little variety, while in Heidi's, William's and Michael's families, a wide variety was identified.

The behaviour codes not observed in any home were: 'when to talk to a neighbour', 'when to call out', 'when to prompt', 'how to respond with an appropriate social response', 'when to respond with an appropriate social response', and 'when to put a hand up or stand' (Table 24, p.315). Each of these seemed to have been associated in school with the necessity, for the teacher, of dealing with a large number of children. This problem did not occur in the homes. No home was observed with more than seven children in it at one time.

The specific behaviour codes which were different when they occurred in the home from when they occurred at school were: 'how to sit', 'where to look and where to face', and 'how to use apparatus'. How these behaviour codes differed at home from at school is described below.

(a) How to sit. In school sitting correctly could refer to sitting on the mat and sitting at a desk. Most commonly in the home, sitting correctly referred to sitting at the table for meals. What was required varied from home to home, but it usually involved remaining seated at the
table during meal-times, sitting up straight, and keeping the head away from the plate on the table. Arms, hands, and legs might have required positions, but these were seldom stated. For example:

Jordan leaves the dinner table. His mother goes to get him. He runs. His mother follows. The other boys finish their dinner. Jordan runs back and hides behind the door. Mother, "Where is Jordie? (She sees him.) Now you are coming back and sitting down because that is what we do."

(b) Where to Look and Where to Face. In school this behaviour code referred to the direction the face was facing and where the eyes were looking. This direction was either towards the teacher or an object the teacher was showing to the children. At home this behaviour code referred to the direction the face was facing and where the eyes were looking, but it was not usual for the child to be required to face a parent. They might be required to face and look at an object. Most commonly, however, it was used by children. For example:

Kirstie is pouring water into a wooden box and on the garden. She calls to her little brother. "Hey, Paul. You watch. You watch this."

(c) How to Use Apparatus. In school this behaviour code could involve any apparatus and apparatus was regarded as a tool of trade, even if it looked like a toy. The parallel behaviour code in the home could refer to any apparatus, but most commonly it referred to toys. The apparatus which was required to be used in a particular way at school was usually necessary for the child to perform the required tasks in that classroom. The apparatus which was required to be used in a particular way in the homes was
<table>
<thead>
<tr>
<th></th>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
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</tr>
<tr>
<td>Children are children</td>
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<td>0</td>
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<td>0</td>
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</tr>
<tr>
<td>Signal conscious</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Observing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Behaviour code existence</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Events have structures</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Risking</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Modelling other children</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Listening then acting</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Teachers control</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Watching the teacher/adult</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Listening to the teacher/adult</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Managing apparatus</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Events have particular activities</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| Totals | 1 | 0 | 13 | 10 | 17 | 16 | 19 | 18 | 15 | 19 |
commonly an item which the child did not need to perform an essential task, for example, gardening tools or bicycles.

Particular apparatus used at school was often used for a different purpose at home. For example, at home play dough and plasticine might be used to keep children occupied; cooking utensils might be used to allow children to copy what the mother was doing (but not to teach cooking skills); painting materials might be given to prevent or stop a fight. Sometimes the apparatus was used in a way which was similar to school, for example, when a mother taught a child to cook, iron or make a bed.

An example of a behaviour code about how to use apparatus, observed in a home, is illustrated below. It is noteworthy the controllers were not always adults in the home environment.

Two of the three brothers are playing with a Lego set
Sam comes into the room.
Sam, "What are these meant to be?
Brian, "Leave things alone, they are my things."
Jordan, "Yes. You leave them alone. You'll smash them."

(3) General School Behaviour Codes which Occurred in the Homes

General behaviour codes were not tied to specific locations. They could occur at any time and in any location throughout the school day. They had a more generalised structure than the specific behaviour codes. Table 25 (p.319) shows the wide range of these behaviour codes observed in most of the homes of the children in this study. None were observed in Lorelei’s home and only one in Chantelle’s home.
Many of these operated in a similar way at home and at school. Those behaviour codes which operated in a similar way in both home and school were: 'arriving', 'responding', 'body position', 'speaking and not speaking', 'turn taking', 'speaking formula', 'voice tone', 'attention seeking', 'concentrating', 'noise consciousness', 'individuality of adults', 'children are children', 'signal consciousness', 'observing', 'behaviour code existence', 'events have structures', 'risking', 'modelling other children', 'listening and then acting', 'adults control', 'watching the adult', and 'listening to the adult' (Table 25, p.319). These behaviour codes were observed in the home in any type of script and at any time. They also seemed to have similar effects on the way the children responded to these behaviour codes. For example, in the 'body position' behaviour code, the correct position for the face might have been facing down rather than towards the face of the script director. Despite these minor differences they had a similar controlling effect to the behaviour codes observed in the school.

One general behaviour code was not observed in the homes in this study. This was 'being topic conscious'. Given this general behaviour code was concerned with the needs of pedagogy, it was not surprising it did not feature in these homes.

The general behaviour codes which operated differently at home and at school were: 'arriving', 'managing
apparatus', and 'events have particular activities'. How these differed at home and at school is described below.

(a) **Arriving.** In school, this behaviour code referred to the specific pattern of behaviour concerned with arriving on time. At home this was a general behaviour code which referred to arriving anywhere other than home at a correct time. This could be arriving at the pictures, kindergarten or even a friend’s house. It was possible a child would be familiar with the requirements of the 'correct time of arrival at school' if s/he had been exposed to behaviour codes requiring him/her to arrive at these different places at a specific pre-arranged time. For example:

The children have decided to go to a neighbour’s house to play.
Sam, "Hey Mum. Mum can I go to Darren’s?"
Mother, "If you go to Darren’s you stay there and play and tell Susan."

Sam was told that when he arrived at 'Susan’s', he must tell Susan he had arrived, and he must stay there and play. This was different from how to arrive at school, but if Sam generalised the idea behind this rule he would acquire a general behaviour code which would help him with arrivals at school and other places.

(b) **Managing Apparatus.** This was a behaviour code which was a general behaviour code at school, and was a specific behaviour code at home. In schools there were times when tools of trade, for example, pencils, paper, rulers, were not to be touched. These times could occur within any script. No matter in what script the managing of apparatus occurred, it must be managed in the same general
### Table 26

**Pedagogical In-School Behaviour Codes Occurring in the Homes Observed**

<table>
<thead>
<tr>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Introduction or motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Specific Information or Skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The consolidations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When is a task completed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### Table 27

**In-School Child Options Occurring in the Homes Observed**

<table>
<thead>
<tr>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child's eye on the teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child changing own location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child modelling the teachers/children's actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child instigated actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defiant action</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

### Table 28

**Totals of all In-School Techniques and Behaviour Codes Occurring in the Homes Observed**

<table>
<thead>
<tr>
<th>Chantelle</th>
<th>Lorelei</th>
<th>Jordan</th>
<th>Geraldine</th>
<th>Kerry</th>
<th>Heidi</th>
<th>Kirstie</th>
<th>William</th>
<th>Sam</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-School Teacher Techniques</td>
<td>6</td>
<td>8</td>
<td>11</td>
<td>8</td>
<td>13</td>
<td>17</td>
<td>19</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>In-School Child Options</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
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<tr>
<td>In-School General Behaviour Codes 1</td>
<td>0</td>
<td>13</td>
<td>10</td>
<td>17</td>
<td>16</td>
<td>19</td>
<td>18</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>In-School Specific Behaviour Codes 0</td>
<td>0</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>In-School Pedagogical Behaviour Codes 0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>9</td>
<td>14</td>
<td>34</td>
<td>29</td>
<td>41</td>
<td>51</td>
<td>47</td>
<td>44</td>
<td>36</td>
</tr>
</tbody>
</table>
way. At home when this behaviour code occurred, it normally referred to items necessary to perform a specific task requiring specific apparatus, as for example, at the meal table. The frequency with which this behaviour code occurred at meal-times at home, indicated this behaviour code had something to do with politeness in the home context. However, there were other indications occurring infrequently in these data that in addition to politeness, this behaviour code had something to do with protection of the child. It was also observed at times when a child went to touch or not touch something a parent considered dangerous, for example, a hot stove or a lawn mower. In addition this, this behaviour code seemed to occur if a child touched inappropriately a possession considered precious by the parent, for example, a special book set, an expensive vase, or a toy. For example:

The children have been fighting with their playing cards.
Mother, "Rosie and Robbie pack up. Get something else. Robbie have you got a book to read. No! (as he shakes his head). Get something else." Lorelei, "I'm playing with this," (of the playing cards.)

This example showed it was important in Lorelei's home to manage toys (in this case playing cards) in a particular way. From incidents such as this, children could build up a general behaviour code which indicated all apparatus, whether a toy or a tool of trade, had a particular way to be managed.

(c) **Events Have Particular Activities.** This was a behaviour code which was concerned with the appropriate timing of activities. In schools, there were general rules
about, for example, when to call out and when to stand which were right at some times and not at others. Children had to discover the correct times to act out such behaviours. In homes, these general rules usually referred to specific situations such as meal-times, television viewing times and bed-times. Meal-times were not usually a time to continue making a model. Bed-times were not times to begin to play. In school, timing was the most important element for correct action. At home the situation was the most important element. For example:

Michael is being very difficult. He is up and has had his breakfast. His mother is trying to dress him. He is bouncing up and down saying, "Bounce, bounce, bounce." His mother grabs him and says, "When you get dressed you can go outside and do all the bouncing you like."

From this and other similar events, Michael could build up a general behaviour code to do with correct actions in specific situations. No matter what the timing of dressing, Michael was not meant to be bouncing while he was dressing.

(4) Behaviour Codes Which Were Concerned With Pedagogy

Behaviour codes related to pedagogy occurred infrequently in most of the homes observed (see Table 26, p.323). Only 'the teaching of specific information' was identified in as many as eight homes. When pedagogical behaviour codes occurred, they appeared to be very much like the pedagogical behaviour codes identified in school. The structure of the behaviour codes identified was usually
Table 29

**Achievement at School and Behaviour Codes and Techniques Occurring in the Homes Observed**

<table>
<thead>
<tr>
<th>Achievement and Behaviour Codes</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td></td>
</tr>
<tr>
<td>Running records</td>
<td>( r = 0.85 )</td>
</tr>
<tr>
<td>Southland Mathematics Test</td>
<td>( r = 0.88 )</td>
</tr>
<tr>
<td>Concepts About Print</td>
<td>( r = 0.43 )</td>
</tr>
<tr>
<td>Letter identification</td>
<td>( r = 0.48 )</td>
</tr>
<tr>
<td>Word test</td>
<td>( r = 0.55 )</td>
</tr>
<tr>
<td>Biks and gutches</td>
<td>( r = 0.59 )</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>( r = 0.89 )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Achievement and Techniques</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td></td>
</tr>
<tr>
<td>Running records</td>
<td>( r = 0.78 )</td>
</tr>
<tr>
<td>Southland Mathematics Test</td>
<td>( r = 0.88 )</td>
</tr>
<tr>
<td>Concepts About Print</td>
<td>( r = 0.27 )</td>
</tr>
<tr>
<td>Letter identification</td>
<td>( r = 0.33 )</td>
</tr>
<tr>
<td>Word test</td>
<td>( r = 0.60 )</td>
</tr>
<tr>
<td>Biks and gutches</td>
<td>( r = 0.63 )</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>( r = 0.87 )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Achievement and Behaviour Code Types</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviour Codes</td>
<td></td>
</tr>
<tr>
<td>Specific Behaviour Codes</td>
<td>( r = 0.85 )</td>
</tr>
<tr>
<td>General Behaviour Codes</td>
<td>( r = 0.78 )</td>
</tr>
<tr>
<td>Pedagogical Behaviour Codes</td>
<td>( r = 0.84 )</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>( r = 0.89 )</td>
</tr>
</tbody>
</table>

| Child Options                      | \( r = 0.03 \) |

<table>
<thead>
<tr>
<th>Totals of Behaviour Codes and Techniques</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement and total Behaviour Codes</td>
<td>( r = 0.89 )</td>
</tr>
<tr>
<td>Achievement and Total Techniques</td>
<td>( r = 0.87 )</td>
</tr>
<tr>
<td>Achievement and Behaviour Codes and Techniques</td>
<td>( r = 0.91 )</td>
</tr>
</tbody>
</table>
modelled on the way a teacher was believed to act. For example:

[Kathy has been reading Heidi a story and then decides to teach Heidi to read.] Kathy, "What's that word?" (Heidi replies and tries to guess the words.) Kathy, "Joey was stand up and looking?" Heidi, "Joey." Kathy, "No." Kathy, "A." Heidi, "Looking." Kathy, "A - round." Kathy, "He went out to see the ...?" Heidi, "World." Kathy, "Good girl." (The two girls continue reading the story in this manner.) Heidi, "Can you read that one?" Kathy, "Sit still." Heidi, "Sit still (she repeats)." Kathy, "Sit still, sit still, said mother." (This continues until Heidi says,) Heidi, "I don't want to read the book." (Kathy closes the book.)

The Motivation. There was no direct motivation but Kathy had read a different story just immediately prior to deciding to teach Heidi. This could be considered to be a motivation although it is doubtful if Kathy saw a relationship between the two activities.

The Teaching of Specific Information. Kathy was attempting to get Heidi to recognise different words by pointing to them, getting her to fill in the missing word, repeating after her, etc. There was no consolidation or evaluation. The session ended when Heidi did not want to continue.

This script was similar to many in-school reading scripts. The goal was less specific, in that it appeared Kathy had only a vague goal of teaching Heidi something about reading, but the plan path was clear as it progressed
Figure 28. The relationship between school achievement and the number of school behaviour codes identified in the home data.

Figure 29. The relationship between school achievement and the number of school techniques identified in the home data.
Figure 30. Relationship between school achievement and the total frequency of behaviour codes and techniques
from one part of the story to the next. The emphasis on Heidi producing reasonable words continued throughout. Although two behaviour codes used in school were not observed in the homes in this study, there was nothing in the above which showed 'the motivation' and 'the teaching of specific information' were different at home from at school.

(5) The Child Options

Not all the children in this study had experience at home with the range of child options observed in the classrooms (refer Table 27, p.323). Only 'child instigated actions' was observed in all ten homes. One, 'child's eye on the teacher/adult', was observed only in two homes. The way each option functioned at home appeared to be little different from the way each option functioned at school. Therefore, the child options have not be redescribed here.

2. THE CORRELATION BETWEEN SCHOOL SUCCESS AND HOME BEHAVIOUR CODES AND TECHNIQUES

If children's success in school depends on children's exposure in the home to behaviour codes and techniques similar to those which children must cope with in school, then an estimate of each child's total exposure to these behaviour codes and techniques in the home should correlate with measures of each child's academic success at school. In order to find out if this is so, the number of different behaviour codes and techniques observed in each child's homes were added up (Table 28, p.323), and correlations calculated between these total scores and the results of the
Table 30

Achievement at School and In-School Techniques Occurring in the Homes Observed

<table>
<thead>
<tr>
<th>Basic Level Techniques</th>
<th>Correlations</th>
<th>no. of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>The direct simple request</td>
<td>no variation</td>
<td>10</td>
</tr>
<tr>
<td>The direct complex request</td>
<td>no variation</td>
<td>10</td>
</tr>
<tr>
<td>The indirect simple request</td>
<td>( r = 0.67 )</td>
<td>7</td>
</tr>
<tr>
<td>The indirect complex request</td>
<td>( r = 0.67 )</td>
<td>7</td>
</tr>
<tr>
<td>The contracted verbal request</td>
<td>( r = 0.15 )</td>
<td>9</td>
</tr>
<tr>
<td>The contracted non-verbal request</td>
<td>( r = 0.22 )</td>
<td>2</td>
</tr>
<tr>
<td>The question - verbal/non-verbal</td>
<td>no variation</td>
<td>10</td>
</tr>
<tr>
<td>The non-verbal signal</td>
<td>( r = 0.63 )</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Order Techniques</th>
<th>Correlations</th>
<th>no. of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>The demonstration</td>
<td>( r = 0.51 )</td>
<td>5</td>
</tr>
<tr>
<td>The ignoring</td>
<td>( r = 0.37 )</td>
<td>4</td>
</tr>
<tr>
<td>Standing nearby</td>
<td>( r = 0.66 )</td>
<td>4</td>
</tr>
<tr>
<td>The compliment</td>
<td>no variation</td>
<td>10</td>
</tr>
<tr>
<td>The reward</td>
<td>( r = -0.17 )</td>
<td>2</td>
</tr>
<tr>
<td>The punishment</td>
<td>( r = 0.04 )</td>
<td>2</td>
</tr>
<tr>
<td>Using children as correct models</td>
<td>( r = 0.37 )</td>
<td>2</td>
</tr>
<tr>
<td>Asking children to model the teacher</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>The redirection of individual thoughts</td>
<td>( r = 0.57 )</td>
<td>6</td>
</tr>
<tr>
<td>and ideas to fit in with the group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The redirection of individual to fit</td>
<td>( r = -0.15 )</td>
<td>1</td>
</tr>
<tr>
<td>in with the group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The redirection of individual to be</td>
<td>( r = -0.28 )</td>
<td>2</td>
</tr>
<tr>
<td>different from the group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The redirection of group activity</td>
<td>( r = -0.15 )</td>
<td>\textit{Sub-Category}\textsuperscript{a}</td>
</tr>
</tbody>
</table>

\textbf{Correlations}  
\textbf{no. of children}

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unison speaking/reading</td>
<td>( r = 0.62 )</td>
</tr>
<tr>
<td>Individual speaking/reading</td>
<td>( r = 0.66 )</td>
</tr>
<tr>
<td>Rhythmic movement</td>
<td>( r = 0.08 )</td>
</tr>
<tr>
<td>Silent reading</td>
<td>( r = 0.49 )</td>
</tr>
<tr>
<td>Printing and story writing</td>
<td>( r = 0.86 )</td>
</tr>
</tbody>
</table>

\textbf{Note:} \textsuperscript{a}A sub-category of the second order techniques. \textsuperscript{b}The number of children who were exposed to each technique in the homes observed.
Table 31

In-School Techniques Occurring in the Homes Observed Grouped into High and Low Correlations

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Correlations</th>
<th>no. of children a</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Correlations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printing and Story writing</td>
<td>r = 0.86</td>
<td>4</td>
</tr>
<tr>
<td>The indirect simple request</td>
<td>r = 0.67</td>
<td>7</td>
</tr>
<tr>
<td>The indirect complex request</td>
<td>r = 0.67</td>
<td>7</td>
</tr>
<tr>
<td>The individual speaking or reading</td>
<td>r = 0.66</td>
<td>3</td>
</tr>
<tr>
<td>Standing nearby</td>
<td>r = 0.66</td>
<td>4</td>
</tr>
<tr>
<td>The non-verbal signal</td>
<td>r = 0.63</td>
<td>5</td>
</tr>
<tr>
<td>The unison speaking or reading</td>
<td>r = 0.62</td>
<td>3</td>
</tr>
<tr>
<td>The redirection of thoughts and ideas</td>
<td>r = 0.57</td>
<td>6</td>
</tr>
<tr>
<td>The demonstration</td>
<td>r = 0.51</td>
<td>5</td>
</tr>
<tr>
<td>The silent reading</td>
<td>r = 0.49</td>
<td>6</td>
</tr>
</tbody>
</table>

| Low Correlations                        |              |                   |
| Using children as correct models        | r = 0.39     | 2                 |
| The ignoring                            | r = 0.37     | 4                 |
| The contracted non-verbal request       | r = 0.22     | 2                 |
| The contracted verbal request           | r = 0.15     | 9                 |
| The rhythmic movement                   | r = 0.08     | 4                 |
| The punishment                          | r = 0.04     | 2                 |

| Low Negative Correlations               |              |                   |
| The redirection of group activity       | r = -0.15    | 1                 |
| The reward                              | r = -0.17    | 2                 |
| The redirection of individuals to be    | r = -0.28    | 1                 |
| different from the group                |              |                   |

| High Negative Correlations              |              |                   |
| The redirection of individual to fit group | r = -0.45 | 2                 |

| No Variations                          |              |                   |
| The Question                            |              | 1.0               |
| The compliment                          |              | 1.0               |
| Asking a child to model a teacher       |              | 0                 |
| The direct simple request               |              | 1.0               |
| The direct complex request              |              | 1.0               |

aThe number of children who were exposed to each techniques in the homes observed.
Table 32

In-school Technique Types Occurring in the Homes Observed and School Achievement

<table>
<thead>
<tr>
<th>The teacher verbal - non-directive - techniques</th>
<th>Correlations</th>
<th>no. of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>The indirect simple request</td>
<td>$r = 0.67$</td>
<td>7</td>
</tr>
<tr>
<td>The indirect complex request</td>
<td>$r = 0.67$</td>
<td>7</td>
</tr>
<tr>
<td>The question</td>
<td>no variation</td>
<td>10</td>
</tr>
<tr>
<td>The redirection of thoughts or ideas</td>
<td>$r = 0.57$</td>
<td>6</td>
</tr>
<tr>
<td>to fit in with the group</td>
<td>$r = 0.37$</td>
<td>1</td>
</tr>
<tr>
<td>The ignoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$r = 0.46$</td>
<td></td>
</tr>
</tbody>
</table>

| Teacher directive controlling techniques        |              |                 |
| The direct simple request                       | no variation | 10              |
| The complex request                             | no variation | 10              |
| The contracted non-verbal request               | $r = 0.22$   | 2               |
| The contracted verbal request                   | $r = 0.15$   | 9               |
| The reward                                      | $r = -0.17$  | 2               |
| The punishment                                  | $r = 0.04$   | 2               |
| The redirection of group activity               | $r = -0.15$  | 1               |
| The redirection of individual to fit group      | $r = -0.45$  | 2               |
| The redirection of individual to be different   | $r = -0.28$  | 1               |
| from the group                                  |              |                 |
| **Total**                                       | $r = -0.20$  |                 |

| Teacher directed reading, writing activities    |              |                 |
| Silent reading                                  | $r = 0.49$   | 6               |
| Printing and story writing                      | $r = 0.86$   | 4               |
| Unison speaking or reading                      | $r = 0.62$   | 3               |
| Individual speaking or reading                  | $r = 0.66$   | 3               |
| **Total**                                       | $r = 0.82$   |                 |

| Total of teacher demonstration or modelling techniques |              |                 |
| The demonstration                                  | $r = 0.51$   | 6               |
| Using children as correct models                  | $r = 0.39$   | 2               |
| Asking a child to model the teacher               | no variation | 0               |
| **Total**                                         | $r = 0.64$   |                 |

| Total of non-verbal techniques not individual in Categories above |              |                 |
| The non-verbal signal                                | $r = 0.63$   | 6               |
| The standing nearby                                  | $r = 0.66$   | 4               |
| **Total**                                           | $r = 0.76$   |                 |

\(^a\) The number of children who were exposed to each technique in the homes observed.
of .54 is significant at the 10 percent level of probability this seemed a reasonable way to provide an initial identification of the more important correlations. In the following discussion, both the correlation coefficient and the scattergrams are taken into account in identifying those techniques and behaviour codes most clearly related, in a systematic way, to school achievement.

The techniques listed in Table 30 (p.331) were divided into two categories of positive correlations (those above \( r = 0.45 \) and those below \( r = 0.45 \), and two negative categories (those above \( r = -0.45 \), and those below \( r = -0.45 \)). There are more techniques among the high positive correlations (i.e. higher than \( r = 0.45 \), refer Table 31, p.334). It is possible that some of the techniques which appear to be the same in school and at home were valued by teachers more than the parents in this study. For instance 'printing' (\( r = 0.86 \)) correlates more highly than, for example, 'silent reading' (\( r = 0.49 \)); 'the non-verbal signal (\( r = 0.63 \)) correlates more highly than 'redirection of individual thoughts or ideas to fit in with the group' (\( r = 0.57 \)). 'Printing' is especially significant, because all four of the more successful children had experience with 'printing' at home, whereas the remaining six did not (Table 23, p.313). The active nature of 'printing' and the interactive nature of the 'non-verbal signal' compared to the internal mental nature of 'silent reading' and 'the redirection of individual thoughts or ideas to fit in with the group', suggests that something different is happening in these latter two techniques. The effects of 'printing' and 'the controlling non-verbal signal' are overt, whereas
the effects of 'silent reading' and 'the redirection of individual thought or ideas to fit in with the group', are covert. This suggests if children can demonstrate on the basis of their home experience that they understand what it is they are supposed to be doing during a school task, then there is enhanced opportunity for academic success.

Two other categories of techniques existed. These were:
(i) those techniques observed in all families;
(ii) those techniques not observed in any family in this study.

These two categories did not correlate with the achievement results (Table 31, p.334). This does not mean exposure to these techniques is not related to success in school. Rather it means because either all or none of the children in this study have been exposed to these techniques in the home, they began at school with equivalent exposure to these techniques.

A grouping of the techniques into the types of techniques identified in Chapter VI (i.e. basic level techniques, second order techniques and a sub-category of second order techniques) does not produce either consistently high, low or negative correlations (Table 31, p.334).

Another way of looking at the techniques was to group them according to the type of communication process involved (Table 32, p.335).
Table 33

The Child Options Occurring in the Homes Observed and School Achievement

<table>
<thead>
<tr>
<th>Options</th>
<th>Correlations</th>
<th>no. of children&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child's eye on the teacher</td>
<td>r = -0.14</td>
<td>2</td>
</tr>
<tr>
<td>Child changing own location</td>
<td>r = 0.31</td>
<td>6</td>
</tr>
<tr>
<td>Child modelling actions</td>
<td>r = 0.53</td>
<td>6</td>
</tr>
<tr>
<td>Child instigated actions</td>
<td>no variation</td>
<td>10</td>
</tr>
<tr>
<td>Defiant action</td>
<td>r = -0.48</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>r = 0.11</td>
<td></td>
</tr>
<tr>
<td><strong>Total without defiant action</strong></td>
<td>r = 0.30</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>The number of children who were exposed to each technique in the homes observed.

Table 34

Achievement and General School Behaviour Codes Occurring in the Homes Observed

<table>
<thead>
<tr>
<th>Behaviour Codes</th>
<th>Correlations</th>
<th>no. of children&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arriving</td>
<td>r = 0.61</td>
<td>8</td>
</tr>
<tr>
<td>Responding</td>
<td>r = 0.72</td>
<td>8</td>
</tr>
<tr>
<td>Sitting or standing</td>
<td>r = 0.61</td>
<td>8</td>
</tr>
<tr>
<td>Body position</td>
<td>r = 0.61</td>
<td>8</td>
</tr>
<tr>
<td>Speaking and not speaking</td>
<td>r = 0.82</td>
<td>6</td>
</tr>
<tr>
<td>Turn taking</td>
<td>r = 0.09</td>
<td>1</td>
</tr>
<tr>
<td>Speaking formula</td>
<td>r = -0.17</td>
<td>2</td>
</tr>
<tr>
<td>Voice tone</td>
<td>r = 0.20</td>
<td>4</td>
</tr>
<tr>
<td>Being topic conscious</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>Attention seeking</td>
<td>r = -0.007</td>
<td>4</td>
</tr>
<tr>
<td>Concentrating</td>
<td>r = 0.09</td>
<td>1</td>
</tr>
<tr>
<td>Noise consciousness</td>
<td>r = -0.31</td>
<td>1</td>
</tr>
<tr>
<td>Individuality of adults</td>
<td>r = 0.57</td>
<td>6</td>
</tr>
<tr>
<td>Children are children</td>
<td>r = 0.64</td>
<td>6</td>
</tr>
<tr>
<td>Signal consciousness</td>
<td>r = 0.47</td>
<td>3</td>
</tr>
<tr>
<td>Observing</td>
<td>r = 0.45</td>
<td>4</td>
</tr>
<tr>
<td>Behaviour code existence</td>
<td>r = 0.53</td>
<td>5</td>
</tr>
<tr>
<td>Events have structures</td>
<td>r = 0.82</td>
<td>5</td>
</tr>
<tr>
<td>Risking</td>
<td>r = 0.28</td>
<td>9</td>
</tr>
<tr>
<td>Modelling other children</td>
<td>r = 0.64</td>
<td>6</td>
</tr>
<tr>
<td>Listening then acting</td>
<td>r = 0.79</td>
<td>6</td>
</tr>
<tr>
<td>Teachers/adults control</td>
<td>r = 0.04</td>
<td>2</td>
</tr>
<tr>
<td>Watching the teacher/adult</td>
<td>r = 0.72</td>
<td>6</td>
</tr>
<tr>
<td>Listening to the teacher/adult</td>
<td>r = 0.65</td>
<td>5</td>
</tr>
<tr>
<td>Managing apparatus</td>
<td>r = 0.67</td>
<td>7</td>
</tr>
<tr>
<td>Events have particular activities</td>
<td>r = 0.75</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>r = 0.78</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>The number of children who were exposed to each technique in the homes observed.
(i) the total of all verbal - non-directive techniques correlates 0.46 with achievement;
(ii) the total of directive social techniques correlates -0.20 with achievement;
(iii) the total of directed reading, writing activities correlates 0.82 with achievement;
(iv) the total of demonstration or modelling techniques correlates 0.64 with achievement;
(v) the total of non-verbal techniques correlates 0.76 with achievement (note Table 32, p.335).

This grouping of the techniques produces a greater degree of similarity within each category. The highest correlations are for the total of ‘directed reading and writing activities’ \( (r = 0.82) \), and the lowest for ‘directive controlling techniques’ \( (r = -0.20) \). This is interesting because reading and writing are clearly the activities which are necessary for pedagogy. It has already been identified in Chapter II that mothers’ controlling language was not correlated with achievement in school (cf. McDonald & Pren, 1981). It is not surprising, then, controlling language identified in the home observations in this study, did not correlate with achievement.

Table 32 (p.335) shows that non-directive techniques, techniques associated with pedagogy (reading, writing activities), techniques to do with demonstrating and modelling and techniques that are non-verbal, have the highest correlations \( (r = 0.45+) \) with achievement in school.
### Table 35

**General School Behaviour Codes Occurring in the Homes, Reorganised**

<table>
<thead>
<tr>
<th>Behaviour Codes</th>
<th>Politeness Protocols</th>
<th>no. of children a</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arriving</strong></td>
<td>Correlations</td>
<td></td>
</tr>
<tr>
<td>Sitting or standing</td>
<td>$r = 0.61$</td>
<td>8</td>
</tr>
<tr>
<td>Signal consciousness</td>
<td>$r = 0.61$</td>
<td>8</td>
</tr>
<tr>
<td>Managing apparatus</td>
<td>$r = 0.47$</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$r = 0.68$</td>
<td></td>
</tr>
<tr>
<td><strong>Verbal Protocols</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking and not speaking</td>
<td>$r = 0.72$</td>
<td>8</td>
</tr>
<tr>
<td>Turn taking</td>
<td>$r = 0.82$</td>
<td>6</td>
</tr>
<tr>
<td>Speaking formula</td>
<td>$r = 0.09$</td>
<td>1</td>
</tr>
<tr>
<td>Voice tone</td>
<td>$r = -0.17$</td>
<td>2</td>
</tr>
<tr>
<td>Being topic conscious</td>
<td>$r = 0.20$</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$r = 0.49$</td>
<td></td>
</tr>
<tr>
<td><strong>Attending</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body position</td>
<td>$r = 0.61$</td>
<td>8</td>
</tr>
<tr>
<td>Concentrating</td>
<td>$r = 0.09$</td>
<td>1</td>
</tr>
<tr>
<td>Observing</td>
<td>$r = 0.45$</td>
<td>4</td>
</tr>
<tr>
<td>Listening then acting</td>
<td>$r = 0.79$</td>
<td>6</td>
</tr>
<tr>
<td>Watching the teacher/adult</td>
<td>$r = 0.72$</td>
<td>6</td>
</tr>
<tr>
<td>Listening to the teacher/adult</td>
<td>$r = 0.65$</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$r = 0.83$</td>
<td></td>
</tr>
</tbody>
</table>

**Knowledge of Behaviour Patterns**

| Individuality of adults                  | $r = 0.57$            | 6                 |
| Children are children                    | $r = 0.64$            | 3                 |
| Behaviour code existence                 | $r = 0.53$            | 5                 |
| Events have structures                   | $r = 0.82$            | 6                 |
| Events have particular activities        | $r = 0.75$            | 7                 |
| Teachers control                         | $r = 0.04$            | 2                 |
| **Total**                                | $r = 0.82$            |                   |

**Patterns for learning 'how'**

| Risking                                  | $r = 0.28$            | 9                 |
| Modelling other children                 | $r = 0.64$            | 6                 |
| **Total**                                | $r = 0.60$            |                   |

**Patterns for being 'good'**

| Noise consciousness                      | $r = -0.31$           | 1                 |
| Attention seeking                        | $r = -0.007$          | 4                 |

aThe number of children who were exposed to each technique in the homes observed.
Those techniques that do not have either a high positive or a high negative correlation \( r = -0.45 \) are all directive controlling techniques. It appears questionable whether a child's exposure to directive controlling techniques contributes to achievement in school.

When the total of three of the categories (verbal - non-directive - techniques; directed reading, writing techniques; demonstration or modelling techniques) are added together to form a new total, that new total correlates 0.87 with school success. This is the same as the correlation for the total of all techniques. This suggests that exposure to the techniques included in these categories alone would be sufficient exposure for school achievement.

(2) **The Child Options**

Only two options, 'child modelling actions' \( r = 0.53 \) and 'defiant action' \( r = -0.48 \) correlate with achievement in school (Table 33, p.338). The remaining three either do not correlate or show no variation. The options which correlate with achievement were observed in six children’s homes.

(3) **The Behaviour Codes**

More than two-thirds of the general behaviour code are correlated with achievement. This is different from the techniques in which less than half are related to achievement in school. Only eight out of twenty-six behaviour codes are not clearly correlated with achievement (i.e. 'turn taking' \( r = 0.09 \), 'speaking formula' \( r = -0.17 \), 'voice tone' \( r = 0.20 \), 'concentrating' \( r = 0.09 \), 'teacher's
### Table 36

**Specific School Behaviour Codes Occurring in the Homes and School Achievement**

<table>
<thead>
<tr>
<th>Behaviour Codes</th>
<th>Correlations</th>
<th>no. of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to sit</td>
<td>$r = 0.61$</td>
<td>8</td>
</tr>
<tr>
<td>How to follow instructions</td>
<td>$r = 0.75$</td>
<td>7</td>
</tr>
<tr>
<td>How to use apparatus</td>
<td>$r = 0.75$</td>
<td>7</td>
</tr>
<tr>
<td>How to respond with an appropriate social response</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>How not to be controlled by the teacher's behaviour codes</td>
<td>$r = 0.66$</td>
<td>2</td>
</tr>
<tr>
<td>When to contribute</td>
<td>$r = 0.64$</td>
<td>2</td>
</tr>
<tr>
<td>When to interrupt</td>
<td>$r = 0.64$</td>
<td>3</td>
</tr>
<tr>
<td>When to talk to a neighbour</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>When to call out</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>When to prompt</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>When to respond with an appropriate social response</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>When to attend</td>
<td>$r = 0.72$</td>
<td>5</td>
</tr>
<tr>
<td>When to bring things</td>
<td>$r = 0.72$</td>
<td>5</td>
</tr>
<tr>
<td>When to put a hand up or stand</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>When to stand or sit</td>
<td>no variation</td>
<td>0</td>
</tr>
<tr>
<td>Where to stand or sit</td>
<td>$r = 0.75$</td>
<td>7</td>
</tr>
<tr>
<td>Where to look and where to face</td>
<td>$r = 0.75$</td>
<td>8</td>
</tr>
<tr>
<td>Who to sit with</td>
<td>$r = 0.14$</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$r = 0.85$</td>
<td></td>
</tr>
</tbody>
</table>

*aThe number of children who were exposed to each technique in the homes observed.*
control' $r = 0.04$, 'risking' $r = 0.28$, 'noise consciousness' $r = -0.31$, and 'attention seeking' $r = -0.007$ (Table 34, p.338). These behaviour codes occurred in only one or two homes. The exceptions were 'voice tone' which occurred in four homes, and 'risking' which occurred in nine homes. One, 'being topic conscious', was not identified in the home data of any family in this study. All other general behaviour codes were clearly correlated with achievement (i.e., $r > 0.54$, $p < 0.10$).

Of the behaviour codes which correlate highly with school achievement ($r = 0.70$), three were identified in the home data of the top six or seven children, and not in the homes of the remaining three or four children. These three behaviour codes are 'speaking and not speaking' ($r = 0.82$), 'events have structures' ($r = 0.82$), and 'events have particular activities' ($r = 0.75$). Other behaviour codes that correlate very highly are 'responding' ($r = 0.72$), 'modelling other children' ($r = 0.64$), and 'watching the teacher' ($r = 0.72$). Some of these behaviour codes, for example, 'modelling other children', have been noted as important for learning in the literature (cf. Smith, 1982) but most have not. The correlation of the total of all behaviour codes with achievement is $r = 0.82$. This is similar to the correlation of achievement with the total for all techniques ($r = 0.87$), and considerably higher than the combinations for the two totals for the child options (total of all 'child options', $r = 0.11$; 'the revised total', $r = 0.30$; see Table 35, p.340).
Table 37

**In-school Verbal and Politeness Protocols Occurring in the Homes and School Achievement**

<table>
<thead>
<tr>
<th>Behaviour Codes</th>
<th>Correlations</th>
<th>no. of children</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>When to contribute</td>
<td>r = 0.64</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>When to interrupt</td>
<td>r = 0.64</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>When to talk to a neighbour</td>
<td>no variation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>When to call out</td>
<td>no variation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>When to prompt</td>
<td>no variation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>r = 0.49</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Politeness Protocols**

<table>
<thead>
<tr>
<th>Behaviour Codes</th>
<th>Correlations</th>
<th>no. of children</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to sit</td>
<td>r = 0.61</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>How to follow instructions</td>
<td>r = 0.75</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>How to use apparatus</td>
<td>r = 0.75</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>How to respond with an appropriate social response</td>
<td>no variation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>How not to be controlled by the teacher's behaviour code</td>
<td>r = 0.66</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>When to respond with an appropriate social response</td>
<td>no variation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>When to attend</td>
<td>r = 0.72</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>When to bring things with you</td>
<td>r = 0.72</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>When to put a hand up or stand</td>
<td>no variation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>When to stand or sit</td>
<td>no variation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Where to stand or sit</td>
<td>r = 0.75</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Where to look and face</td>
<td>r = 0.61</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Who to sit with</td>
<td>r = 0.14</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>r = 0.78</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*aThe number of children who were exposed to each technique in the homes observed.

Table 38

**School Pedagogical Behaviour Codes Occurring in the Homes and School Achievement**

<table>
<thead>
<tr>
<th>Behaviour Codes</th>
<th>Correlations</th>
<th>no. of children</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction and motivation</td>
<td>r = 0.86</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Teaching specific information</td>
<td>r = 0.61</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Consolidation</td>
<td>r = 0.45</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>r = 0.45</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>When is a task completed</td>
<td>r = 0.44</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>r = 0.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*aThe number of children who were exposed to each technique in the homes observed.
The behaviour codes could be divided into categories on the basis of the type of behaviour referred to in each behaviour code. These categories, and the behaviour codes they contain are listed below. The total of each child's exposure to the behaviour codes in each category was correlated with achievement. The correlations are set out in Table 35 (p.340).

(i) politeness protocols \( r = 0.68 \);
(ii) verbal protocols \( r = 0.49 \);
(iii) attending \( r = 0.83 \);
(iv) knowledge of behaviour patterns \( r = 0.82 \);
(v) patterns for learning 'how' \( r = 0.60 \); (see Table 35, p.340).

All except (ii) above, show statistically significant correlations, but those to do with attending \( (r = 0.83) \) and knowledge of behaviour patterns \( (r = 0.82) \) are clearly the ones with the highest correlations. 'Politeness protocols', 'verbal protocols', 'attending' and 'patterns for learning 'how'', are all observable in the same way. That is they are derived from observable interactions. 'Knowledge of behaviour patterns' is different. These behaviour codes were inferred from the observation data. The behaviour codes in this category appear to be indicators of a broader set of behaviours, which enable children to identify how immediate events interlock with past and future events. They enhance the children's perspectives of what is occurring.
Behaviour codes which were related to specific scripts show a similar pattern to the general behaviour codes (Table 36, p.342). More than half correlate significantly with school achievement. The one low correlation is for the behaviour code 'who to sit with' \( (r = 0.14) \). This behaviour code is observed in only one home. The four with the highest correlations are: 'how to use apparatus', 'how to follow instructions', 'where to look and where to face', and 'where to sit or stand' \( (r = 0.75 \text{ for all four}) \). These behaviour codes were observed in the homes of the seven highest achieving children and not in the homes of the remaining three.

The behaviour codes tied to specific scripts fall into two categories, on the basis of the types of behaviour they involved. These categories, with the behaviour codes which were included in them, are listed below:

(i) **Verbal protocols**, which included 'when to contribute', 'when to interrupt', 'when to talk to a neighbour', 'when to call out', and 'when to prompt'.

(ii) **Politeness protocols** which included 'who to sit with', 'how to follow instructions', 'how to use apparatus', 'how to respond with an appropriate social response', 'how not to be controlled by the teacher's behaviour codes', 'when to respond with an appropriate social response', 'when to attend', 'when to bring things with your', 'when to put a hand up or stand', 'when to stand or sit', 'where to stand or sit', 'where to look and face', and 'who to sit with' (Table 37, p.344).
The total of the politeness protocols is more significantly correlated with achievement.

The pedagogical behaviour codes observed in the home all show positive correlations with achievement (Table 38, p.344). These correlations are:

(i) introductions or motivations, $r = 0.86$;
(ii) teaching specific information, $r = 0.61$;
(iii) consolidation, $r = 0.45$;
(iv) evaluation, $r = 0.45$;
(v) when is a task completed, $r = 0.44$.

Exposure to the initial behaviour codes involving introductions and motivations is more highly correlated with achievement, than the behaviour codes related to other parts of the structure of a lesson. The way a learning activity is established may be particularly important for achievement. If children are not motivated at the beginning then the following pedagogical behaviour codes may lose significance.

3. SUMMARY OF THE ANALYSIS OF TECHNIQUES AND BEHAVIOUR CODES

As noted earlier, when all techniques and behaviour codes are combined, the correlation with achievement of 0.91 is greater than the correlation with groups or individual behaviour codes or techniques. This suggests it is exposure to the range of many different types of behaviour codes and techniques, on individual children, that is important for
Table 39

**Correlations between the major home experience variables and standardised achievement scores at five years and six years**

<table>
<thead>
<tr>
<th></th>
<th>Five years</th>
<th>Six years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Techniques experienced</td>
<td>0.73</td>
<td>0.87</td>
</tr>
<tr>
<td>Behaviour codes experienced</td>
<td>0.74</td>
<td>0.89</td>
</tr>
<tr>
<td>Techniques and behaviour codes</td>
<td>0.75</td>
<td>0.91</td>
</tr>
<tr>
<td>Family environment index</td>
<td>0.40</td>
<td>0.55</td>
</tr>
<tr>
<td>Read to</td>
<td>0.35</td>
<td>0.65</td>
</tr>
<tr>
<td>Total questions</td>
<td>-0.29</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Table 40

**Correlations between the major home experience variables and standardised achievement scores at six years corrected for achievement at five years**

<table>
<thead>
<tr>
<th></th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Techniques experienced</td>
<td>0.46</td>
</tr>
<tr>
<td>Behaviour codes experienced</td>
<td>0.51</td>
</tr>
<tr>
<td>Techniques and behaviour codes</td>
<td>0.51</td>
</tr>
<tr>
<td>Family environment index</td>
<td>0.29</td>
</tr>
<tr>
<td>Read to</td>
<td>0.40</td>
</tr>
<tr>
<td>Total questions</td>
<td>-0.05</td>
</tr>
</tbody>
</table>

![Graph showing the relationship between achievement at six years corrected for achievement at five years and the total number of types of techniques and behaviour codes experienced in the home.](image)

**Figure 31.** The relationship of change in school achievement to the total number of techniques and codes experienced in the home.
achievement in school. However, the analysis indicates some techniques ('teacher/adult verbal - non-directive techniques', $r = 0.46$; 'teacher/adult directed reading, writing activities', $r = 0.82$; teacher/adult demonstration or modelling techniques', $r = 0.64$) and some behaviour codes ('politeness protocols', $r = 0.68$; attending', $r = 0.83$; 'knowledge of behaviour patterns', $r = 0.82$), might be more important than others for achievement in school.

It might be argued there is an alternative explanation for the high correlation which exists between the children's exposure to behaviour codes and techniques in the home and their achievement in school, at the end of their first year. Those who hold the 'restricted codes' or limited 'language experience' model of school failure might suggest the effect of the home background is evident in the children's performance at the beginning of school (at five years), and thereafter either remained static, or progressively weakens as the school itself compensates for the effects of the home. If this is true, then the correlation between home variables (such as exposure to techniques and behaviour codes) should be highest at age five and remain either the same or lower at age six. Any changes in the children's relative success occurring during the first year at school, would not, on the 'restricted code' or limited 'language experience' model, correlate with the home experience.

The view taken in this study is that the home experience of behaviour codes and techniques do have a direct effect on how well the child succeeds in the first year at school. It is the child's adjustment to school, or
ability to understand and learn within the school classroom environment which is affected by the home behaviour codes and techniques, not just the ability and experience the child brings to school on the first day of school. If the view taken in this study is correct, then a different pattern of results should be evident from that predicted by 'restricted codes' or limited 'language experiences' studies. Behaviour codes and techniques should correlate with achievement at six years as highly, if not higher than they correlate with achievement at five years. In addition, there should be a correlation between the changes which take place in the children's achievement during the first year and the home behaviour codes and techniques.

Additional analyses of the data were carried out in order to test the relative validity of these two competing views. Table 39 (p.348) sets out the correlations occurring between the major home experience variables and school achievement at five years and at six years.

It is clear from the results reported in Table 40 (p.348) that there is no evidence of any 'fading' in the effect of the home experience variables between five and six years of age. In fact, the correlation between techniques and behaviour codes experienced in the home have a substantially higher correlation with achievement at six years than they do with achievement at five years.

Estimates were made of the changes which occurred in the children's achievement between the five year tests and the six year tests. This was done by predicting each
child's six year old achievement from their five year old test scores, using the regression equation from the correlation between the standardised achievement scores at five years with the standardised achievement scores at six years. These predicted scores were then subtracted from the children's actual six year old test scores. This difference between the two (the residual score) was taken as an estimate of each child's change in achievement from year five to year six, corrected for any effect of their relative achievement at five years. This residual score provided as clear a picture as was possible of the changes which took place in achievement during the first year of school, separated from the effects of the differences in achievement or ability which existed when the children arrived at school.

The correlations between these residual achievement scores and the home experience variables are set out in Table 40 (p.348). The pattern of the relationship between these residual scores and the total of both techniques and behaviour codes experienced is set out in Figure 31 (p.348).

It is clear from these data that the children's experience of the school-relevant techniques and behaviour codes is not only closely related to their achievement at six years of age, but is also significantly related to the changes in relative achievement which takes place during the first year at school. This relationship is independent of their achievement level on entry to school. By contrast with the techniques and behaviour codes, the family environment index does not show a significant relationship
with the change in performance during the first year at school.

So far what has been established is there is an apparent relationship between the total of the school relevant techniques and behaviour codes observed in the home and the measures obtained of school achievement at six years, and the progress in that achievement during the first year in school. This conclusion, although based on 'objective' evidence, comes from a sample of only ten children. In order to give this 'objective' conclusion credibility, a qualitative analysis of how variation in home experience (measured as school related techniques and behaviour codes) actually affected the children’s school experience on an individual case study basis is needed.
CHAPTER VIII

INDIVIDUAL-CHILDREN'S-EXPERIENCE

Up to this point, only the effect of exposure at home to techniques and behaviour codes on academic success has been considered. If exposure to techniques and behaviour codes is all that is important to academic achievement in school, then there would be no need to introduce the theory of schema in order to understand the relationship between the cultures of home and school. One reason why exposure to techniques and behaviour codes is related to school success may be because understanding and accepting the existence of techniques and behaviour codes gives the child an insight into the possible plan path the teacher is creating. This ability to recognise the teacher's plan path would then enable the child to identify the teacher's goal. Expectations about and recognition of a teacher's plan paths and goals gives a child a much larger and more coherent picture of what is expected of him/her in the classroom than simply knowing about the teacher's techniques and behaviour codes. If a child simply recognises and knows how to respond to the a teacher's techniques and behaviour codes s/he could appear to understand what is expected of him/her, but if s/he does not understand the larger picture which includes plan paths and goals, then s/he would never fully understand why s/he is being asked to do what s/he is doing. Because the exposure each child has at home to techniques, behaviour codes (and the particular clusters of these which
make up plan paths leading to particular goals), is unique to each child, then the way each child understands the teacher’s plan paths and the teacher’s goals is likely to be unique.

The following case studies of each of the children show that expectations about and recognition of techniques and behaviour codes are critical for success, but a child with a clear perception of teacher plan paths and teacher goals is more likely to succeed than a child with a broad experience of teacher techniques and teacher behaviour codes and unclear perception of teacher plan paths and teacher goals. It is true, however, that the broader the exposure is to a variety of techniques and behaviour codes, the greater the chances a child has of recognising the plan path the teacher is using and thus the better chance the child has of recognising the teacher’s goal in fine detail.

1. CASE STUDIES

(1) Chantelle

(a) Achievement At School. Chantelle’s achievement in both reading and mathematics was considerably below the other children of her age at six years of age. She had developed an understanding of the terms necessary for achieving at mathematics and she was still an emergent reader (Table 12, p.148). Her oral language (Appendix Table 3, p.423) lacked many features seen as necessary for higher achievement.
(b) **Home Interaction Structure.** There were relatively high levels of communication observed in the home (Table 5, p.121). Most of her communication was with non-family members and her mother (Table 5). It was possible this might help her to succeed in the classroom situation, where other pupils would take the place of the non-family members and the teacher take the place of her mother. Her low achievement suggested this was not the case.

(c) **School Techniques Observed at Home.** When Chantelle’s home scripts were analysed for the behaviour codes and techniques which occurred in school scripts, very few were identified (Table 28, p.323). The techniques which did occur in this home were 'direct requests', whether simple, complex or contracted, 'questioning', 'rewards' and 'rhythmic movement' (Table 28, p.323). All the children in the sample had exposure to 'direct requests' and 'questioning' techniques, so their significance for achievement could not be assessed. 'Contracted requests' \((r = 0.15)\), rewards \((r = -0.17)\) and 'rhythmic movement' \((r = 0.08)\) had very small correlation with achievement. The child options which act like techniques employed by children at school (Table 27, p.323), and used by Chantelle in the home to manipulate a situation for her own ends were 'child instigated action' and 'defiant action' \((r = -0.48)\). The former occurred in all homes. The latter was negatively correlated with achievement. The effect of 'defiant action' has already been discussed, but in this context it was particularly significant because it represented 50% of her coping mechanisms. The techniques and child options when
added together represented the lowest range of technique exposure for any of the children in this study.

(d) **School Behaviour Codes Observed At Home.** Chantelle had exposure in the home to one general behaviour code only which was the same or similar to the behaviour codes employed by teachers (Table 25, p.319). This behaviour code was 'risking'. Because this had only a low correlation with school success \( r = 0.28, \) Table 34, p.338), it was unlikely to have been an advantage to her when she was at school.

Chantelle's parents did not organise her day in any specific way, unless something that the adults had to do required Chantelle to be present (Table 8, p.128). The parents told the researcher they considered that to restrict her in any way would be damaging to her personality. They believed it was up to Chantelle to organise herself. This parental belief may account for the low number of behaviour codes to which Chantelle was exposed at home. The behaviour codes she did experience were consistent with a child being responsible for its own development.

There was a complete lack of any pedagogical behaviour codes and techniques (Table 28, p.323). It could be argued that this reflects the parents' expressed lack of interest in education and the fact that they did not succeed in school as well as they would have liked.

(e) **Questions.** Questions were an interesting category for all the children in this study. Question
styles were different from home to home. Some related more closely than others to the question styles of the classroom. They also gave insights into possible difficulties which children might encounter with plan paths and goals. In Chantelle’s case, the question style in the home appeared to be similar to those she experienced at school, but the subject matter was quite different. For example:

Mother, "Where’s your boyfriend?"
Father, "Is he still here?"
Chantelle, "Mm. But I slammed Penny’s hand in the door." (Silence by parents as they eye each other about this.)
Mother, "When?" After a non-response from Chantelle the conversation reverts to the boyfriend.

The parents were asking direct questions and expecting a response from Chantelle. Chantelle did respond in the same direct manner. She was allowed to avoid the answer when she did not know it. The boy referred to here had moved to a different town some time before this conversation. Because of other similar interactions and the results of these interactions in Chantelle’s data it was apparent, to the researcher, that Chantelle knew her answer was wrong. Because of this, she avoided the answer. The plan path of this communication incident, which included an out of context statement and a non-response by Chantelle, was quite different from the plan paths of school communication incidents. The lack of expectation of a relevant response to questions was quite different from expectations about the way questions were answered at school.

(f) Plan Paths and Goals. There was little in the above data to indicate that Chantelle had sufficient
exposure to school relevant techniques and behaviour codes prior to entering school, to help her construct the larger picture of plan paths and teacher goals. She had exposure to so few school-like techniques at home it was questionable whether she had any expectations about teacher behaviour codes. For this reason, much classroom behaviour must have remained a mystery to her. She possibly made some sense out of the classroom interaction patterns by the way in which the teacher noticed her actions in class. It was difficult to see how she could recognise, from the pedagogical scripts which guided the teacher's actions, the goal of a pedagogical script, especially if it required a high degree of inference. Her ability to draw attention to herself, to be defiant and to manipulate things to her own ends may have enabled her to attain some of her personal goals. However, the prognosis for school success was not good.

(2) Lorelei

(a) Achievement At School. At six years Lorelei was achieving half a year behind most New Zealand children in reading (Table 12, p.148). She was ranked third to last in relation to the children in this study. In mathematics (Table 12, p.148) she was ranked second to last in relation to the children in this study at six years. Her oral language (Appendix Table 3, p.423) was ranked fourth to last in relation to the other children.

(b) Home Interaction Structure. Lorelei, like Chantelle had very high levels of communication at home (Table 5, p.121). She was in communication with siblings
and non-family members (Table 5) more than all the other children in the study except for William and she had the highest level of non-verbal communication (Table 5). Given this high exposure to communication in the home it might have been expected that she would do well on the Record of Oral Language Test. Surprisingly, like Chantelle, she performed relatively poorly on this oral language test when tested at five years of age (Table 10, p.146).

Most of Lorelei’s home time was undirected. Her mother might have ordered her to hurry up when getting ready to go out or required her to sit at the table to eat. What occurred once Lorelei had complied with these orders was largely up to Lorelei. Lorelei’s mother said Lorelei was expected to do the right thing. From the observation data it appeared that the only means she had of learning these expectations, was by observation and modelling other children or adults.

Lorelei’s choice of games related mainly to playing mother or keeping house. She had television on a great deal but watched consistently only when she was sleepy. There was no selection of programmes. She selected to read her only book twice during the observation time, and showed that she had a good concept of story and knew, at four years of age, which direction the print in books was written. When playing with the older neighbouring children she played chasing or television related games. She played cards with her brother and sisters but had little concept of how card games operated. She seemed happiest when vacuuming or dusting the house. At no time was she observed playing
school. Even in her visits to kindergarten she played in the dolls' corner. Therefore the majority of her play experience must have related to home and family and not to school and work. School was a place where older children went but was not often talked about unless children were late. Work was a place mothers went and, if the play acting was a reliable indicator, when mothers went to work, younger children became upset. The reasons for school and work appeared to be unknown.

(c) **School Techniques Observed At Home.** An analysis of Lorelei's home scripts showed that only eight techniques used by teachers in class (Table 23, p.313) were observed in Lorelei's pre-school environment. These were 'the direct simple request' (common to all), 'the direct complex request' (common to all), 'the contracted verbal request' (r = 0.15), 'the question' (common to all), 'the silent reading' (r = 0.49), 'the compliment' (common to all), 'the redirection of individual activity to fit in with the group' (r = -0.45), and 'the redirection of individual activity to be different from the group' (r = -0.28). All the options children used were observed in Lorelei's pre-school environment. Although Lorelei had a wider exposure to school-like techniques than Chantelle, all but one of these (the silent reading) did not have any correlation, or were negatively correlated, with school achievement (e.g. the redirection of individual activity to be different from the group).
(d) **School Behaviour Codes Observed At Home.** No school behaviour codes were observed operating in Lorelei’s home.

(e) **Questions.** When Lorelei was five years old she encountered difficulty with questions. On one occasion the teacher was trying to encourage Lorelei to participate and so she asked:

> "What are you going to do tomorrow morning?" Lorelei looks at her fingers but does not answer. Within a couple of minutes the teacher asks, "Why did you bring the alphabet cards? Do you know?" Lorelei shakes her head. This series of questions continues.

During this incident, Lorelei looked more and more uncomfortable. She learnt very early during her time at school that she did not understand what the teacher wanted. How different is the following sequence from Lorelei’s home observations.

Mother, "How did you scratch your nose?"
Lorelei, "I did."
Mother, "Why did you do that?" (Lorelei laughs.)

She was not required to answer specifically, or even to sensibly. She did not expect this from her Mother, either as the following sequence shows:

Lorelei, "Do you know Robbin’s Mummy?"
Mother, "Who’s Robbins?"
Lorelei, "You’re squashing!" (to her sister).

(f) **Plan Paths and Goals.** Not only did Lorelei have a high non-verbal content in her home scripts, but the verbal content of her home scripts was different from school. Her home language environment lacked detailed
school behaviour codes; activities specifically related to particular time periods and specific locations; and most of the techniques teachers employ. School-related behaviour codes when they occurred, were usually brief and were really motivators or techniques to enable something to happen which involved all the children present, as, for example, when getting ready to go to visit someone or to go to the shops.

In Lorelei’s home communication, there was an emphasis on undirected time for children, a choice in activities if her mother’s needs and children’s needs came in conflict, and more child to child talk than adult to child talk. Techniques that were frequently employed but seldom observed at school were hugs and other forms of physical contact, as well as helping mother without her mother requesting help. Much of Lorelei’s learning was by observation and many hours were spent simply watching her mother’s or other people’s activities.

In order to recognise a plan path Lorelei had to depend on her powers of observation, her child techniques to manipulate the general behaviour codes and what little she could have interpreted from her limited exposure to teacher-type techniques and her minimal experience with specific school behaviour codes. Her perception of the structure of in-school scripts was likely to be quite different from a classroom teacher’s perception, and consequently expectations of teacher plan paths and goals were likely to be quite different. The difference between the home questioning style and the school questioning style was a case in point. The observations suggested Lorelei had only
begun to understand the social behaviour codes of the classroom at six years, and so had little idea of teachers' perceptions of the purposes of school. She appeared to be simply pleasing the teacher. If she learnt what reading and number was all about by so doing, that was an accidental by-product of the same process of pleasing the teacher. However, reading and number did not appear to be her main interest in school.

(3) **Jordan**

(a) **Achievement At School.** Because Jordan's mother took Jordan to Australia suddenly two weeks prior to his sixth birthday, it was impossible to test him at this time. Given that his ranking at five-and-a-half years was third in the reading running record tests and sixth in mathematics, it can be assumed that he was achieving at an average level for the children in this sample. His standardised six-year-old scores were calculated by extrapolation from his five-and-a-half year old results (Table 12, p.148).

(b) **Home Interactive Structure.** Jordan daydreamed or appeared not to concentrate at school. The teachers have put this down to stress in the home. It was true that stress existed through lack of money and the circumstances surrounding the departure of his step-father. There was also stress because Jordan did not appear to have resettled into the home after a lengthy absence. His mother and his brothers protected him so much he had not had a chance to settle in. Thus, stress did exist at several levels in his home.
Home levels of communication were low (Table 5, p.121). Jordan had the lowest number of communication incidents per hour (5.94, Table 4, p.121) for any of the children in this study in his home environment. This was not surprising, because he also had the lowest level of time in communication with anyone in the home environment (Table 5). It was possible his lack of attention at school was due to the higher levels of communication which occurred in school compared to Jordan’s home. He might have been unused to focusing his attention outside himself for long periods.

(c) **School Techniques Observed At Home.** An analysis of Jordan’s home scripts showed that he had more teacher techniques in his home scripts (Table 23, p.313) than Chantelle and Lorelei. Of these, three (‘the indirect simple’ and ‘complex requests’ and ‘the redirection of individual thoughts or ideas to fit in with the group’) were correlated with school achievement, one (‘the redirection of an individual activity to fit in with the group’) was negatively correlated with achievement in school, and seven were not correlated with achievement in-school. He did not have the high number of child options that Lorelei had, and he seldom chose to use these at school.

(d) **School Behaviour Codes Observed At Home.** Jordan had exposure to thirteen general behaviour codes (Table 25, p.319), which was far higher than Lorelei and Chantelle. Three specific school behaviour codes, ‘where to look and where to face’, ‘how to sit’, and ‘where to sit or stand’, were correlated with achievement in school (Table 36, p.342). All the general school behaviour codes he was
exposed to were also correlated with school achievement (Table 35, p.340). This may have provided him with the experience he needed to understand in-school scripts and the goals that teachers might have had.

(e) **Questioning.** That Jordan’s home interactive structure was different from classroom interactive structures can be seen by the following example:

Jordan’s mother says, "What were you making there, Jordie?" Jordan, "I got Shane’s motor." This is said defiantly while he eyes Shane waiting for a reaction. When there is no response their mother leaves the room.

The mother does not expect an appropriate response from Jordan, while in school an appropriate response would have been expected. The incident would not have been left in this unfinished manner.

(f) **Plan Paths and Goals.** It was clear from the variety of school techniques and school behaviour codes which Jordan was exposed to in the home that he had the experience necessary to work out what was required of him at school. The general school behaviour codes which were highly correlated with school achievement must have been of special help. Nevertheless, there was a possibility he might not have been able to perceive the teacher’s goals accurately, although he would expect the teacher to have plan paths. Jordan had been living away from his family for most of the year prior to his fourth birthday. The observation period was a period of resocialisation into the family, and he did not appear to have to work out goals for himself.
(4) Geraldine

(a) Achievement At School. Geraldine was achieving half a year behind most children (Table 12, p.148) of her age in reading. In this she was on a par with Lorelei. She was achieving below Lorelei in mathematics. This meant she was considerably below most children in this study. Although Geraldine was in specific communication in the home (Table 5, p.121) over fifty percent of the time, this did not help her achievement in oral language at school (Appendix Table 3, p.423).

(b) Home Interactive Structure. Geraldine's home interactive structure was very pleasant. She was listened to and she listened to anyone who talked with her. Table 6 (p.121) shows there were few occasions in which she was ignored, and many occasions when she understood what had been directed at her. Her home pattern was unusual in that her step-father communicated with her more frequently than the fathers of the other children in this study (Table 5).

(c) School Techniques Observed At Home. An analysis of Geraldine's home interaction structures showed her experience with teacher in-school techniques was limited (Table 23, eight techniques in total, p.313), these were scattered across all types of techniques. However, only one of these ('the demonstration') was correlated with school achievement.

(d) School Behaviour Codes Observed At Home. Geraldine's exposure to specific school behaviour codes
(Table 24, six behaviour codes, p.315) was slightly higher than Jordan's but her exposure to general school behaviour codes (Table 25, 10 behaviour codes, p.319) was slightly lower than Jordan's. All six of the specific behaviour codes, and eight of the general behaviour codes, were correlated with achievement in school. This meant she had a reasonable variety of experience in her background to enable her to recognise teacher plan paths and goals. However, her low achievement level suggested this was an insufficient variety of exposure, to enable her to do this with sufficient clarity to understand the nature of school activities. Emphasis in the home on behaviour codes to do with being friendly and being attentive to a neighbour, may have got in the way of her understanding the specific goals of in-school communication incidents. This concern with friendship at the expense of achievement activities, was supported by the classroom observations which showed Geraldine was frequently in a supportive, caring role towards others. This might have been the explanation for why Geraldine was exposed to a similar range of behaviour codes to Jordan, but achieved less well at school, especially in reading.

(e) Questions. There were a variety of questioning techniques operating in the home, but the most frequent style was closely aligned to what could be considered useful in school. For example:

Mother, "What's that?"
Geraldine, "Giraffe."
Mother, "What's that?"
Geraldine, "Horse."
Mother, "What's that?"
Geraldine, "Goat."
Mother, "No. Camel."
This continued for all the animals which were shown at the introduction to a television programme.

Although the questions and replies were briefer than was usual in school, Geraldine was required to answer quickly and appropriately in the way that she would be expected to in school. This should have helped her, and possibly did.

(f) Plan Paths and Goals. Geraldine’s exposure at home to school-like behaviour codes and techniques, was limited. This may have lessened her ability to recognise clearly, the plan paths and the goals of the teacher in school. The communication incident illustrated above suggested Geraldine may not have been required to make any significant inferences in her communication in the home environment. Home goals had more to do with being nice to people, being attentive to their physical needs and assisting in any physical way possible, than they did with the more abstract or conceptual goals of school. These home behaviour codes operated very easily at school, but when they did, they may have interfered with Geraldine recognising that school scripts, techniques and behaviour codes have a structure that relate to school purposes.

(5) Kerry.

(a) Achievement At School. Kerry was achieving a little below the children in this group in reading and a little above in mathematics (Table 12, p.148). At six years
his achievement in oral language showed he was ranked first equal to Sam in proficiency of verbal language use among these children (Appendix Table 3, p.423).

Kerry was in frequent conflict with the teacher. This led both to praise and reprimands. His level of praise and reprimands nearly reached that of Chantelle although he was told off more frequently than praised. Although he was achieving above the average at six, the pattern of behaviour which he was developing to cope with the culture of the school system could make it difficult for him to maintain the same level of achievement throughout his school years.

(b) Home Interactive Structure. There were some differences in the way specific language was used in Kerry’s home from the more successful children’s homes. Questions relating to time were more frequent (Table 2, p.118) than in all the other children’s homes in this study. Phrases explaining a particular item were far more frequent in Kerry’s home than in Michael’s, Kirstie’s or Heidi’s households. More time was spent by his mother in teaching him than in all other households.

(c) School Techniques Observed At Home. Kerry was extended at home in a way which should have led to school success. Kerry had exposure to thirteen school techniques at home, but of these only five were correlated with school achievement. However, this represented a wide range of school techniques within his home environment. His child options (Table 27, p.323) gave him a sufficient range to adapt to new situations.
(d) School Behaviour Codes Observed At Home. An analysis of Kerry’s home communication showed the only area of communication which was markedly different in style from the most successful children was the area of specific behaviour codes (Table 24, five behaviour codes, p.315). Kerry’s specific behaviour codes at home were half as varied as, for example, Heidi’s, and this lack of variety may have affected his overall knowledge of school scripts. Although all four of these behaviour codes were correlated with achievement in school, the lack of variety was similar to the lack of variety experienced by the less successful children in the sample. Like them, he may not have experienced sufficient variety to help him fully understand school activities.

(e) Questions. The style of questioning was closely aligned to expectations of questions and responses in school. This can be seen in the following example:

Kerry is doing a jigsaw puzzle.
Kerry, "I’m starting down there."
Mum, "You’re starting from down there, are you?"
Kerry, "I’m going to start there then go all round the board."
Mother, "That’s a good place to start."
Mother, "What colour is his shirt?"
Kerry, "Orangy."
Kerry, "Which is Lee, Mum?"
Mother, "I don’t know."
Kerry, "This is Lee, Mum."
Mother, "That one could be like Lee."
Mother, "What do you think might be missing from there?"
Kerry, "The girl’s arm?"
Mother, "Yes, a bit of the girl’s dress."
Mother, "Well, you need to find a piece with her dress on."
Mother, "Magic!" when all the pieces fit.
Kerry’s mother expected sensible responses and encouraged him by acknowledging when he was correct, while giving additional information which enabled him to see what was happening with greater clarity. From this he must have been able to build up a structure of a plan path and some idea of a pedagogical goal.

(f) **Plan Paths and Goals.** There were two aspects of Kerry’s home experience which might have prevented him from becoming a high achiever. These were the lack of variety in his home experience of school related behaviour codes, and his expectation that he ought to be able to talk to his teacher as often as he talked to his mother. From Kerry’s statements to the researcher about teachers, it was clear that he decided very early on at school that he did not want to be there because the teacher did not want to listen to him. His perception of lack of attention from the teacher had a major effect on him. The narrow range of school-like behaviour codes experienced in his home gave him an inadequate base from which to understand the scripts of the school sub-culture. He knew enough to feel that he understood it all. This may have prevented him from trying to understand what was not going right for him. It would have been reasonable for him to view any misunderstandings as the teacher’s problem and there were indications that that was what he did. This meant he was likely to misinterpret the teacher’s goals and thus to come in conflict with the teacher.
(6) Heidi

(a) Achievement At School. Although Heidi's performance on the oral language test (Appendix Table 3, p.423) gave her a middle ranking for oral language, she was the highest in this sample of children in reading and second equal in mathematics (Table 12, p.148). Her teachers consistently described her as bright throughout her first year of school. At the end of her first year her class teacher described her as the most intelligent child in the class. The test results showed her to be achieving at a similar level to Kirstie and Michael. The teacher's comments may have been based on a combination of both her achievement and her personality. She showed by her in-class interactions that she knew the system so well she could manipulate it to suit her own ends (note the example on p.189 where Heidi spent very little of the mathematics time doing the required task, and was not noticed by the teacher; and again in Appendix 4, p.429 where she maintained control of her 'Noddy' in a very physical way but at a time when the teacher was unable to notice her).

(b) Home Interactive Structure. Heidi had a relatively low level of specific communication time (Table 5, p.121) at home and so she had no expectation that teachers would respond immediately to her requests or comments. She had to share her mother and father with her older sisters. This meant she had no high expectations of the amount of time the teacher 'owed' her.

In addition, the older children in the family often put her in a school play situation where they required her
to do spelling, write stories in exercise books or on a blackboard, and to read along with them.

(c) **School Techniques Observed At Home.** An analysis of Heidi's home scripts showed she had the highest range of experience of school-like techniques (Table 23, 18 techniques, p.313). Five of the seven school techniques which were not identified in Heidi's home data did not correlate with school achievement. Only two of the techniques which were not identified in Heidi's data, 'the non-verbal signal' and 'unison speaking and reading', did correlate with school achievement. Her three child options (Table 27, 'changing own location', modelling the teacher’s or children’s actions', and 'child instigated action', p.323) identified in the home data could be used to quietly manipulate the system to her own ends, as illustrated in the examples given above.

(d) **School Behaviour Codes Observed At Home.** Heidi experienced a wide range of school behaviour codes at home (Tables 24, p.315; 25, p.319; 26, p.323). Six of the seven specific behaviour codes that were not observed in Heidi’s home were not observed in any other home in this study. The only other specific behaviour code not identified in Heidi’s home did not correlate with achievement in school. Of the seven general behaviour codes not identified in Heidi’s home, six did not correlate with achievement in school and one was not observed in any home in this study. There was also frequent experience of all the pedagogical behaviour codes (Table 26, p.323) used in school.
(e) Questions. The question style at home was interesting, because it was as varied as the situations in which the questions occurred. For example:

Mother, "Well, Pumpkin I suppose I'd better think of doing something now." (Heidi is drawing.)
Heidi, "Why?"
Mother, "Breakfast. Don't you want any breakfast?"
Mother, "Are you going to take me for a ride in that aeroplane?"
Heidi, "Oh Mum."
Mother, "Oh I thought you would." (Heidi giggles.)
Mother. "I could have pretended."

A different style was seen in the following:

Mother, "Where are these books?"
Karen, "I know where number two is,"
Mother, "There are three missing. You are to go and get the rest of them. Heidi. You are to go and get them." (She looks in an authoritative way and Heidi goes and looks.)

In the first example, her mother was at first talking as much to herself as she was to Heidi. This then changed into a surreal situation because of the mother's question. Heidi was not expected to answer sensibly in either situation. She was allowed to answer obliquely. In the second example, there was no question as to what kind of response Heidi's mother wanted from Heidi. These were Heidi's books, and three were missing. Action was expected. Because of past experience Heidi probably knew what was expected of her before her mother explained at length. This experience may have helped Heidi to know some kinds of questions must be taken seriously, and responded to seriously, and others are of a different order.
(f) Plan Paths and Goals. It was apparent from the data (Table 28, p.323) that Heidi's home interactive structure was rich with the kinds of scripts which were found in school. School was not the new experience for her that it was for the first four children discussed above. She had sufficient exposure to school techniques and behaviour codes to be able to interpret what was happening within a school script without too much effort.

(7) Kirstie

(a) Achievement At School. Kirstie's achievement was similar to Heidi's (Table 12, p.148). She was slightly lower in reading, but higher in verbal performance. Neither of these children's relatively low home specific communication times (Table 5, p.121) showed negative results in academic achievement.

(b) Home Interactive Structure. Kirstie's mother encouraged her slightly less than Heidi's mother, ordered her slightly less than Heidi's mother and elicited language and action slightly more than Heidi's mother (Table 3, p.118).

(c) School Techniques Observed At Home. Kirstie's home communication environment was similar to Heidi's, although her range of techniques (Table 23, p.313) was slightly lower than Heidi's.

(d) School Behaviour Codes Observed At Home. Kirstie's exposure to specific behaviour codes was slightly narrower than Heidi's (Table 24, eight behaviour codes,
p.315) but her exposure to general behaviour codes was slightly broader (Table 25, nineteen behaviour codes, p.319).

(e) Questions. There was a difference in question styles, but still a variety of question styles in Kirstie’s home. Most of Kirstie’s home question styles related to school question styles. For example:

Kirstie, "This is the cup you drink out of. So don’t you wipe that away," to her small brother. Mother, "Is there anything here he can swallow?" Kirstie, "Yes. There’s a little top." (Kirstie picks it out and gives it to her mother.)

This was a purely functional question and required a purely functional response. Kirstie did this. An example of a different question inference was seen in the following:

Mother, "Have you got two books?" Kirstie goes and gets two books. Kirstie, "These two Mum?" Mother nods.

Kirstie had responded to what appeared to be a functional question with a question. She has learnt that the obvious response was not always the correct response and so some questions needed verification. Both these questioning styles and other styles of questions which occurred in Kirstie’s home could have helped her understand how to handle questions in school.

(f) Plan, Paths and Goals. The patterns of both Kirstie’s and Heidi’s home interactive structures suggested that it was the variety, rather than the specific structures, which was the important feature. For almost all
the children, school achievement was higher when there was a large variety of techniques and behaviour codes experienced in the home environment which were the same or similar to the techniques and behaviour codes experienced in school. This wide variety of techniques and behaviour codes may enhance a child's ability to interpret the plan paths and goals of specific in-school scripts, and consequently give them a better understanding of the activities they are required to do in school. Both Heidi and Kirstie's home communication environments have this variety.

(8) William

(a) Achievement At School. William's achievement tended to be in the middle range for this group in reading and mathematics (Table 12, p.148), although his verbal communication skills were the second highest in this group (Appendix Table 3, p.423).

(b) Home Interactive Structure. William had a very high communication level at home. His mother's stating, eliciting or ordering was similar to those of Michael's mother (Table 3, p.323). It was interesting to note there was a difference between William and Michael in that parental requests of William were more frequent than questions.

(c) School Techniques Observed At Home. An analysis of William's home communication showed the total of the school techniques and behaviour codes, he experienced in the home, placed him approximately in the middle of the children in this sample (Table 28, p.323). William had exposure to
thirteen school techniques, the same number as Kerry. Of these, six were correlated with school achievement. One child option only was identified in William’s data (Table 27, p.323).

(d) School Behaviour Codes Observed At Home. William had exposure to ten specific school behaviour codes (Table 24, p.315). Eight of these behaviour codes were correlated with achievement in school. Although he had exposure to eighteen general behaviour codes (Table 25, p.319), seven of the eight behaviour codes which were not observed in William’s home correlated with school achievement.

(e) Questions. William’s questions were limited in style to mainly functional questions which were expected to be acknowledged in some way. For example:

Mother, "William?"
William, "Mm?"
Mother, "Did you put the cabbage on the bench for me?"
William, "Mm."

(f) Plan Paths and Goals. William’s ranking in achievement at school was approximately the same as his ranking in exposure to school-like techniques and behaviour codes at home, for this sample of children. It appeared his exposure to behaviour codes and techniques was not sufficient to enable him to formulate a clear picture of teacher plan paths and goals. His achievement ranking may have been limited because he may have been unsure what the teacher perceived the purposes of classroom activities to be. His classroom observations supported this because, although he was always willing to perform a task and to
attack it with vim and vigour, he often appeared to be 'locked in' to part of the set activity rather than progressing through the whole of the activity.

(9) Sam

(a) Achievement At School. Sam ranked below William in all the tests for achievement in school (Table 12, p.148 & Appendix Table 3, p.423). In fact his reading was approximately equal to Chantelle’s.

(b) Home Interactive Structure. Sam’s specific communication time was very high (Table 5, p.121) and included an added feature which required yelling by mother and child when they were in different locations. For example:

Sam has found a slug. Sam, "Mum! Mummy can you go inside and bowl?" His mother goes and opens the back door and bring a bowl out to him and returns indoors. Sam, "Mum! Mum! I’m going to get him on a plant. Mummy, has he got a mouth?" Mother from indoors, "Has he got a what?" Sam, "Mouth." Mother still indoors, "Oh, yes. He has to have a mouth to eat but you can’t really see it because it is so little."

In this example Sam’s mother did not want to stop Sam from exploring just because she had to do the dishes inside. The simple answer was to yell. It caused some problems in communication, but Sam continued to explore. There were many similar examples of situations in which there was a necessity to yell throughout Sam’s home observations.

This practice of yelling increased the communication time between mother and child. Sam had the second highest amount of communication time with his mother of all the
children in this study. Despite the high level of communication within Sam's home, the total range and variety of communication styles was similar to Jordan's (Table 5, p.121).

(c) **School Techniques Observed At Home.** Sam had slightly higher exposure to school techniques than Jordan (Table 23, fourteen techniques; p.313). Only six of these were correlated with achievement in school.

(d) **School Behaviour Codes Observed At Home.** Sam had considerably less exposure to specific school behaviour codes than Jordan and slightly higher exposure to general school behaviour codes than Jordan (Table 24, p.315, two specific behaviour codes 'where to face' and 'how to sit'; Table 25, p.319 fourteen general behaviour codes). Of the latter, ten were correlated with school achievement. This range of experience coupled with his expectation of being able to talk to anyone no matter when and no matter where (a practice he continued at school despite opposition from teaching staff), meant that he was likely to be in conflict with the teacher more than other children.

(e) **Questions.** The type of questions which came Sam's way at home were many and varied. However, he was not expected to answer them in a way which would have been acceptable at school. In fact he was not always expected to answer them at all. For example:

Sam, "Mum, will you have a game of swing-ball?"
Sam asks this politely.
Mother, "Well! I suppose so. Where's the bat?"
Sam gets it.
Mother, "Oh missed! Oh!" As Sam swings at the
ball.
Sam, "Will you hit it hard?"
Mother, "Will you get it if I hit it hard? No.
I'll hit it lower. Want to go to the toilet boy?
How's that? That'll do, eh?"
Sam, "Eh?"
Mother, "That will do."
Sam, "I going to hit this way."
Mother, "Well you can hit it by yourself."
His mother puts the bat down and goes inside.

This excerpt was typical of the question styles of Sam's communication environment.

(f) **Plan Paths and Goals.** It was difficult to find out how Sam decided what was happening at school. He was so busy communicating with himself or anyone who would listen to him, he hardly had time to attend to the structure of the teacher's interactive behaviour. Sam experienced a large number of positive and negative comments at school. This unusual amount of negative feedback about his actions suggested his pattern of yelling at home may have caused him problems at school. If the yelling pattern was a problem in the behavioural and not the pedagogical sphere, this meant the combination of the lower range of school techniques and behaviour codes were the only consistent factors which might prevent him from interpreting accurately the structure of specific scripts in school. If this was so then it was this inaccurate interpretation which lowered his success rate.

(10) **Michael**

(a) **Achievement At School.** Michael was achieving at approximately the same high level as Heidi and Kirstie in reading and mathematics, although he was better than both of them at mathematics (Table 12, p.148). Even his verbal communication was similar (Appendix Table 3, p.423). In
school he was timid and did not want to draw attention to himself. His teachers did not view him as being as bright as Kirstie and Heidi. They recognised his lack of self-esteem, and tried to build him up with praise. He was praised more than five times as often as he was reprimanded, although his self-esteem appeared to remained low despite this.

(b) **Home Interactive Structure.** The amount of specific communication with Michael in the home was slightly greater than Heidi and Kirstie but not nearly as high as the majority of other children in this sample (Table 5, p.121). Michael was like Heidi in the amount of and type of communication he chose to ignore (Table 6, p.121). In this they both differed from Kirstie. His mother spent far more time stating, ordering and eliciting than either Kirstie’s or Heidi’s mothers (Table 3, p.118).

(c) **School Techniques Observed At Home.** Michael’s home interactive structure was similar to both Kirstie and Heidi’s (Table 28, p.323). The variety of techniques he experienced was slightly lower than Heidi’s and higher than Kirstie’s (Table 23, sixteen techniques, p.313). All but one of the techniques not identified in Michael’s home data were either not correlated with achievement, or negatively correlated, with achievement in school. The only technique which correlated with achievement in school which was not observed in Michael’s home was ‘the standing nearby’. ‘Defiance’ as a child option was used by Michael at home in addition to the other techniques which Kirstie and Heidi used (Table 27, p.323).
(d) School Behaviour Codes Observed At Home.
Michael's experience with specific school behaviour codes was slightly less than Heidi's and the same as Kirstie's (Table 24, eight behaviour codes, p.315). His experience with general behaviour codes (Table 25, nineteen behaviour codes, p.319) was minimally less than Kirstie's and the same as Heidi's. There was a slight difference in communication styles within these families. There was only a minimal difference in the academic achievement.

(e) Questions. Michael's home questioning techniques were varied and were similar to school. For example:

Michaell, "What's that?"
Mother, "That is the shank of the meat."
Michael, "I'll give this to the cat."
Mother, "Where is Blackie?"
Michael, "I don't want to feed the horse."
Mother, "You don't want to feed the horse?"
Michael, "No can't."
Mother, "Do you want a banana?"
Michael, "Mm. I'll leave it 'til later. I have to do some gluing."

The data showed that Michael was familiar with the questioning techniques common in the sub-culture of the school system.

(f) Plan Paths and Goals. There was nothing in Michael's data which did not fit the theory that success in the first year classroom was dependent on having pre-school experience with a wide range of in-school techniques and behaviour codes. The combination of these appears to form an initial structure which enables the plan paths of scripts
to be identified and this identification appears to enable goals to be recognised.

2. CLASSROOM SCRIPTS REVISITED

(i) School Scripts

This analysis of the ten families in this study indicates some of the children were failing in school because they did not experience, in their homes, the same types of scripts which were identified in the classrooms in this study. The scripts occurring in some families lacked the range and variety of classroom behaviour codes. In other families there was a lack of range and variety of classroom techniques.

The analysis of the data shows the occurrence of pedagogical activities in the home is not as closely related to success in the first year of school, as the occurrence of some of those behaviour codes and techniques which are the same as, or similar to, the classroom behaviour codes and techniques.

It is not essential for children to have had prior experience, before entering school at five years, of all the behaviour codes, nor even all techniques which they will experience in the first year classroom. What seems to be important is that they have experience with a majority of these behaviour codes and techniques. The wider the range of experience a child has of these behaviour codes and
techniques the better the child will succeed in the classroom.

It is apparent that experience of specific techniques in the home is more effective when the techniques are used in a way which is similar to the way the techniques are used at school. An example of this was seen in the way children experience questioning techniques in the home. When a parent uses open questions and the child is expected to respond in a logical fashion, the child has a greater chance of success in the school system than a child whose parents do not appear to expect, and do not get, a logical response. It is possible this principle applies to all techniques to some extent. Because of the emphasis which is placed on questioning techniques in school the researcher looked at these particular technique more closely.

This analysis of some children's script experiences suggests the greater the range of experiences a child has with events and activities, the greater the opportunity a child has to comprehend pedagogy. For example, a child like Lorelei who was observed for up to three hours at a time staring vaguely at a television programme, has fewer opportunities for interaction outside herself. This must limit the experience of a variety of new techniques and behaviour codes. In Lorelei's case this appears to be so. Lorelei, at home, had the second lowest number of in-school technique and behaviour code experiences in this sample of children (Table 28, p.323). However, a variety of events and activities is only useful if these experiences give greater exposure to a variety of script experiences.
The effect of extremely low exposure to school techniques and behaviour codes is seen in the cases of Lorelei and Chantelle. This may not mean it is impossible for these children to eventually understand the plan paths of in-school scripts. What it means is it will take considerably more time, than for children with high exposure to school-like scripts at home, to understand the purposes of school activities and adapt their activities and energies accordingly.

(b) **Goals.** Goals are the reason for a specific communication incident. It is the ultimate expectation or collection of expectations, which derives from the script director's belief system. There is evidence the participants in a communication incident can act appropriately within a script and not all hold the same goals. However, this makes participation in the script more difficult. For example, a child who is accustomed to frequent communication with mother in the home appears to transfer the expectation that frequent communication is possible with the teacher in the classroom. This is not normally possible because the teacher is dealing with at least twenty children and possibly has more than thirty children. A child who enters school with the expectation of frequent conversation with the teacher, will not understand why the teacher cannot respond to him/her in such a way. This did not appear to affect William adversely, perhaps because there were so few children (7 at the beginning and 11 at the end of the year) in the class for most of the
first year. But it was one of the factors which affected both Kerry and Sam. It was possible, however, for these children to hold minor differences in expectations within a script and still understand the total script.

From the teacher's perspective the most important goals were those concerned with pedagogy. These were not, however, the goals most frequently identified in the classrooms in this study. The most frequently identified goals were those to do with classroom organisation. The need for order seemed to override the requirements of pedagogy.

It is not clear if the overriding need for order is a function of class numbers or class organisation. One class was observed where the organisation of the class was different from the other classes in this study. In this class the children were given management of what they were to do rather than the teacher retaining control. This meant that in some circumstances children took responsibility for order and for pedagogy. For example, a news activity and some number and reading lessons occurred in groups directed by children. However, the case study child from this study, Geraldine, was only in the class for three months. There was not sufficient time to find out if in these circumstances pedagogy became more important than order. An analysis of the observations made of Geraldine in the class indicated that the children's behaviour codes were more flexible than those used by the teacher but there was no indication that more pedagogical scripts occurred.
It should be remembered the classes observed were first year classes. The emphasis on order may have been because the children were new to school. If this is so then the major goal of the first year classroom may be the transmission of the school culture (enculturation) to these children so that they become socialised into the system. There is evidence that a particular format may be used specially in order to transmit the specifics of order. This is seen most clearly in type one mat-time where the most behaviour codes to do with order were identified. Children from homes where parents do not see the specific organisation of children as important, and so do not experience a variety of scripts which have goals concerned with order, will misinterpret a large part of their classroom experience. An example of this is seen in the case of Chantelle and Lorelei. They lacked experience of scripts with ultimate goals of order. Lorelei's concepts of order were concerned with the needs of living in a house and raising children, (cleaning, dusting, bathing, feeding). Chantelle's experience of scripts concerned with order were limited to those in which she organised herself. From her perspective, this usually meant how well she could attract the attention of others. These are very different way of achieving order from those described in the analysis of in-school scripts.

There are many places where comprehension of a script can break-down, and this break-down is not readily identifiable by either the teacher or the children. Teachers rarely have experiences with alternative ways of communicating, and so do not understand the difficulty the
children may be having. Children do not know when there is a communication break-down because of their lack of experience with some of the component parts of the scripts. Both the teachers and the children may not see what is occurring because they are 'culture blind' to each other's perspectives (cf. Jackson, 1979). This is probably what children mean when they say teachers are not able to 'see' what is happening within a classroom or to specific children. The way children react to specific techniques can mask whether they understand or do not understand.

There was an overriding goal which the teacher's had for all general behaviour codes. This was for order to be maintained in the classroom. The specific meaning of what an organised classroom was might have varied from teacher to teacher. Some teachers used all of the in-school behaviour codes which were listed in the in-school script analysis. Others used only some of these behaviour codes. However, the children were expected to respond in the way each behaviour code required.

The way each child perceives the teacher's goal or goals is important for comprehension of the script. Children may not perceive when the goals which occur at home are the same or different from the goals which occur at school. Each of the children in this study appeared to identify the goals of scripts in school through the goals they were familiar with at home. Chantelle was expected to develop her own personality and not to be restricted. She translated this into a behaviour which had the goal of drawing attention to herself. In contrast, Lorelei's
behaviour at school reflected a pattern of avoiding adult attention. This was what she did at home. Jordan understood enough of what happened in the classroom to know the teacher had a goal of maintaining order. Maintaining order was an important goal in his home. In addition he had personal goals of wanting to be liked and accepted. Geraldine understood enough of the in-school techniques and behaviour codes to know the teacher had a goal of maintaining order. Because she recognised this goal she acted appropriately in the classroom within six months of starting school. The goals of pedagogy were not considered important to her because they were not important in her home. She appeared to know them at six but it was unclear whether this was because she applied her understanding of the goals of order to the goals of pedagogy, or whether it was a sensitive classroom environment she experienced for three months, or the special interest her step-father had in pedagogy. What was clear was that although she understood the pedagogical goals of the classroom at six years she had not made use of this understanding in a way which affected her success rate in the classroom. The lack of flow-on to success may be because she had an overriding goal of socialising with other people. This goal did conflict with most teachers in-class goals and so it was reasonable to consider it interfered with Geraldine's success rate.

It appeared Heidi's, Kirstie's and Michael's experience of scripts in their homes provided them with sufficient information to have an excellent understanding of the teacher's goals of maintaining order, and of pedagogy. All of these children had sufficient knowledge on entry to
school to cope very well with classroom scripts. On the other hand Sam’s observations provided evidence he did not understand, even after one year at school, why it was his teacher had a goal of maintaining order. In contrast to Sam, William appeared to understand the teacher’s goals. His home communication environment included goals of order and goals of pedagogy particularly when he was inside the house.

3. THE ROLE OF SCHEMA

It is now possible to examine the role of schema. Schema are generalised structures, held in the mind of the actors in a script, which have been learned from past exposure to scripts. Therefore any repeated structured action within a script becomes a schema if it enhances meaning. Schema provide scripts with a context. This is because a specific script is better understood when it can be associated with similar past scripts. If a script is totally unfamiliar it can only be understood in terms of the specific techniques and sequence of behaviour codes which make up the script on each specific occasion. If no association is made with other scripts there can be no specific expectations, and nothing can be learned from the experience. Differences experienced only once or twice will be ignored. If differences, no matter how minor, recur regularly then knowledge of the script will be adapted to incorporate the differences. This learning may be registered as flexibility of structure within a particular set of scripts or parts of scripts. If the flexibility
becomes too great or if it becomes apparent some of these seemingly similar scripts or parts of scripts meet differing goals or expectations, then the set of scripts or parts of scripts will be sub-divided into new schema structures. It is this schema structure which allows for the development of a hierarchy of social interaction concepts.

It is possible for specific techniques to form schema. For example the statement, "Backs straight," is recognised because when the teacher has used this statement before, other children have stretched their backs up and held their heads high and squared their shoulders. On occasion, the one with the straightest back this position can create, has been complimented, while curved backs have been reprimanded. The collective of all these related techniques go together to enhance the meaning of, "Backs straight." Similarly this past experience with, "Backs straight," engenders a behaviour code which is in the teacher's mind. The children learn through repeated related techniques that, in a particular situation or at a particular time, they will be required to sit in a particular way. This behaviour code forms part of another behaviour code concerning the whole position of the body. Continued experience with a part behaviour code will engender the whole behaviour code. A schema is created concerning correct sitting positions. Both the behaviour code and expected responses become part of a schema through association with past experience. Thus schema can, and do occur, at any level of structure. The further removed a schema is from the surface structure (script), the closer it is to the level of sub-cultural and cultural ideology.
Because schema are multi-levelled it is possible for a child to have in mind several levels of schema, but not to be able to understand the whole picture. For example a child may recognise how and when to sit (specific behaviour code), and identify that the teacher believes the sitting position to be important (general behaviour code), but not recognise the teacher connects this with the goal of maintaining order. Alternatively, a child may recognise that teachers believe answering questions achieves a goal of sharing understanding, but not understand how and when teachers expect questions to be answered (specific behaviour codes). Lack of structural past experiences (schema) which enable recognition of the component parts and the totality of in-class scripts by the child will lead to the break-down of effective communication between teacher and child.

The evidence suggests (for example in Heidi’s, Michael’s and Kirstie’s home scripts) the wider the range of experience is with in-school scripts the fewer the communication break-downs will occur, and the greater the understanding of what is occurring in-school. This makes sense. A broad experience range within a specific area generates more complex syntactical structures against which each communication encounter can be tested. If a script is not immediately recognised, it will be interpreted in the light of similar schema structures until such time as a new schema is formed. For example, Kirstie was not observed to have had pre-school experience with individual reading. She had many experiences in being read to, owned many books of her own, and had the goal of learning to read herself. When
she first arrived at school, and was asked to read alone, it was possible she used her schema of being read to to make sense out of reading activities, in the belief this schema would help her to learn to read like her mother and father (her stated expectation of why children go to school). She had an existing schema, and an appropriate goal to help her develop a schema for learning to read. On the other hand, Lorelei had little experience with reading of any kind. Her mother was never observed reading, and Lorelei possessed only one book. Her main pre-school experience with reading was from the few occasions when she attended kindergarten. She told the researcher that reading occurred at school, and that she would learn to read at school. That this required participation by her could not have been learnt at home. Consequently she had no reading schema to attach any of the reading related activities at school to other than a concept of a story. She had a far more complex task to understand what she was supposed to do when asked to read alone. To her reading 'happened'. Her perception could only be it was not 'happening' to her. Until she developed a schema incorporating the 'happening' of reading she had nothing to use to understand or guide new experiences.

Schema are important to give greater definition to a communication experience. They provide understanding. They are underlying the syntactical structure of communication. They are the bridge between action and ideology and may themselves form part of that ideology.
4. THE ROLE OF THE ENCULTURATION AND ACCULTURATION PROCESS AND ACHIEVEMENT AT SCHOOL

If scripts are the sequence of actions and the structure underlying this sequence of actions (i.e. techniques, behaviour codes, plan paths and goals) in a communication incident and schema provide understanding of scripts then scripts and schema together appear to be the mechanisms by which children learn to understand. If scripts and schema are the mechanisms by which children learn to understand, a critical issue is what exactly do children learn to understand. Whatever they learn to understand appears to affect achievement in some significant way. In school there appear to be both pedagogical scripts and social scripts. If the achievement rates of the children in this study are primarily concerned with the understanding of a particular body of knowledge to do with the school curriculum then it would be expected that the pedagogical scripts and their associated techniques and behaviour codes would be concerned with the content of the particular subject matter to be understood. It is clear from the pedagogical behaviour codes that this is not the case. For example, on page 253, in the example where the teacher asks Lorelei for the letter 'apron' begins with, the teacher's expectation appears to be for an appropriate response to the question not a correct answer. At the time of this observation Lorelei had only been at school three days and so could not possibly be expected to give a correct answer. Even the behaviour code most concerned with content information (i.e. The Teaching a Specific Body of Information) appears to have an emphasis on attending and
responding in the most appropriate way rather than the understanding of a particular body of curriculum content knowledge.

What then are the children learning to understand? It appears the children are learning to understand the culture of the school system. The understanding of this culture is so important it appears it must occur prior to learning to understand any content of a particular subject matter. This is assumed to be so because, as noted earlier, school culture consists of:

[The] forms of consciousness, knowledge, sentiments of values that teachers use as part of their cultural repertoire in schools....The 'social' is composed of a number of overlapping discourses that are characteristics of schools everywhere (cf. Sacks & Smith, 1988, p.423).

That is culture is the dichotomy between the observable phenomena and largely unconscious structures (cf. Frake, 1961; Wallace, 1962). This is seen very clearly in the dichotomy between the techniques and the behaviour codes (note: 'the direct simple request' versus 'how to sit' or 'the contracted non-verbal request' versus 'when to contribute'). The techniques, if seen in isolation, are about immediate action. The behaviour codes have deeper implications. For example, a 'direct simple request' can be made in any social situation anywhere but 'how to sit' within the context of the classroom is grounded in the teacher's perceptions and beliefs about the way a child should sit in a particular situation in school. Hence the constant interplay between observable actions and the 'knowledge, sentiments, and values' of the teacher.
This process of learning to understand then is a process of learning to understand a culture. This is the classic definition of the enculturation process described earlier (cf. Keesing & Keesing, 1968, p.338). However, the particular enculturation process described in this study is a process associated with only one sub-culture within an industrialised society. It is a particularly powerful process because all children from the entire society between the ages of seven and fifteen, must successfully apply the process in order to achieve within this sub-culture. For some children, at least, success requires a complete change in patterns of interaction. This implies a changes in 'knowledge, sentiment and values' which is so great personal 'knowledge, sentiment and values' must be drastically modified (i.e. acculturated). This is the case for children like Chantelle, Lorelei and possibly even Geraldine, in this study. Chantelle and Lorelei, in the least, show little aptitude or inclination to modify their central beliefs to the extent required and their achievement rates are consistently low. Perhaps a much better system of education would be a system which is sufficiently flexible it is able to accommodate all children without requiring any to become acculturated (cf. Cole & Bruner, 1972; Erickson & Schultz, 1977 & 1981; Au & Mason, 1981; Heath, 1983; Erickson, 1986).

5. SUMMARY

This analysis of the data observed in the study indicates exposure to techniques and behaviour codes is important for achievement at school. However, this exposure
is not sufficient if a child does not understand recognising the techniques and behaviour codes is important in order to identify the message for children which underlies the actions of teachers. This message is the reason why teachers use specific technique and behaviour code structures in the first place. If a child, such as Chantelle or Lorelei, has no idea that this message exists, and that they should be trying to decipher it, they are not be able to succeed in the system. They are not able to begin to understand what the purpose of their attending school is from a teacher’s perspective. If a child like Kerry has a wide range of techniques and behaviour codes, but most of his behaviour codes are general behaviour codes, then he will have a false sense he understands classroom scripts. He will understand the generality but not the specific goals which are important to teachers. It appears there is little difference if these teacher goals are to do with the social order of the classroom, or the pedagogical purposes of schools. The effect is still the same. Such a child will not reach the same level of academic attainment as a child who knows the system as well as, for example, Heidi. Thus it is the recognition of the whole structure of specific scripts which becomes important for successful achievement in schools.
CHAPTER IX

IN CONCLUSION

The research question of this study was concerned with why it is that some children fail while others succeed at school when these children come from apparently similar home backgrounds (i.e. apparent similarity of housing, language, dress, family structure, shared concepts of socialisation and education, etc.) and appear to have similar abilities (i.e. they are able to demonstrate the understanding of information important to themselves). The results show that children with superficially similar backgrounds and abilities may have significantly different family structures. However, this difference alone does not provide complete explanation for difference in achievement. It is true that there is a broad relationship between socio-economic status, cultural difference and school achievement. But these differences do not account for the differential achievement of individual children. The research problem which derives from the research question is to discover if children from apparently similar home backgrounds achieve differentially because they have different understandings of the patterns of interaction and the interaction structures which occur in classrooms. The reason suggested for this is that the patterns of interaction and the interaction structures which occur in homes - while transmitting cultural and sub-cultural values
and ideologies - operate in specifically and significantly different ways.

The research question and underlying problem derived from informal classroom observations and a research background in the fields of anthropology and linguistics. This meant that the research question was approached in a different way from former studies. The literature review has shown that the principles on which this study were based were found scattered throughout many different studies. Only Heath's study (cf. 1983) addressed the same problem from a similar perspective. However, Heath looked for solutions in social structure and specific language factors, not in patterns of interaction and interaction structures.

Obtaining data which contained naturally occurring patterns of interaction implied it was necessary to collect data in the natural home environments and the natural school environments. This was done by making continuous narrative observational recordings of the sequences of activities which occurred in the homes and in the schools. In this way the researcher's prior beliefs had a minimum of influence on the specific information recorded.

In order to determine how each child in the study was achieving in school subjects, each child was tested upon entry into school, and again at five-and-a-half years and at six years of age. The tests used were those which the schools in the study were using at that time to determine a child's academic progress. Teachers' comments about each
child's individual achievement were also recorded (cf. data triangulation, Denzin, 1978).

The sample of children included in this study comprised a cohort of children living in a small satellite town who turned four years of age during the first week of observations in each home. These children were selected from the records of the only pre-school dental clinic in the town. All, but one child, with adjacent birth dates and who were living in the vicinity of the town from that particular age group, were included. The range of family, social, economic and cultural characteristics proved to be wide enough to provide a reasonable cross-section of family conditions in New Zealand.

A number of different methods were explored before it was decided to analyse the data using theoretical constructs from schema theory (cf. method triangulation, Denzin, 1978). For example a home environmental index was created which included some phenomena which were not included in the HOME Scale (cf. Caldwell & Bradley, 1979). The results of this analysis were disappointing in the sense that, although this new scale was developed from the study data (cf. grounded method, Glaser, 1978), it did not provide a better index of those home experience factors influencing school success than the HOME Scale. In fact both the HOME Scale and the Family Environmental Index proved to be very similar in their ability to predict school achievement (The HOME Scale, \( r = 0.68 \); The Family Environmental Index, \( r = 0.55 \)).
The theoretical constructs of schema theory, and in particular the 'conceptual primitives' of Schank and Abelson's schema theory (cf. 1977), were explored because they created a method of providing a replicable description of social behaviours which could also be used to compare specific components of cultural or sub-cultural systems. The data did not 'fit' Schank and Abelson's conceptual primitives as closely as had been at first believed and so a theory was devised which derived from the data (cf. grounded theory, Glaser, 1978). An analysis of a number of classroom communication incidents demonstrated that when the communication incidents were analysed using these new theoretical constructs they could be used to 'make sense' out of classroom patterns of interaction and their underlying structures. This preliminary data analysis led to a more detailed analysis of the observational records of the classroom experience of the case study children.

The analysis of the sequences of activities which were recorded in the classroom showed that similar communication incidents tended to occur in specific locations and at specific times. Four of these time and location periods were examined in more detail. They were: three types of mat-time periods and seat-work time. They were chosen for being the types of time and location periods which occurred most frequently in the classrooms in this study. Once these time and location periods were identified, they were then broken down into specific scripts. Each script consisted of techniques, behaviour codes, plan paths and goals. Because it was postulated that the techniques and behaviour codes were what children
used to discover the teacher's plan paths and goals, these were analysed in some detail. This analysis indicated that classroom patterns of interaction and their underlying structures were highly complex, and that understanding them was something of a puzzle which each child had to solve in order to identify the purpose and structure of classroom activities. The home observation data were analysed for the occurrence of scripts which were similar in structure and purpose to those which occurred at school.

It was assumed that this exposure would provide the children with the knowledge of the schema the children would be exposed to in scripts occurring in the school. With this in mind, the home data were analysed for school-like behaviour codes and techniques. These behaviour codes and techniques were the most readily quantifiable components of school scripts. Because of this, and because it was hypothesised that exposure to techniques and behaviour codes enabled a child to identify a teacher's plan paths and goals, it seemed reasonable to take the total of all the school-like behaviour codes and techniques a child was exposed to in the home as a measure of the child's knowledge of, and ability to understand the patterns of interaction and underlying structures which the child must deal with in school. If knowledge and understanding of in-school scripts were related to achievement in school, then the total number of different behaviour codes and techniques the child was exposed to at home should have correlated significantly with school achievement. A total school achievement score based on the standardised scores of the different school tests
correlated 0.91 with the total of school related techniques and behaviour codes the children were exposed to at home. This correlation, coupled with the case study analysis which showed it was possible for children to misinterpret plan paths because of their beliefs about teacher goals (or to misinterpret teacher goals because of their beliefs about teacher plan paths), indicated it was highly likely some children had difficulty achieving in school because of the differing script structures they were exposed to at home. The schema they brought to school were different. Therefore, the puzzle they had to work with when they were trying to identify what they had to do, was much more complex than for those children whose schema was similar to in-school scripts.

These results do not imply the homes of children in this study who are less successful lack sufficient behaviour codes and techniques. The behaviour codes and techniques in each home differ because the goals and, therefore, the plan paths to those goals are different. This means there are techniques and behaviour codes which occur in some homes which do not occur within classrooms. All the children in this study have experience with sufficient techniques and behaviour codes in their homes to enable them to understand what is occurring within their own family networks of relationships, their own family subcultures.

This study has a number of limitations in its attempt to explain success and failure at school. It does not address what 'learning' actually is. It is quite apparent
that there is a process different from the processes studied in this project which operates to enable children to learn how to learn specific content and skills of school subjects. This study focuses on the generalised 'interaction' processes which occur in classrooms and not the specific content 'learning' processes. This study does not address the teaching of specific skills or the learning of specific curricular requirements. It shows, however, that something quite different from traditional curriculum 'learning' affects children's success or failure in classrooms.

The findings of this study agree with Leichter (cf. 1978) that the school system is not adapted to any social class per se but to specific family processes. However, it is true that children are more likely to succeed if their parents have succeeded at school. And it is likely that parents who have succeeded at school all derive from similar social backgrounds (cf. Coleman, et al., 1966; Bisseret, 1979; Gumperz, 1981; Gottfried & Gottfried, 1984).

Because many individual families operate significantly differently within any group of people defined by one or two critical variables such as occupation, income or educational level, a category such as social class can only relate to achievement at school in a generalised way. This generalised relationship also applies to groups defined by ethnicity (cf. Deyle, 1986; Plewis, 1987). Individual children who are ethnically different from the majority of children can do well in
school (cf. Brewer & Haslam, 1987). The results of this study indicate that it is not the difference in ethnicity that causes school failure for a majority of ethnically different children. It is the difference in the enculturation process of the family versus the enculturation process of the school classroom which causes this failure. This agrees with Gottfried and Gottfried's concept of indirect 'quality of social relationships (cf. 1984, p.10)' where 'quality' is taken to mean a difference in the type of social relationships. It could possibly explain why Au and Mason's 'participation structure comfortable to the children (cf. 1981, p.149)' and Erickson and Shultz's concept of 'comembership (cf. 1877 & 1981, p.176)' appear to allow children to achieve despite the difference in ethnicity. In addition to this it may be what underlies the importance of a child's cognitive formulation of a classroom task which Doyle has found is critical for success in school (cf. Doyle, 1983, p.3).

The consistent success rate reported by Au and Mason (cf. 1981) may indicate that the learning styles (i.e. enculturation processes) of some ethnic minority have less variation of learning style than in others. This may be what Ramirez and Castaneda (cf. 1974) and Laosa (cf. 1977) describe as the uniqueness of the learning styles of some ethnic groups. If all families within some ethnic groups are consistent in their enculturation processes and these processes are very different from the school classroom enculturation processes than it would be very difficult for such groups to succeed at school. Cummins' view of 'empowering students ' through 'non-semantic and semantic
processing (cf. 1986, p.7)' would then become critical for such children. Cummins' view is very close to the results of this study. He believes that achievement is dependent on the degree of 'fit' between home patterns of interaction and school patterns of interaction. Students are 'empowered' to the degree that the school patterns reflect the home patterns of minority of students. In fact the lack of accounting for such differences could be what Jackson refers to as 'racial blindness' (cf. 1979), Bernstein saw as 'restricted codes of language' (cf. 1961) and Blank saw as the need for particular 'language experiences' (cf. 1975).

This present study agrees with Erickson's view (cf. 1986, p.135) that schools can have different patterns of interaction from homes. Renwick pointed to differences in emotional patterns between home and school of the beginning school experiences of children in New Zealand and that these differences occurred across different social classes. She did not relate these differences to ethnicity. Heath (cf. 1983) demonstrated through examining three different sub-cultures, that these patterns extended to socio-linguistic patterns and specific beliefs (e.g. beliefs about politeness, timing, discipline). Feldman (cf. 1987) demonstrated how understanding of a cognitive task could be reconstructed through systematic analysis of a dialogue. These and many other studies pointed to the importance of patterns of interaction and their underlying structure for achievement in school. Through studies such as these, the researcher's own background experiences and the data themselves the researcher was led to examine these patterns
and to use the theoretical constructs of schema theory to help maintain consistency.

The theoretical constructs of schema theory have provided this study with a tool for focusing on specific components of classroom interaction related to achievement in school. They have provided a framework for the analysis of what can be seen and heard in classrooms, and for people's expectations about what is meant to happen. They have demonstrated that classroom activities contain coded messages which people who know the code can interpret quickly. Those who do not know the code have to find a way to decode this new form of message. The theoretical constructs of schema theory have enabled the results of this study to demonstrate that the expectations which people bring with them into a new situation matter.

The difficulties of learning a special code are obvious when a person speaks a different first language or has an obviously different ethnic background. It is far more difficult to discover what differences are causing difficulty for children when they have apparently the same background of ethnicity, socio-economic status, religion, etc.

In most human settings the components of scripts are largely unconscious. They become conscious only when a problem occurs. The problem is usually dealt with as a problem of expectations or misinterpretation of expectations, and not as a problem with the process of communication. If it is dealt with as a problem of
expectations or misinterpretation of expectations then it is seen as a problem for the receiver of the communication and not for the sender. If the problem is dealt with as a problem with the process, then the problem is seen as accommodation of the process to fit both the sender and the receiver of the communication. The problem becomes a mutual problem which requires accommodation from both sides for mutual understanding.

The results of this study have profound implications for education. What schools can do about it may be limited. Two important questions are raised by the differences which have been found between the schema which operate in some homes and those which operate in schools. At first glance these seem obvious questions but despite the climate of schools today which invite parents to be more involved in schools there is little evidence to support the notion that there is a change in the classroom processes. The two questions are:

1. Should schools be more like homes?
2. Should homes be more like schools?

To change home behaviour codes and techniques to be school-like assumes the superiority of the school. Changing home structures in this way would surely lead to a loss in creativity and diversity within our culture. It would be a great loss to New Zealand if a solution was found which involved teaching all families to change to be more like schools. Schools are responding to values which appear to be imposed because of political and economic needs and not necessarily the needs of pedagogy. This leads us to a more significant question which underlies these two questions.
and which, if an answer can be found, may help to answer the above questions. That is:

3. Why are school scripts the way they are?

It would be very difficult for teachers to change their scripts to suit all the variety of home scripts (schema) that exist. It is hypothesised that teachers could simplify their classroom interaction structures by having fewer behaviour codes. However it is apparent that the reason for many of the behaviour codes is the size of the class and the need for order with so many children. Teachers are already being told that they do not maintain sufficiently ordered classrooms. Greater acceptance of difference in behaviour patterns is a possible answer, but when the interaction structures which cause problems are largely unconscious, this still does not solve the problem. More overt communication of what is expected in the learning activities would seem reasonable if all techniques and behaviour codes concerned with learning activities were explicitly known. Even if the schema and other language factors of each teacher and child were closely matched, there would be some children who would be disadvantaged. It would be next to impossible to identify adults and children with the same kinds of script expectations.

The difficulty in the way of an easy solution is that the processes identified in this study are largely unconscious. This means that little change can occur, unless courses are devised for teachers which enable them to identify their own unconscious structures and processes and which provide techniques to recognise when these
structures and processes are causing difficulties for specific children in their classes. Such courses should include ways of deciding whether specific structures and processes are really necessary within each specific classroom. The problem the teacher must deal with is individual family difference. The solutions will be different for each combination of teacher and child within each classroom.

If the analysis undertaken in this study is correct, then the problem of failure within our school system is not just a problem of families not teaching their children appropriately. Children can, and mostly do, act appropriately within their own families. There is a mismatch, however, between the interaction patterns of some homes and schools. This may occur whether the parents were successful at school or not. It can occur regardless of whether the parents are able to provide few or many material items. It is largely independent of socio-economic status. It is probably not independent of ethnicity, but, within New Zealand society, ethnicity is not easy to identify. Appearing to be Maori does not necessarily mean that a person was brought up within Maoridom. Appearing to be Pakeha does not mean that a person is not Maori. People can appear to be non-Maori New Zealand and be brought up as Scottish, English, French, Italian, etc. All ethnic differences may create a difference in home interaction structures.

If we become sensitive to individual differences and the recognition that there is a New Zealand culture, a
variety of Maori tribal cultures and other ethnic differences, then we will be on the way to creating mutual understanding. Perhaps the immediate action that can be taken by schools is to ensure that children all experience a variety of teaching 'styles' within their school day when children start school (e.g. active programmes where order is taught mainly by example, structured programmes where order is taught mainly through teacher comments, programmes with Maori teachers where order is taught predominantly through demonstration, reprimands, and compliments). In this way all children's experience range with school techniques, behaviour codes, plan paths, and goals would be increased without the need for teachers and children to change what is precious from their own backgrounds.

In conclusion, this study is really a study of enculturation and acculturation. Enculturation and acculturation are concerned with:

(i) cultural expectations, beliefs and ideologies;
(ii) sub-cultural expectations, beliefs and ideologies;
(iii) status, whether the status be social, economic, religious, etc.;
(iv) family expectations, beliefs and ideologies;
(v) personal expectations, beliefs and ideologies.

While all these levels of abstraction interact and affect each other in some way, this study shows these levels also operate independently of one another. In classrooms, this means the end result is a 'hidden code'. This 'hidden code' is hidden however from both the
promoters of that hidden code (the teachers), and the participants (the children).

Classroom life is a puzzle. It is a puzzle to which a knowing few hold a secret key upon entry into school. The key is so secret, however, that even the 'knowing few' may not perceive they hold that secret key.

WHAI TE TAUMATA TEITEI O TE MATAURANGA HEI HUARAHI ORANGA MO NGA IWI KATOA.
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APPENDIX 1

ACKNOWLEDGEMENTS

There have been many people who have supported and encouraged me, during the time it has taken to complete this study. To all my friends, associates and university academic staff, in both New Zealand and the United States, who have assisted in this way, thank you for your time, your thoughts and your sensitivity. In particular, I would like to acknowledge the insights Professor Graham Nuthall has given to this study. Without his assistance and early belief this was worth the time and energy necessary to complete such a lengthy undertaking, it might never have been completed. I would like to thank Dr Jenny Young-Loveridge and Prue Densem for their organisational and structural suggestions over the past few months. And to Dr Adrienne Alton-Lee for making time to read and comment on the whole document an appreciative thank you. All these ideas have helped the document to come together into a united whole. A special thanks goes to Alison Pickering for the diligent and thoughtful manner in which she carried out her task as a research assistant which resulted in high quality recordings of the classroom observations; and to Lynn Marwick for testing the children accurately and as close to the schedule as was feasible. An appreciative thanks is offered to the Education Department of the University of Canterbury, the Research and Statistics Division of the Education Department, and to the Boards of
Nathans and BREMCA Industries for the financial support these institutions provided. To Father Paul Johnston, John Patrick, Suzanne Hurn, Alison Pickering and Leone Stewart, thank you all for your assistance in proof reading. This is a laborious but very necessary task which cannot readily be completed alone. I would like to thank my family for their patience and support throughout all the frustrating times, and for recognising how much uninterrupted time was necessary to enable this study to be completed. And finally and most importantly, I would like to thank my husband for his gentle encouragement throughout the entire study time and for his help with the document photocopying and collation.
APPENDIX 2

TEST RESULTS
Appendix Table 1

**Raw and Standardised Scores of the Five Year Old Tests**

<table>
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<tr>
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| **New Entrant Reading Test** |           |         |        |           |       |       |         |         |     |         |
| Total Scores         | 8         | 13      | 12     | 11        | 16    | 13    | 13      | 11      | 13  | 13      |
| Staninesb            | 4         | 5       | 5      | 5         | 6     | 5     | 5       | 5       | 5   | 5       |
| Standardised Scores  |           |         |        |           |       |       |         |         |     |         |
|                      | -2.02     | 0.36    | -0.15  | -0.67     | 1.90  | 0.36  | 0.36    | 0.36    | -0.67| 0.36    |

|                      |           |         |        |           |       |       |         |         |     |         |
| **The Southland Mathematics Test** |           |         |        |           |       |       |         |         |     |         |
| Level 1c             | 5         | 9       | 11     | 7         | 9     | 10    | 10      | 10      | 7   | 11      |
| Level 2d             | 0         | 2       | 4      | 1         | 12    | 3     | 6       | 6       | 3   | 13      |
| Level 3e             | 0         | 1       | 1      | 1         | 8     | 1     | 0       | 2       | 1   | 8       |
| Totals               | 5         | 12      | 16     | 9         | 29    | 14    | 16      | 18      | 11  | 32      |
| Standardised Scores  |           |         |        |           |       |       |         |         |     |         |
|                      | -1.40     | -0.52   | -0.02  | -0.90     | 1.60  | -0.27 | -0.02   | 0.22    | -0.65| 1.97    |

|                      |           |         |        |           |       |       |         |         |     |         |
| **Combined Totals of Standardised Scores** |   -4.60  | -0.89   | -0.56  | -3.42     | 4.57  | 0.82  | 1.52    | 1.53    | -1.71| 2.95    |

**Note**

a All Records of Oral Language Scores are out of 14.
b The stanines lack definition and so the raw scores were used for rankings.
c Level 1 scores are out of 11.
d Level 2 scores are out of 18.
e Level 3 scores are out of 10.
### Appendix Table 2

**Raw and Standardised Scores of the Five and a Half Year Old Tests**

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<td>100</td>
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|                      |           |         |        |           |       |       |         |         |     |         |
| **The Southland Mathematics Test** |           |         |        |           |       |       |         |         |     |         |
| Level 2<sup>e</sup>   | 5         | 7       | 7      | 2         | 7     | 7     | 6       | 7       | 6   | 7       |
| Level 4-5<sup>f</sup> | 1         | 3       | 3      | 3         | 6     | 4     | 5       | 4       | 2   | 4       |
| Level 6-8<sup>g</sup> | 0         | 1       | 2      | 1         | 5     | 7     | 7       | 3       | 1   | 6       |
| Total                | 6         | 11      | 12     | 6         | 18    | 19    | 18      | 14      | 9   | 17      |
|                      | -1.49     | -0.42   | -0.21  | -1.49     | 1.06  | 1.27  | 1.06    | 0.21    | -0.85 | 0.85    |

|                      |           |         |        |           |       |       |         |         |     |         |
| **Combined Totals of Standardised Scores** |           |         |        |           |       |       |         |         |     |         |
|                      | -2.23     | -1.16   | 1.11   | -1.93     | 0.16  | 2.75  | 0.48    | -0.61   | -1.27 | 2.25    |

**Note**
- <sup>a</sup>Previously read and sight unseen text scores are percentages.
- <sup>b</sup>Geraldine moved school at this time and so the Reading Running Record was not able to be administered.
- <sup>c</sup>Sam's concentration was poor during the testing of the sight unseen reading book and so the results would have given him an inaccurate score of close to 0%.
- <sup>d</sup>In order to calculate a standardised score for the Reading Running Records both reading age level of the text and percentages of sight unseen text and previously read text were used.
- <sup>e</sup>Level 2 scores are out of 7.
- <sup>f</sup>Level 4-5 scores are out of 6.
- <sup>g</sup>Level 6-8 scores are out of 15.
<table>
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<tr>
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**Note**

aPreviously read and sight unseen text scores are percentages.
bBased on Jordan's scores at 5.5 years.
cLevel 2 scores are out of 7.
dLevel 4-5 scores are out of 6.
eLevel 6-8 scores are out of 15.
fBased on class teacher's tests at 5.11 months.
APPENDIX 3

DEFINITIONS OF EACH GENERALISED BEHAVIOUR CODES

The following behaviour codes are all described from the perspective of the observer. They are described according to the set of expectations which appear to give each behaviour code its uniqueness. The order is the same as the generalised behaviour codes listed in Chapter VI.

(i) **Arriving** - Is concerned with a correct time to arrive, manner of arriving and the location at school where the child is meant to arrive. This may be arriving at school in the morning, in class after play-time, to reading group lessons, etc.

(ii) **Sitting or standing** - Involves the expectation that there are correct ways, correct locations and correct times to sit or stand in any classroom situation. It may be correct to stand the first time the principal walks into the classroom in the day but not correct to stand if the principal enters the classroom later in that same day. However, if the children are involved in a series of informal activities it may be appropriate to continue what is being done at that time.

(iii) **Body positioning** - This involves the expectation that there is a correct way to co-ordinate the body in each different classroom situation. For example, when standing
in line the body should be held upright, the back should be straight, etc., sitting at a desk the body should not be slouched over the desk, the bottom should be firmly on the seat of the chair, etc. The child who understands this behaviour code knows that s/he must learn what these expected body co-ordinations are for every different classroom situation or activity.

(iv) **Responding** - Is a formula to do with 'how' to respond to the teacher. Sometimes it is appropriate to respond to a question by calling out. Sometimes the teacher requires the hand to be raised. Sometimes the teacher may ask a particular child a question and that child is expected to respond in a particular way. 'Responding' may be verbal or non-verbal. The raising of the hand at the 'correct' time may be seen as an appropriate response. Waving the whole arm around in an exaggerated fashion may not be seen as an appropriate response. A child needs to learn whatever the teacher requires of 'responding' in order to know how to respond appropriately.

(v) **Speaking And Not Speaking** - Is a formula to do with 'when' to respond to the teacher. This is similar to 'responding' except that the 'correct' time is the important factor. At some times calling out or even answering a question politely is seen as appropriate and at other times such responses are seen as 'interrupting' or 'being impolite'. A child needs to learn whatever is the appropriate timing for each type of 'speaking' a teacher has of children in the classroom situation in order to understand this behaviour code.
(vi) **Turn Taking** - Is concerned with the importance of others, the importance of the contributions of others and fairness of actions within the classroom environment.

(vii) **Speaking Formula** - Is a formula which says that no matter what the situations are there will be a correct way to speak within each situation and that each 'formula' for speaking will change according to the type of situation concerned.

(viii) **Voice Tone** - Is concerned with the response to particular kinds of intonations and that intonations have appropriate times and places for use within the classroom environment.

(ix) **Topic Consciousness** - This is a behaviour code which says that the topic the adult/teacher considers is important is the topic which is most interesting.

(x) **Attention Seeking** - This is a behaviour code which says that behaviours out of context will result in adult/teacher attention.

(xi) **Concentrating** - Is concerned with the mind being involved in a dynamic way with classroom activities.

(xii) **Risking** - Is concerned with correct and incorrect action and effects of these on the learning processes.
(xiii) **Noise Consciousness** - Is concerned with varying levels of acceptable noise according to time, location and the specific situation.

(xiv) **Signal Consciousness** - This is a behaviour code which says that not all messages are language based and so other sounds and actions must be considered for meaning.

(xv) **Observing** - Is concerned with the correctness of action and that this can be 'learned' by noting the action of others and how it changes according to specific situations.

(xvi) **Modelling Others** - Is concerned with acting appropriately and the options available for learning about 'how' to act appropriately.

(xvii) **Listening to the Adult/Teacher** - This is a behaviour code which says that listening to the adult/teacher, at the correct times, is beneficial to the listener.

(xviii) **Watching the Adult/Teacher** - This is a formula which says that watching the adult/teacher, at the correct times, is beneficial to the watcher.

(xix) **Listening/Watching and Acting** - This is a formula that says that some appropriate action usually results from listening and/or watching the adult/teacher.
(xx) Managing Apparatus - Is concerned with appropriate actions with apparatus and an expectation that these actions change according to the specific situation.

(xxii) Events Have Particular Activities - This is a formula which says that different events will have different sets of activities associated with them and that these must all be responded to appropriately.

(xxii) Events Have Structures - This is a formula that says that events have regularised structures and that events of a similar nature will all have similar structures. For example, the way the children of the class enter a classroom after play, enter a hall for a formal activity and go as a class from one location to another will all have similar regularised structures.

(xxiii) Behaviour Code Existence - This is a formula which says that classrooms have behaviour codes and that these behaviour codes are important for achievement at school.

(xxiv) Adult/Teachers' Control - This is a formula which says that the teacher/adult will be in charge of all actions in the classroom and that children must acknowledge this control and respond to it.

(xxv) Individuality of Adults/Teachers - This is a formula which says that although, for example, teachers are a category of people, they are also different from one another and so one may act in a particular way that is different from another in the same situation.
APPENDIX 4

DEFINITIONS OF EACH SPECIFIC BEHAVIOUR CODE

Definitions of each of the specific behaviour codes, in the order listed in Chapter VI, are given below. Each definition will be described from the perspective of the observer and illustrated with examples from communication incidents recorded during the observations of the children during their first year of school.

(1) The 'How' Behaviour Codes

The behaviour codes to do with the 'how' of action are:

(a) **How to Sit.** What the child has to learn is how the teacher wants the child to sit when on the mat or at the desk. The common features observed of how to sit appear to be a straight back, folded arms or hands holding apparatus appropriately, crossed legs if on the mat and legs straight with feet flat on the floor if at a desk, the bottom on the mat or chair and the head facing the teacher or object to be worked on.

It is not common for teachers to describe exactly what is required of the sitting position. The most explicit examples are seen in statements such as, "Sit up, backs straight, bottoms on the mat," or, "Kerry! Sit on your bottom, folded arms, crossed legs." It is far more
common for a teacher to give a statement which carries part of the message only. For example, "Sit up straight," "Legs crossed please" or, "Good, sit down Sam." The statements which describe several aspects of sitting up (bottom down, back straight, usually tell the whole story but they say enough for a child to get an idea of what is expected. However, the statement which refers to only one aspect of sitting up implies the whole position. There is no consistency in which aspect of the whole is stated.

(b) **How to Follow Instructions.** The child has to learn how to listen to the teacher, how to watch the teacher, and to respond to the teacher’s words and actions.

Instructions may be spoken or sung. The teacher may say, "Stand up. Let’s be the wind in the trees," or may simply begin singing a song, for example, "I’m a little teapot." In this example, the words of the song are intended to tell the children they are supposed to imitate the shape of a teapot.

(c) **How to Use Apparatus.** To be successful in this behaviour code, the children have to learn the way the teacher believes each particular piece of apparatus should be held and used. Apparatus is used here to mean any of the things used in class, for example, books, pens, blocks. This behaviour code is learned by listening to the teacher, listening to other children and from observation. For example, the children must learn that when the teacher is demonstrating a piece of apparatus, they should not touch that apparatus unless told to do so by the teacher. Then
the apparatus should be touched in the way the teacher says or demonstrates. When the children are using the apparatus after a demonstration, then they should use it in the prescribed manner. The only exception occurs when the teacher has said they are allowed to experiment with it in other ways.

How to use the apparatus is seen in these examples:

Example 1:
"Finger on the word Michael."

Example 2:
"Your haven't got your finger on the word,"

and

Example 3:
Michael crouches and watches the teacher. He appears uncertain what to do. He gets the pointer. He approaches a girl. The teacher says, "Michael, praps you could make your name with tiles."

The first two examples are typically observed when the teacher is demonstrating something. The third is an example from a group activity. The tiles and various other apparatus have been put out for the children to use. The teacher is helping him to use what is there.

(d) How to Respond With and Appropriate Social Response. Here the child has to learn how to act if a teacher uses some kind of signal in order to gain the children's attention.
In some classrooms if the teacher claps her/his hands the children are meant to stop what they are doing and put their hands on their heads. This can happen at any time, and is not specific to any particular time and location period. It is most often used when the teacher has instructions to give or the class is noisy. In classrooms where clapping of hands is not used, a bell may be used, or a key word such as 'children'. A key word has a specific intonation and a specific facial expression.

Children learn what the signal means through observation of other children and specific comments made by the teacher as in the following example, "Johnny you are still working."

(e) How Not to be Controlled by the Teacher's Behaviour Codes. This is the one behaviour code that is developed by each child individually. It implies children have other things to do apart from what is required of them by the teacher. This could be considered a coping mechanism children employ anywhere and at any time. This is likely because what the children do is controlled by the setting of the activities. For a child to successfully develop a behaviour code, the child must first know the teacher behaviour codes very well. The child must pick a time and a location and an action which will not be noticed by the teacher and which still enables the child to meet a desired goal. In other words, any behaviour code developed by a child in a classroom is limited by the teacher behaviour codes. Successful operation of this behaviour
code requires a sound knowledge of most of the teacher
behaviour codes.

There may be a timing element in this behaviour code.
This usually means teacher behaviour codes can only be
ignored by a child for a short time. Continued
inappropriate action will be acknowledged by the teacher in
some way. For example:

[The class is on the mat for 'news-time'.
Each child is having a turn to speak in front of
the class.] Kerry pulls a face, pushes a boy,
gets pushed back, falls over. The class is
going restless. Chelsea has a news turn.
Kerry is rocking around, rubs his face, hand
in mouth, looking round not attending. Kerry
is playing with his feet, rocking back and
forward. Four minutes of this activity go by.
The teacher says, "Hands on head...fold arms."
The children comply. Kerry pulls a face.

A number of children in the class are being
disruptive. This disruptive activity is not allowed to
continue for long because the class's activity is
redirected by the teacher. The teacher is acknowledging her
timing mistake. Kerry has not been singled out because he
chose to be inattentive when all the others were being
inattentive.

It is possible to talk to a neighbour when no-one
else is if it does not interfere with the teacher's
behaviour codes to any great extent. For example:

Michael won the game on the mat. Michael went
to sit next to Con. He whispers to him and
laughs. He sits up straight, arms crossed.
Michael used the teacher’s behaviour code for sitting correctly in order to talk to his neighbour. He talked quietly. This does not attract the attention of the teacher.

The easiest time for children to set up their own behaviour codes is when the teacher is out of the room. This can be seen in the next example:

Heidi is still clutching the book "Noddy". John grabs the book. Heidi punches him. They kick each other. She grabs the book. Heidi pokes out her tongue at John. He runs and squeezes her shoulder, pushes her down on the desk. The teacher is back. Heidi hurries to the mat.

It is noticeable that Heidi does not draw the teacher’s attention to herself in any way. She still has what she wants, so does not complain.

In the examples above where the children were able to do what they appeared to want to do for the longest period of time, the children used their knowledge of the teacher’s behaviour codes to act out this behaviour code.

(2) Behaviour Codes Related to Timing

The ‘behaviour codes’ to do with timing are:

(a) When to Contribute to Class Discussion. What the child has to learn is that it involves speaking when asked to do so, not speaking if the teacher is interested in someone else speaking (even if the answer is known), not speaking unless a correct format is followed (for example, putting up a hand), not having private conversations with
other children, not responding to other children if they speak to you and using the voice in a way that will not upset other children or the teacher.

The correct time to contribute is often very complex. For example children must learn not to answer for another. An illustration of this is seen in the following:

Kerry is playing with his socks. He answers a question directed at Chantelle. The teacher responds with, "Hello Chantelle," to Kerry.

A child must learn not to anticipate a question. For example:

Kerry is kneeling up, attending to the story. He is kneeling almost up on the teacher's knee, absorbed in the story. Kerry says, "I know what he is. A bell." The teacher replies, "No," as she puts her hand on Kerry's head.

The behaviour code for contributing can be complicated, because there are some types of talking which are inappropriate but accepted because other activities even less acceptable may be entered into. For example:

It is 'news' time. Matthew is at the back of the mat. He is being disruptive by flinging himself about and talking. The teacher asks him to come up and give a talk. Matthew 'walks' on his bottom. Matthew says on the way up, "I don't like walking." He continues to shuffle to the front.

Matthew's activities are more disruptive than his talking. Even though he continues to interrupt the class with comments as he 'walks on his bottom', the teacher does
not comment. She is satisfied with the effect of redirecting his whole activity.

(b) **When to Interrupt.** The child has to learn that interrupting means not trying to change the main topic and not drawing attention to oneself. This means concentrating on what is happening now, and not worrying about something that will occur later, or attempting to meet specific essential needs, for example, the need to go to the toilet or get a drink.

Children learn the correct time to interrupt by discovering when not to interrupt. A child learns interruptions are not to be used to show how clever s/he is or to draw attention to her/himself. For example:

Sam interrupts, "I, I, I, I, know..." The teacher says, "Please Sam."

The way Sam has interrupted indicates that there is more to his message than simply answering a question. The teacher’s words and expression show Sam this is not acceptable.

(c) **When to Talk to a Neighbour.** What the child has to learn in this behaviour code is the correct time for talking and not talking to a neighbour. It is imperative if a child speaks to a neighbour that the child does so when the majority of the others are attending to what the teacher expects them to be attending to and that the child does it quickly and quietly. Extended talking will mean the teacher will have to stop talking.
This behaviour code overlaps with the behaviour codes described in (a) and (b). However it is different from these categories because there are some types of talking to a neighbour which are allowed and other types of talking to a neighbour which are ignored by the teacher. Michael talks quietly to his neighbour when he returns to his place after giving a news talk. Chantelle talks quietly to Suz for several minutes before the teacher draws her attention to the talking. But sometimes talking to a neighbour is not allowed. For example, when Tina goes to give her news the teacher asks her to wait until all the others are quiet. The difference seems to be the first two situations represent only one or two children. And they are talking quietly. In the third situation most of the children are involved in the talking and cannot also listen to Tina.

(d) **When to Call Out.** What the child has to learn to do in this behaviour code is to know when that teacher expects children to call out and when a particular teacher does not expect calling out. The correct time to call out is concerned with the style of the lesson and the time of day.

Timing is very important for this activity because it is an activity which is correct at some times and not at others. Many of the correct and incorrect times are very similar. In the following example the children are not meant to call out:

The teacher says, "Don’t call out (loudly)."
The children have been calling out about clowns
because a child has brought one for news.

In this next example it appears to be an acceptable thing to do:

Heidi is listening, the children are attending. Heidi calls out, "It's like the Fraggle Stones?" The teacher says, "Oh, is it?" The teacher continues to read.

Heidi called out at a time when all were quiet. In the first example the children were modelling each other and calling out. The number of children calling out made this an inappropriate time to call out. In both examples the calling out was related to the topic in hand.

(e) When to Prompt a Classmate. What the child has to learn is the correct time to prompt a classmate. Prompting a classmate is allowed if the teacher perceives that it is helpful. It is not allowed if the teacher perceives that the prompting is not helpful to the child being prompted. It can be considered unhelpful if, for example, the child is becoming embarrassed by the prompting, or if it is interfering with the child's ability to learn independently. This means the child must know what the teachers themselves think is 'helpful' prompting in order for the child to know when to prompt.

Prompting happens infrequently at some times and more regularly at others. For example, when the whole class is seated on the mat, prompting happens infrequently because the children are not working at individual tasks. The following example indicates for this teacher it is not
acceptable to prompt a child when the teacher is helping a child.

Jarrod tries to read the sentence by himself. The teacher helps. Chantelle is attending. The teacher says, "Shhh," to the children who are prompting and whispering to Jarrod. The children were not doing anything different from the teacher, but their help was unacceptable. This teacher believes that helping does not mean telling all.

Prompting can occur more frequently at group times where individuals are asked to contribute to the group. It is more often acceptable at such times.

From the perspective of a child it is safest not to prompt. The confusion for the child may derive from those situations where modelling the teacher's actions is acceptable. For this behaviour code, modelling the teacher is most likely to be unacceptable.

(f) When to Respond With an Appropriate Social Response. What the child has to learn to do in this behaviour code is to respond with a particular social response at a particular time. The type of responses are usually clapping, laughing or nodding. The appropriate time is controlled by the teacher. This is usually at a time when children are expected to show approval at something or for some person.

The response that often causes children difficulties is clapping. Some classes clap more than others. If a child moves from such a class into one where clapping does not often occur, then a problem can arise. This is seen in the following example:
question by the teacher, or if the children are allowed to ask questions at that point in time, and, if there is something to be said that is pertinent to the topic.

Children learn about this through teacher instructions. For example, hands are put up, "When you are ready to start," when there is a question to ask, or something of importance, to say. Timing is important. Geraldine put her hand up just as the teacher was about to give some specific instructions. The teacher asked her to wait a minute.

In some classrooms children are asked to stand if they know the answer or do not know the answer. This has the same effect as putting up a hand.

There is a correct way to put the hand up or to stand. Kerry was ignored when he put his hand up with a 'whoop'. Sam was ignored when he put his hand up and called out at the same time. Hands are ignored if they are put up too high or too low. It is not usual to stand at such times.

(j) **When to Stand or Sit.** What the children have to learn in this behaviour code is the correct time to sit or to stand. During the correct times to sit or to stand it is important that they sit or stand for the required length of time and that the children maintain a correct posture. The correct times are decided by the teacher and are related to the material to be covered and the location of the activity.
This code can be learned by listening to what the teacher says or watching what the teacher does. The second of these requires a knowledge of the teacher and classroom procedures. The spoken instructions are usually explicit, as in, "Up you get Lorelei, c’mon," and the demonstrated instructions require some inference, as for example when the teacher sits down and switches off a tape-recorder. In either case the children are meant to follow.

(3) The ‘Where’ Behaviour Codes

The behaviour codes observed concerning the ‘where’ of actions are:

(a) Where to Sit or Stand. What the children have to learn is there is a correct location in which to sit or stand for the required length of time for which to use the correct posture. It is possible that ‘when to sit or stand’ and ‘where to sit or stand’ are sub-categories of ‘how to sit or stand’. They have been considered separately because children may have difficulties with one or only two of these three codes concerned with sitting and standing.

Children learn these behaviour codes by listening to the teacher and by trialling what they think are the appropriate actions required by the teacher. For example:

The teacher says, "Right, in front of me," or, "Toes on edge of mat, feet together."
(b) Where to Look and Where to Face. The child learns that there is a correct direction to look and a correct direction to face. A child's face should be directed towards the teacher or teacher-specified location, and the eyes should be looking in the same direction. This is related to attending and could be regarded as an element of attending. It is considered separately because children can have an understanding of this activity and not connect it to the more abstract behaviour code concerned with attending. For a child to act out correctly the components of the behaviour code for attending implies some kind of concept to do with attending, regardless of whether the child is actually attending or not. This behaviour code, where to look and where to face, does not imply any knowledge of the concept of attending at all.

The correct direction to look is learnt quite explicitly. Children may be told to, "Turn around, please," or to direct their, "Eyes this way." They may be told to, "Turn around and face me." As for the correct sitting position, frequently only part of the correct direction to face is verbalised. However, this is often accompanied by a look on the face or the pointing of a finger that indicates what is expected.

(4) The 'Who' Behaviour Code

The behaviour code observed concerning the 'who' of actions is:

(a) Who to Sit With. Teachers probably form a classification of children in which some become good models
for other children and some become inappropriate models. The reasoning behind such a classificatory system seems to be that teachers believe particular forms of behaviour influence other children positively or negatively. The classifications appear to be hierarchical. The children considered to be the best models are at the top. Children in this position appear not to be watched as closely by the teacher for inappropriate actions as children who are at the bottom. As a result, it is useful for children to learn this classificatory system of the teacher. What the child has to learn in this behaviour code is the importance of sitting with someone whom the teacher believes will help and not hinder attention. Such a child is one who is likely to sit close to the teacher or in the front of the group, to know a great deal about the correct sitting position, the direction to look and how to attend and will probably be considered 'good' at classroom activities.

This behaviour code occurs most frequently at mat-times. During this time there is a concept of free choice of the sitting location. However, if the choice made by the children is inappropriate then they will be noticed by the teacher. For example:

Suz and Chantelle have chosen to sit together. They are not able to concentrate, however, so the teacher asks if Suz wants to be shifted. Suz says, "No!" The teacher says, "Well, sit still."

Prior observations of Suz and Chantelle show that they know that they will be noticed if they sit together. They have still selected to sit together. The friendship bond is possibly stronger than the teacher's behaviour
code. The teacher is not being unreasonable. She has told them what they must do in order to continue to sit together. If they do not conform they will be asked to sit in separate locations.

The following example shows that it is possible that the 'free choice' of the sitting position happens only at the beginning of a session.

Kerry crawls to the front of the group. He talks to the teacher about guns. The teacher points. He moves back.

Kerry is not allowed to change his place. He is allowed to make his choice at the beginning of mat-time, but not during the proceedings.

In general, teachers allow children free choice of a place to sit at mat-times - unless two or more children have recently shown that they cannot sit quietly together, or if during the time period two or more children are restless or noisy together.

From both the teacher and the children's perspective, there is something of importance in where children choose to sit. There is a correct time for children to make their own decision about where to sit. This should not be changed until another correct time for change occurs. Once on the spot of choice a particular sitting style has to be maintained and this should not involve others.
(5) **The Pedagogical Behaviour Codes**

The final behaviour codes to be discussed are the pedagogical behaviour codes. The following are definitions and illustrations of these behaviour codes from the observer's perspective.

(a) **The Introduction or Motivation.** What the children have to learn in this behaviour code is that they must attend because something different is about to happen. The children must learn no matter how interesting their present activity, they must stop it. This means children must know when to stop, how to attend, whether they should attend to the teacher or an object, and so on. The children must understand the content of what is occurring is not what the teacher expects them to remember. Classically this is the time when the teacher tells or demonstrates what the lesson is going to be about. If this is all that is done, for example, when a teacher says, "Now we are going to have reading," then it is only an introduction. If the way the lesson is introduced is intended to create an interest in the children about what is going to happen, then this introductory time is classified as motivation. For example:

The children are to read in unison yesterday's news from the chart. The news is about colours. The teacher says, "Hands up if you have a car." Most hands go up. The teacher asks several children what colours their cars are. The teacher says, "What colour is yours Geraldine?" Geraldine says, "Yellow and white." There is a general discussion about colours before the news is read.

To be successful in this example, the children must know when and how to answer questions, how and why to put their hands up, and they need to have a knowledge of
colours. The teacher is using questions she believes to be of personal interest to each child to create interest in the topic. The children become enthusiastic about the topic before it occurs. The children do not have to understand this is introducing a topic or motivating in order to be interested. But if they do not participate in the motivation or introduction, they may not fully understand what is happening as the lesson progresses.

(b) Teaching a Specific Body of Information. What the children have to learn in this behaviour code is similar to the 'introduction or motivation'. That is the children must know how to attend, whether they should attend to the teacher or an object and so on. The critical difference is they must develop a concept that although what is occurring may appear new or different from the way a motivation usually occurs, this new or different information is important to understand and remember. The teacher presents the new information in a direct activity format. That is, the information is presented verbally or by demonstration and the children are required to respond to this presentation either verbally or by demonstration.

The teaching of a specific body of information commonly occurs after the motivation. It is part of the process of a lesson. In other words, this coupled with the consolidation, is the route the teacher hopes the children's minds will follow to increase their knowledge. An example of teaching a specific body of knowledge is seen below:

The teachers says, "What letter does apron
begin with Lorelei?" Lorelei says, "Umm." She has her fingers in her mouth watching Jessica. The teacher says, "Don't stand if you know a word beginning with 'a'." Lorelei stands and claps the children who do know with the rest of the class. The teacher continues asking similar questions until some minutes later when the teacher says, "Lorelei, can you find a letter you know?" Lorelei, looks at the ground and shakes her head. The teacher changes to reading a well-loved story.

The specific body of knowledge to be learnt is the letter 'A'. The teacher hopes by repeated examples in different words and questions the children will grasp the concept of 'A'. The teacher has chosen the point just prior to reading a story as the best time for this process to occur. She has chosen to associate it more strongly with stories by going through this process in the usual story-reading location for that classroom. The teacher appears to feel that both the teacher and the children are jointly the best transmitters of that information, hence the questioning style and that the expected outcome should be the recognition of the letter 'A'.

The activities associated with 'teaching a specific body of information' are not only verbal as in the above example. They can be, for example, reading, printing, story writing, unison speaking or reading, individual speaking or reading, rhythmic movement or singing, and art. No matter what kind of activity is occurring, the children need to recognise the information being delivered is something of importance to understand and remember.

(c) The Consolidation. What the children have to learn in this behaviour code is similar to 'the introduction or motivation' and 'the teaching of a specific
body of information'. The important difference is that the information is not new. It may be presented in a different format, for example, a letter may be meant to be circled rather than pointed to, but the child should have met the information on some prior occasion. This means the child has to recognise the same information in a new context, or recognise that even if it is not new, the teacher has a good reason for repeating that information. The child has to accept or recognise there is possibly something still unknown about this apparently familiar information. This behaviour code is not only asking the child to recognise, understand and remember the activity that is occurring. It is also asking the child to infer a more abstract meaning from what it is the teacher is saying or doing. In this view 'the teaching of a specific body of information' can be learnt from the structure of the script in progress, but 'the consolidation' requires a knowledge of the teacher's schema. For example, the children may be asked to colour in the letter 'A' after a series of activities to do with the letter 'A'. The children need to recognise this activity is not just an exercise to keep them busy. In order to perform this exercise successfully the children should be thinking about the letter 'A', its shape, how it sounds, possibly remembering words that begin with 'A' or have 'A' in them and so on. It is a cognitive activity requiring an expectation that the activity has something to do with 'learning' and that 'learning' is more than colouring in a particular letter. It also requires a concept that no matter how familiar a person is with a particular activity there is still something new and different that is important to be learnt and remembered.
Teachers usually consider the consolidation should follow the teaching of a specific body of knowledge because it is just as much a part of the process as the 'teaching' behaviour code. In practice, it can occur at any time or in any place. The consolidation is a way of setting up known information in a way that is 'user friendly'. In other words if the children's brains have accepted a new piece of knowledge, to meet it again in an old familiar place is believed to fix the new knowledge in a more or less permanent way. In the example above if the teacher asks the children to find the letter 'A' in the old familiar story as she reads along, the children are expected to be incorporating the new information into the old familiar context of the story.

(d) The Evaluation. What the children have to learn in this behaviour code is similar to the former three behaviour codes. That is, the children may be required to respond to the teacher, to attend to the teacher or an object, to know how and what to attend to, and so on. The children have to recognise that the difference lies in the way the teacher is attending to each individual child, and that the teacher is now learning something about each individual child. The children who understand this will recognise this is not a time for trial and error. This is a time when each child should display what s/he has learned about specific information and about social behaviour codes. The advantage to the child is that the teacher may classify him/her into a 'high' classification and thus pay less attention to specific behaviours and the child may
receive rewards and praise. The evaluation is the way the teacher has of deciding whether the behaviour codes concerned with teaching and consolidation were successful.

Essentially 'the evaluation' asks 'how' successful the lesson process is for each individual child and to the class or group as a whole. It seems sensible this should occur at the end of a lesson script. However, there is a sense in which evaluation can occur continuously throughout the lesson process. The questions of individual children about the letter 'A' tell the teacher something about 'how' effective this process is for individual children. A type of evaluation is seen in the following example which occurred at the end of the lesson script illustrated in 'the introduction or motivation' behaviour code.

The teacher writes a sentence on the blackboard about the car in the picture. Gemma reads the sentence, then the class read it in unison.

The teacher was checking in an individual and group way to see if the specific body of information, that cars and their colours could be written into sentences of interest to children, had been accepted by the children.

Evaluations like consolidations ask the children for a higher level of inference than the first two pedagogical behaviour codes. They require a knowledge of the teacher's schema.

(e) When Is a Task Completed. The child has to learn when a teacher will recognise that a task is completed. From the teacher's perspective, the importance
of a completed task appears to lie in enabling a teacher to know if a child has grasped a concept. If a child cannot demonstrate that one task has been completed before the teacher begins a second task the teacher, cannot know if a child has an understanding of the whole task. An example of this behaviour code occurs when a teacher asks children to carry out a task in a position where the teacher can see the whole class or group’s behaviours. Alternatively, the children may be asked to stand when their task is completed. The teacher can assume completion or physically check each completed activity. This behaviour code requires children to follow the teacher’s instruction exactly. The importance of completed task will change from teacher to teacher.
APPENDIX 5

DEFINITIONS OF EACH TECHNIQUE

A definition for each technique will be given below from the perspective of the observer. Each definition will be clarified with illustrations from the classroom data. The definitions for the techniques will be followed by a brief section on the four child 'options' observed in classrooms.

(1) **The Basic Level Techniques**

(a) **The Direct Simple Request.** The direct simple request requires the child to carry out a single, stated action, for example, "Eyes this way." The children do not have to have any prior knowledge of this request in order to understand what is required. The message is clear. The eyes should be looking in the direction indicated by the teacher.

(b) **The Direct Complex Request.** The direct complex request requires the child to carry out more than one stated action, for example, "Right everyone, back on the mat." The children are allowed no choice. There is a clear indication who the request is intended for ("everyone") and that at least one specific action is required of everyone. Requests can be stated gently or sternly, but whether the words are said gently or sternly, the effect is the same.
(c) **The Indirect Request.** The indirect request sounds as if there is an element of choice for the children when in reality there is no choice. For example:

The teacher says, "Right, can I see you all up here please." The children comply.

The tone of the voice has indicated this is not a question. In order to decode this accurately, the children must recognise that. "Can I" means, "I want to". Other examples include, "Will you please come...?" "Would you like to..." etc.

(d) **The Indirect Complex Request.** The indirect complex request is an extension of the indirect simple request. The only difference is that the request carries more than one message. For example, the teacher states at news time, "Please choose someone who is sitting up straight, Chantelle." The implications are that everyone should be sitting up straight. No turns are possible unless the correct sitting position is performed. There is the connotation that people who are sitting up straight get rewards. A multiple message is delivered with just one statement.

(e) **The Contracted Verbal Request.** A contracted verbal request is where one or two words are used to both attract the attention of the child and to remind the child what he or she is supposed to be doing at a particular moment. For example, "Kerry!" and, "Get on with your
work," and, "You know what you should be doing," and so on. This complex message has been shortened to one word.

(f) **The Contracted Non-verbal Request.** The contracted non-verbal request is a signal used to gain a child’s or group’s attention. It can be a sound, such as a clap, or a particular look which indicates the teacher is waiting for attention. For example:

The teacher claps. The children put their hands on their heads. "Everyone who is finished, pack up and come and sit on the mat." Michael returns still flying.

In this example the clap is used as a signal. It is short. The clap is followed by a prescribed action by the children. They put their hands on their heads. Although this is a simple message, children cannot learn this from the structure of the message and knowledge of the language and intonation. Prior knowledge that signals, which are not language, can carry messages is important.

(g) **The Question - Verbal/Non-verbal.** In the question, the teacher asks the child whether or not the child is in a particular position, is behaving in a particular way, etc. It is a direct request recognised by sentence structure, intonation or body language. For example, "Have you got legs crossed?" and, "Sitting on your bottom?" In the first example the question is in the sentence structure. In the second example the question is in the intonation.
The effect of a question is different from a direct request. In the above example, a direct request would tell the child something about the correct position. The question asks the child to think about the body and then to decide why the teacher is asking about that part of the body and whether or not the teacher really expects that that part of the body should be in a particular posture. It is indirect in structure.

(h) **The Non-verbal Signal.** The non-verbal signal is a facial expression delivered by the teacher to an individual or group which indicates a way the children should be acting. The children should understand by the look that they are acting inappropriately, and that they must find appropriate ways of acting. This occurs most frequently when a teacher is not in a position to use verbal language with facility, for example, when s/he is taking a small group for reading and another group is not participating actively in their set task. In such a situation the teacher delivers a look and the children respond with a look and get on with their set task.

(2) **Second Order Techniques**

(a) **The Demonstration.** The term demonstration is not used here in the way it is used in scientific experiments but it relates to scientific demonstrations. The teacher shows what is expected of the children by modelling, in detail, in a position in the classroom where all who need to see can see. In one example of the demonstration technique observed, the teacher held a book so the children could see the words. She pointed to the
book to show where the words were, the direction they went, the relationship between pictures and the written word and that a collection of written words were of interest to children. This demonstrates how reading occurs in a physical way. In another example, the teacher demonstrated what a written word looked like by creating one on the blackboard in front of the children's eyes. The demonstration is more than a direct request or a non-verbal request, although much of what occurs may appear to be at that level. For a child to decode a demonstration technique, knowledge of the language is not enough. The demonstration is different from a direct request or a non-verbal request. For a child to decode a demonstration, the child must transfer what they are observing into their own behaviour.

(b) The Ignoring. The ignoring is self-explanatory. The child performs an activity or talks in a way the child knows would normally elicit a response. The teacher indicates this is unacceptable behaviour by pretending not to notice. For example:

Sam says while the teacher is talking, "And Sam," with a big cheeky grin. The teacher ignores him and continues on with what she is saying.

That this is something that should be learnt requires a knowledge of why the teacher is performing this activity. This means for the child to learn what the teacher intends from this technique, the child has to notice that the teacher has ignored him, has to consider why the teacher has ignored him, and recognise it is to his benefit to act in a different way on future occasions of this type.
(c) **The Standing Nearby.** In this technique, the teacher places his/her body sufficiently close to a group of children for them to be aware of his/her presence. For example, when a teacher approaches a group of children who are meant to be working at their desks, children change what they are doing. Heidi begins to work as she thinks the teacher might come and look. A group of boys sit up straight as the teacher moves near them. Decoding requires recognition that the teacher is likely to respond negatively if they continue what they are doing, if this is inappropriate. This means the children have to discriminate appropriate action from inappropriate action.

(d) **The Compliment.** The compliment is usually verbal, although it may be non-verbal. The teacher may praise the children, or thank the children, or compliment the children, or comment on the quality of the children's work. It is a structure directed at what a child is personally. It is both direct and indirect. For example, "Thank you for sitting up straight, Chantelle," is a direct communication. It also says, "This is what is expected at school," and "You or others do not always do the right thing," and so on. This is the indirect communication. In the compliment the children are personally praised, complimented or thanked.

(e) **The Reward.** The reward is a structure of verbal or non-verbal action directed at a child's application to work. The statement, "What beautiful work," if taken at its primary level only is a reward. The situation will
indicate which is meant. The most common non-verbal rewards observed are stamps and stars, or being class leader during a communication incident, for example. The effect of the reward is similar to the compliment. The verbal reward can probably be decoded correctly with a knowledge of the language. The deeper implications need a wider range of knowledge about teachers and teacher expectations.

(f) **The Punishment.** The punishment is similar to the compliment, but is used when children are interfering with other children’s work. It is focused on the children involved and what they are doing. The most common form of punishment observed is children being asked to stand for a period of time. Decoding requires a knowledge of the language and intonation, as well as a knowledge of teacher expectations. The language and intonation may be sufficient to recognise what is occurring, but a knowledge of teacher expectations is needed to recognise why it is occurring.

(g) **Using Children As Correct Models.** The structure of this requires a verbal comment which draws other children’s attention to a particular child or group of children. For example:

The teacher indicates towards a group of children all working hard and says, "The Bells are working nicely."

This implication is not only that all the class should be working like the ‘Bells’ group, but that each child should know ‘how’ to work ‘nicely’.
(h) **Asking The Child to Act Like the Teacher.** In this technique the teacher asks a child to do something that teachers normally do but which children do not. For example:

Tina is to give a news talk. The teacher asks her to wait for quiet.

Waiting for quiet is something teachers do and not children. In order to understand what is expected of her, Tina has to understand she is now acting like the teacher, and if she is to speak, then it is important for the whole class to hear her. She also has to understand she will only be heard by the whole class if the class is quiet.

(i) **The Redirection of Individual Thoughts or Ideas to Fit In With the Group or Class.** In the redirection of individual thoughts and ideas, the child is asked not to think about a topic which is not in progress in the classroom at that moment. It is implicit that s/he should pay attention to what is going on in the classroom at that point in time. It is a direct statement, but the message is indirect. It not only requires different actions. It requires different ideas and even different values. For example:

The teacher is discussing what the children will write on their cardboard cut-outs of umbrellas. Matthew calls out, interrupting, wanting to know when play-time will be. The teacher asks him patiently to please wait until afterwards.

The teacher has not told Matthew how long it is until play-time. Matthew has been asked to 'wait until
afterwards'. From this, the child is meant to understand the importance of this is not 'to wait until afterwards', but to act and think appropriately for the current session in progress. If a child views this as a direct complex request, he will miss the point of the message. He may appear to act appropriately, but if he does not think appropriately he will not watch the events in progress. He will be 'waiting until afterwards'.

(j) The Redirection of Group, Class or Individual Activities. The redirection of individual activities to fit in with the group or class, the redirection of individual activities to be different from the activities of the group or class and the redirection of group or class activities, are all variants of one technique. It is a structure in which activity is redirected either verbally or non-verbally. These have been divided into three, because it is possible that not all will occur in some homes. All three occur because a group of children or the whole class or an individual, are attempting to do something different from the activities occurring in the classroom at that time. For example:

(i) The redirection of group or class activities:

The story continues. It describes an object that the children should guess at the end of the story. The class is restless. Kerry puts his hand up, and points. Kerry says, "He's a pencil." The teacher says, "Right. Stand up, count to five..."

(ii) The redirection of individual activities to be different from the activities of the group or class:
The teacher asks a child to read in the library corner. The child has been talking to a friend in a loud voice which appears to be disturbing other children. The group have been threading beads in groups of five.

(iii) The redirection of individual activities to fit in with the group or class:

Kerry asks to have a story read. The teacher says, "Later, we'll see." The teacher reads some of the rain stories from the cardboard umbrellas.

In the first two examples the children involved all do something different from the previous activity. A change is created. In the third example, it is Kerry's ideas which are changed, not his activity.

(3) The Sub-category of the Second Order Techniques

This sub-category of the second order techniques is not the same as the basic level techniques of 'the direct simple request', 'the direct complex request', etc. because different methods were used by teachers to instigate the desired actions. These techniques appear to be intended by the teachers to lead to specific goals of pedagogy.

Because of the variety and diversity of activities in which children are expected to engage, the techniques are related to complex activities. The complexity of the activities makes them appear similar to behaviour codes. However, the complexity of actions is not the same as the complexity of understanding the techniques. A child can perform the actions without knowing why they are performing them. Children can go through the motions of, for example, writing words, looking up in dictionaries and asking others
for correct spelling in order to write a story without ever understanding this is something which has to be learned and remembered. It is even possible for a child to write a story and not understand the concept of a story and what the underlying purpose of writing one is about. For example:

Lorelei is sitting at her desk writing a story in the third person. She has her dictionary out. She asks the boy next to her to find a word for her in the dictionary. She points to the word and says, "Is this it?" He nods. She writes it on her page. She puts her hand up and asks the mother-help how to spell a word. The mother-help writes it in her dictionary. Lorelei writes this down. She continues in this manner asking for help from her neighbour or from the mother-help until the teacher says it is time to stop. She takes her work to the teacher to be marked. The teacher corrects the work and asks her to rewrite it correctly. During this whole exercise Lorelei has not written one word on her own. She could not read her story when asked.

The sub-category of the second order techniques identified are:

(a) Unison Speaking or Reading. The teacher indicates that the children are to speak or read together. Unison speaking is used as a technique which enables the goals of the process of pedagogy and consolidation of pedagogy to be reached. For example, when the children in Geraldine’s class were asked to read yesterday’s news in unison, they were reinforcing the memory of that news content in their minds, familiarising themselves with the concept of words and that words have a message for children, and so on. This requires a knowledge of the language and recognition, by the children, they are learning something. Without this recognition the children
can say the words and not increase the personal body of knowledge in their heads.

(b) *Individual Speaking or Reading.* This is when a teacher asks children to speak or read by themselves. It is most commonly used to meet the goals of consolidation and evaluation. Consolidation was seen in Geraldine's class when Gemma was asked to read a sentence the teacher had written on the blackboard. Evaluation occurred in Chantelle's class when John stood to say a poem. A knowledge of the language is sufficient to respond to this technique appropriately, but responding and understanding are two different things. In order to understand the purpose of this technique children need an understanding learning requires some internal action on their part.

(c) *Rhythmic Movement.* Rhythmic movement is either action by the teacher which is copied by the children, or a verbal message delivered by the teacher which tells the children what actions to perform. It is not simply a direct request, either verbal or non-verbal, because it is enacted to enhance learning in some way. For example, Chantelle's class is asked to wriggle as they say a poem about wriggles. A knowledge of how to follow actions and a belief these actions have something to do with learning are needed to decode this technique.

(d) *The Silent Reading.* The teacher indicates, either verbally or non-verbally, that a child is required to read silently. The child should understand by this that the child is meant to be by him/herself, to have the pages
of a book open and to appear to be looking at the pages consecutively. In addition it may include the selection of the book to read. It is an independent activity having its own set of required activities. It is not simply the result of a basic level technique, because the teacher has a belief that silent reading is significant for improving a child's reading ability and it is included in class-work for this reason. It is a technique used commonly during consolidation.

(e) The Printing or Story Writing. Printing or story writing is a technique that consists of printing in the air or on 'feely' structures, tracing over letters with fingers or pencils, and printing in books or on art paper. The stories can be written by the teacher, a group of children or an individual child. The purpose is to teach the art of printing and story writing to each child in a class. Examples are numerous. Like 'the silent reading', some forms of this technique are more like a behaviour code or include sets of behaviour codes. For example, if the story is formal story written in a book, the child must conform to the 'correct sitting position', 'the correct direction to look' and other elements such as a correct way to hold a pencil, to spell, to slant a book and so on. It can be a complex task. Even at the simplest level, for example, 'air writing', a child must understand the teacher's command, follow the teacher's actions, and transfer the shape of that action to a letter shape seen in a book or on the blackboard and hopefully, translate all that into knowledge in the head. It is considered to be a technique here because, complex as it is, even when
correctly operated by the child, it is not essential that any cognitive change occurs.

(4) The Child 'Options'

Child 'options' act mainly like techniques. For this reason they have been included at the end of this section on techniques. At least one of the following options is more like a behaviour code than a technique. It is discussed last, and has been included here for the sake of simplicity. The following is a brief analysis of the child 'options' from the observer's perspective:

(a) The Child Keeping an Eye on the Teacher. This is a child 'safe option' for doing what you want to do without being noticed by the teacher. The child keeps an eye on the teacher at all times. For example:

The next boy gives his news talk. Sam swigs out of his flask that he had for news while he keeps an eye on the teacher.

The teacher can be unaware a child is employing this 'option'.

(b) The Child Changing His/Her Location. Another child 'safe option' for not allowing the teacher to notice what the child is doing, is to change location so that the activity is not able to be watched by the teacher. For example:

Heidi has her hand up, "Can I go to the toilet?" The teacher says, "You just went before, do you really need to go?" Heidi says, "Yes." The teacher says, "Off you go then." Heidi exits (with her Noddy book she has been indicating that she was wanting to read) and returns eight minutes later.
Going to the toilet or, in some cases, to the fountain for a drink, is an excellent 'option' to read what you want or collect a forgotten item from the corridor before the teacher finds out. Because of the numbers of children in a classroom, it is often difficult for a teacher to recognise this 'option' when it is being used.

(c) The Child Modelling the Teacher's or Other Children's Actions. Still another child 'option' is for the child to model the teacher's or other children's actions. This takes attention away from the child in question, or enables the child to have better access to something that is in progress. For example:

The children are sitting on the mat. Heidi cannot see the book the teacher is reading because a child is kneeling up in front of her. Heidi says, "Sit down, Kerry, and cross your knees and fold your arms."

Heidi has used the teacher's description of the correct sitting position on the mat to her own ends. The teacher's recognised this for what it is but it does not necessarily occur only within the teacher's proximity.

(d) Child Instigated Action. There are a range of activities in which children get involved which have nothing to do with the script in progress. These activities seem to be a child-instigated behaviour code which has an on-going plan throughout classroom time or even throughout the total time a child is awake. Such sets of activities are established by the use of 'safe', 'soft' or 'disruptive options'. The way the behaviour code is
set up is most easily recognisable when 'disruptive options' are employed. For example:

Chantelle pokes the girl in front, who turns and pushes her hand away. Chantelle half lies down, sits, fiddles with another girl's pinny. She turns and says, "Don't!" Chantelle sits back.

These actions are not to do with the teacher's script. They are to do with a behaviour code which Chantelle is setting up.

It is easy to see these types of 'options' can be employed both in classrooms and elsewhere. They have been included here because of their effect on classroom scripts.
APPENDIX 6

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