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PERCEPTIONS, EXPECTATIONS AND INTERACTIONS:
A STUDY OF TEACHERS AND PUPILS IN FIVE
ETHNICALLY MIXED PRIMARY CLASSROOMS

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ABSTRACT

Teachers' perceptions of their pupils, expectations for pupil general ability, teacher-pupil interaction and pupil achievement were investigated in this naturalistic study of 5 teachers and 90 pupils in their New Zealand ethnically mixed Standard 3 classrooms.

A pilot study showed that teachers at this level tended to perceive pupils in terms of constructs reflecting academic work skills, home background and personal/social attributes. Using rating scales developed from the pilot study it was apparent that the teachers had a conception of the ideal pupil. It was suggested that this influenced expectations for pupils' ability to do well at school. Girls and Pakeha pupils were seen as being closer to the ideal pupil stereotype than boys or Polynesian pupils, and for Polynesian pupils this was reflected in lower teacher expectations. Teacher expectations tended to be borne out by standardized achievement test results and accounted for a large proportion of teacher rated achievement variance. Ethnic group made a small but significant independent contribution to achievement variance on two of the Progressive Achievement Tests and on teacher rated achievement.

Using data on teacher-pupil dyadic interaction collected with the Brophy-Good system, contrasting patterns of interaction were noted between expectation groups (high, middle and low teacher expectations). The differences were largely qualitative and there were no expectation group differences in the total number of public or private dyadic interactions. High expectation pupils initiated more contacts with the teacher, answered more open public academic questions and received a lot less criticism for work or behaviour than the other groups. The low expectation group experienced a greater proportion of teacher initiated contacts and were asked more direct public academic questions which were of the product rather than the process type. The middle expectation group generally fell

in between the high and low groups, but received the most criticism and the highest proportion of process questions. Teachers appeared to be attempting to prevent inequalities in quantity of interaction and this was discussed in terms of the perception of pupil attributes. Expectation group differences in interaction were not always the same for boys and girls or for all teachers. Despite the differences in teachers' perceptions and expectations for Polynesian and Pakeha pupils, no ethnic group differences in teacher-pupil interaction were evidenced.

No consistent and clear-cut expectation group differences were found in pupils' perceptions of teacher behaviour. There was a moderate positive correlation between perception of the quantity of teacher contact and observed interaction but not regarding the affective quality of teacher contacts.

The findings were discussed in terms of the theory and research on person perception and expectation phenomena in interpersonal behaviour. Some practical implications for educational practice were commented upon.

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INTRODUCTION

This thesis is concerned with teachers' perceptions and expectations regarding pupils, teacher-pupil interaction and school achievement. Research in psychology and education in the field of teacher expectations and self-fulfilling prophecy effects have largely been concerned with attempting to establish the reality and potency of the phenomena and more recently with aspects of the behavioural mediation of expectation effects. Nevertheless, factors involved in the development of teachers' expectations, and the conditions under which they may influence teacher-pupil interaction and pupil achievement are not entirely clear. Empirical data on teacher expectations and their possible effects in New Zealand ethnically mixed classrooms have not been previously reported. This naturalistic study provides some important data on these issues.

A brief outline of the thesis is provided to orientate the reader. Chapter 1 presents a selected review of the theory and research in the area of person perception and a discussion of the role played by perceptions of other people in guiding interpersonal behaviour. The concepts and issues dealt with in this chapter provide the frame of reference within which this study is pursued. From the theoretical base the nature of interpersonal expectations is examined and the notion of the self-fulfilling prophecy discussed. Chapter 2 reviews the literature concerned with teachers' perceptions, expectations and classroom behaviour. Studies involving experimentally induced and naturally formed expectations are examined and the effects of teacher expectations on a variety of process and product measures discussed. The literature concerning the relationships between pupil attributes and teacher expectations is reviewed, together with evidence pertaining to the accuracy and stability of teacher expectations.

Chapter 3 details the model underlying the present research. This model is grounded in the theoretical framework presented in Chapter 1 and draws on the research on teacher expectations reviewed in Chapter 2. The research questions of the present study are presented. These relate to the investigation of teachers' perceptions, expectations and classroom interaction generally and to New Zealand ethnically mixed primary classrooms in particular.

Chapter 4 outlines the method, giving details of the sample, general procedure, measures employed and data analysis undertaken.

Chapters 5 and 6 present the findings. In Chapter 5 they are presented and discussed as they relate to the research questions focusing on the perceptions and expectations teachers have of pupils in their classrooms. The categories of pupil attributes used by teachers in perceiving their pupils are examined, along with the relationships between perception of pupil attributes and expectations for pupil general ability. Data on the relationship of teacher expectations to standardized achievement test results and teacher rated school achievement are presented. In Chapter 6 the findings are presented and discussed as they concern teacher expectations and teacher-pupil dyadic interaction. Patterns of interaction associated with teacher expectations, as well as with pupil gender and ethnic group are examined. The relationship of interaction measures to school achievement is investigated. Pupil perceptions of teacher behaviour are considered and compared with observed teacher behaviour.

Finally, in Chapter 7 the findings are discussed in more general terms and both the theoretical and practical implications commented upon.

CHAPTER ONE

PERSON PERCEPTION AND INTERPERSONAL BEHAVIOUR

The perceptions and expectations individuals have of others have been the subject of considerable attention by psychologists. In this chapter it is intended to examine some of the concepts and issues relating to person perception in order to provide a framework within which to consider interpersonal expectations, their relationship to interaction and their possible self-fulfilling effects.

Views on the nature of perception in general have implications for person perception and may be considered in terms of two schools of thought with their associated philosophical assumptions. These schools of thought relate to views on the nature of the human mind, namely whether it is essentially passive, in the tradition of Locke and Hume, or essentially active as postulated by philosophers such as Leibnitz and Kant. Current psychological theories have been influenced by these polar conceptions and this is apparent in associationist theories on the one hand and cognitive/Gestalt theories on the other. As far as psychological theories of perception are concerned, the influence of these two traditions is evident in the kinds of answers given to questions relating to processes involved in the translation of impinging stimuli into coherent experience.

Some psychologists, following the Lockean tradition, have viewed the process as essentially passive and automatic, determined by the structure of the sensory apparatus and the physical properties of stimuli. As Hastorf, Schneider and Polefka (1970) note, one of the reasons for the popularity of such a view of perception lies in the fact that our experiences feel immediate and directly received.

Logically however, it seems that without some organizing operations, some active and selective functions, a passive recording and translating of all impinging stimuli would be experienced as a bewildering and chaotic world. As human experience is not characterized by chaos, the view of human beings as passive recorders and translators has been generally modified to one emphasizing the active processing role played by individuals in creating their experiences.

The active, selective, organizing processes of perception have been convincingly argued and empirically supported (F.H. Allport, 1955; Bruner, 1957, 1958; Tajfel, 1969; Vernon, 1962). This highlights the concomitant observation that the distinction between perception and cognition is not at all clear cut. Consequently, rather than attempting to delineate precise distinctions it is conceptually more useful to regard perception and cognition as lying on a continuum. Tajfel (1969), following F.H. Allport (1955), classifies perceptual responses as "those responses which are at least partly determined by, and directly linked to, the sensory information received by the organism at the time they are made" and which are "not based on a chain of complex and abstract inferences" (Tajfel, 1969, p.321). However, he admits that it is very difficult to separate the perceptual from the nonperceptual. There are many gradual transitions from the most direct and immediate forms of perception to such cognitive activities as categorizing, inferring, judging and making attributions. Allport saw the processes of perception and cognition as "so closely intertwined that it would scarcely be feasible, especially from the standpoint of theory, to consider one of them in isolation from the other" (F.H. Allport, 1955, p. 14). The importance placed on the role of inference and categorization in perceptual activities illustrates this viewpoint (Bruner, 1957).

The cognitive processes of categorizing, inferring and judging are as salient to the student of person perception as they are to the student of perception in general. Indeed, person perception studies have ranged right across the perception/cognition continuum from, for example, the perception of physical characteristics of people (Ittelson and Slack, 1958) to the making of complex inferences about personality traits (Asch, 1946; Bruner, Shapiro and Tagiuri, 1958; Wishner, 1960) and about behaviour (Jones and Nisbett, 1972; Kelley, 1967). Furthermore, most writers in the person perception field have used the term perception to include both perception and cognition (G.W. Allport, 1961; Cline, 1964; Cook, 1971; Hastorf et al., 1970; Heider, 1958; Rommetveit, 1960; Tagiuri, 1958, 1969; Warr and Knapper, 1968).

The broad spectrum of interest in the process of perceiving and knowing other people is reflected in the variety of terms used to describe the area. The terms person perception, interpersonal perception and social perception, as well as person cognition and social cognition, have been used at various times.

In this thesis the term person perception will be used, for convenience rather than definitional superiority, to refer to the processes of knowing other people. This involves both the selective, organizing processes of perception and cognitive processes such as inferring, judging, categorizing and the making of attributions about causality.

The question of how we come to know people has received attention as a field of study in its own right only since the end of the nineteenth century. Prior to this, perceiving and knowing other people was seen as a subset of the broader field relating to perceiving and knowing objects and the environment in general. Along with the

recognition of the complexity of the perceptual process and the active role of the perceiver arose considerable discussion as to whether or not person perception was different from the perception of other objects. Many writers have suggested that the two processes of object perception and person perception are closely related (e.g. F.H. Allport, 1955; Brunswik, 1956; Cantril, 1957; Hastorf et al., 1970; Heider, 1958; Rommetveit, 1960; Sarbin, Taft and Bailey, 1960; Warr and Knapper, 1968) and have argued that viewing both processes as being eventually explicable by the same set of principles will permit theoretical and methodological advances to be made. It is not generally asserted, however, that there are absolutely no differences in the perception of things and people and a number of writers place more emphasis on differences in process, focusing on such things as the likelihood of greater inferential complexity in person perception (e.g. Jones and Thibaut, 1958; Tagiuri, 1969). The differing emphases appear to be based on preferred orientation rather than empirical evidence, for most experiments have not been specifically designed to compare the two processes.

This writer's orientation to person perception can be clarified by referring to two differing views of the perceptual process. These are Brunswik's (1956) perceptual lens model, which was initially developed with reference to the perception of physical objects, and Kelly's (1955) theory of personal constructs. Both viewpoints see perception as tending to focus on distal attributes. In person perception these are largely covert, distal attributes; that is, impressions are formed about and discriminations are made along inferred, nonobservable dimensions. Both viewpoints also see proximal stimulus events (e.g. gestures, facial expressions, tone of voice, body posture) as being important in mediating the perception of covert

distal attributes (e.g. personality traits, emotional states, abilities, intentions). However, there are important differences in the way in which the mediation process and the nature of the distal variables in person perception are regarded by Brunswik and Kelly.

Brunswik's perceiver estimates distal attributes from proximal stimuli on the basis of learned probabilistic cues. The distal foci of perception are seen as being externally given, objectively measured and defined independently of the perceiver's discriminatory responses. Kelly's perceiver, on the other hand, selects from and organizes proximal stimuli (i.e. codes rather than decodes stimulus events) to arrive at personal constructs. These are then used in making discriminatory responses to social objects. Here the distal foci of perception are seen as products of active categorization of proximal stimulus events so as to construct idiosyncratic attributes or abstractions.

Rommetveit (1960) has called Brunswik's model a "psychology of the empty organism" and Kelly's theory a "psychology of the empty social world". This writer's own position lies between these two viewpoints for it seems more useful to conceptualize both individuals and their social worlds as being 'full' and complex.

The perceptual processes of individuals in the environment are accordingly seen as involving both the coding and decoding of stimulus inputs. In the area of person perception, where many judgments are made about attributes not directly observable, it seems advantageous to place greater attention on active coding or categorizing processes. Brunswik's requirement of an interpretation-free reality appears too restrictive when complex perceptual organization is the focus of interest.

Characteristics of Person Perception

In the now extensive literature on person perception several facets of our experience of other people are repeatedly cited as being important and distinctive characteristics. One of these is the tendency to perceive others as 'causal agents' (Hastorf et al., 1970). Heider (1944, 1958) noted the tendency to perceive persons as the origins of actions, i.e. as potential causes of their own behaviour and of changes in the environment. Heider (1958) emphasized the importance of cause-effect inferences in his comments on the naive analysis of action, intention, ability and environmental properties. Heider's writings, while not providing an interrelated set of propositions, have been extremely influential in generating a good deal of research and systematic theorizing in the field of what has come to be known as attribution theory (Jones and Davis, 1965; Jones, Kanouse, Kelley, Nisbett, Valins and Weiner, 1972; Kelley, 1967).

The recognition that people perceive psychological properties in others such as intentions as well as emotions, attitudes, abilities and so on focuses attention on the fact that the perceiver regards the other as having the potential for a phenomenal representation of the environment which mediates his actions (Newcomb, 1958; Tagiuri, 1958, 1969). This important characteristic of person perception has implications for both perception and interaction, highlighting something of the complexity of the relationships between our perceptions of others and our behaviour toward them. For as Tagiuri succinctly puts it:

"the perceiver may, through his own presence and behaviour in the phenomenal world of the other, cause changes in the way in which the person whose state he is trying to judge presents himself. This is, of course, quite different from the way in which a rock is a source of cues for a perceiver." (Tagiuri, 1969, p. 396)

It was this double interaction between perceiver and perceived which led Cline (1964) and others to use the term 'interpersonal perception'. Laing goes even further and talks about 'the spiral of reciprocal perspectives' in interpersonal perception (Laing, 1967; Laing, Phillipson and Lee, 1966).

The second point that may be taken from Tagiuri's (1969) comments is that all participants in a social situation both as perceivers and objects of perception can control, at least in part, the cues from which others select, make inferences and attributions and form impressions. This process of self presentation has received extensive consideration by Goffman (1959).

A further distinctive facet of person perception is that the similarity between the perceiver and the object being perceived is far greater than any other instance of perception (Hastorf et al., 1970; Newcomb, 1958; Taft, 1960; Tagiuri, 1969). That we perceive others as similar to ourselves means that we can infer attributes that we are aware of in ourselves and use our past experiences when making judgments about another's intentions or state. It has been suggested that this assumption of similarity (sometimes called empathy) may be critical in the sense that personal or vicarious experience can set the limits of the perceiver's repertoire of categorizing responses (Tagiuri, 1958).

Classical Freudian projection has also emphasized the importance of perceiver characteristics on perceptual responses to others. According to this viewpoint, however, the individual tends to attribute characteristics and motives to others that are unacceptable or have been repressed in the self. Cook (1971), in reviewing a number of studies dealing with projection in person perception suggests that the results are not conclusive. In many instances the effects of assumed similarity, which has been called 'attributive projection' by some

(Murstein and Pryer, 1959), makes it difficult to find evidence of projection in the psychoanalytic sense. Tagiuri (1969) concluded that the research evidence suggested that projection could not be regarded as a general characteristic of person perception.

There is, then, a cluster of characteristics which gives person perception a special quality and distinguishes it from the perception of non-person objects in some significant ways. It has been seen that important aspects of the process are:

- a) persons are viewed by others as being potential causal agents,
- b) others as well as ourselves are perceived as having internal psychological qualities,
- c) both perceiver and perceived are objects of perception, and
- d) there is a tendency to assume similarity between oneself and others.

Three main classes of information are available which act as sources of variation in the perception of other people. First, there are the characteristics of the person who is being perceived; second, the nature of the person doing the perceiving; and thirdly, the situation in which the interaction takes place. A consideration of these factors is in line with the assumption of 'full' and complex human beings operating in 'full' and complex social worlds.

Sources of Information and Variation in Person Perception

a) The Stimulus Person

The person who is being perceived, commonly referred to as the stimulus person, is perhaps one of the most obvious sources of information. That the qualities, actions and appearance of the object being

perceived influences perception of that object seems self evident. The way in which this process operates is not so obvious, however, and is fraught with methodological complexities. One of these is the problem of defining the stimulus. Since person perception is often focused on covert, distal variables such as intentions, emotions or personality traits, particular difficulties are presented. Perceivers' judgments of the psychological attributes of others, for example, cannot be compared with objectively defined physical variables. In addition, the stimulus properties of the person cannot be studied in isolation as determinants of perceptions and cognitions for they are related to the circumstances surrounding them.

Hastorf et al. (1970) advocate caution in designating an individual as a 'common stimulus person' when judgments are being made by several different perceivers. One reason for this is that behaviour (one source of cues) will vary as a function of the situation (another source of cues), and the situation includes the characteristics of the participants.

b) The Situation

The situation is an integral part of the stimulus since "in the process of categorizing and judging his environment, the individual generally does not deal with discrete events but rather with extended sequences and contingencies of events" (Tagiuri, 1969, p.397). For example, knowledge of the circumstances in which a photograph has been taken reduces the number of likely alternative emotions inferred from the facial expression of the person photographed (Bruner and Tagiuri, 1954). In 'real life' situations the interdependence among the two external sources of cues is even more apparent with a complex interpenetration of person perception and social interaction.

Often one of the most important features of the situation which influences perceptions of another person is the role category of that person, with its associated behavioural expectations and person characteristics. In many instances role expectations may be a major contributing factor to our impressions. On the other hand, it has been suggested that out-of-role behaviour may produce more information about what a person is 'really like' (Jones and Davis, 1965) and there is some experimental evidence for this (e.g. Alexander and Epstein, 1969; Jones, Davis and Gergen, 1961). It has also been demonstrated that the role relationship between perceiver and perceived influences impressions (e.g. Jones and deCharms, 1958).

Interaction situations also differ in terms of a number of other features apart from role categories and relationships. Status differences among participants and the content of the situation (e.g. task oriented or social exchange) may affect the way in which persons are known and evaluated (Secord and Backman, 1974). The degree to which there is a structure inherent in the situation also varies, influencing the mutual orientation of the participants and their awareness of how they should behave (Hargreaves, 1972).

Related to structure is the concept of "definition of the situation". Introduced by Thomas (1928) and now widely used by social psychologists of the symbolic interactionist school, the concept involves the idea that for interaction to flow smoothly, participants must to a large degree share a common perception of the meaning of the situation. Both Asch (1952) and Schutz (1970) put forward similar arguments, speaking respectively of a "mutually shared field" and a "communicative common environment." One of the crucial aspects in arriving at a definition of the situation is the perceptions individuals have of the other participants. Each person comes to the situation with

particular roles and goals, selects information from the behaviour of others and makes inferences and attributions about the roles, goals, traits, intentions and abilities of others which may be relevant to the situation. Kelly (1955) sees an individual's idea of the way another person perceives the meaning of the situation as being particularly important for interaction. He does not assume that people can interact smoothly only when they have similar construct systems presumably enabling them to discriminate, interpret and see the implications of events in similar ways. Rather, interaction is seen as taking place in terms of the participants' own construction of events and notions of what the others' construct systems are like.

c) The Perceiver

At this point the third source of variation in person perception needs to be considered, that is, the perceiver. A number of writers have looked at individual differences in perceiver characteristics as factors which may influence the way in which others are perceived. A general overview is provided by Tagiuri (1969) and detailed reviews have been undertaken by Shrauger and Altrocchi (1964) and Warr and Knapper (1968).

The possibility of important sex differences in person perception has often been mentioned and some quantitative and qualitative differences between the perceptions of males and females have been demonstrated. Cline (1964) and Shrauger and Altrocchi (1964) both concluded that research and theory must take sex differences into account. However, a recent review scrutinized studies relating to sex differences in (a) judging emotions, (b) the accuracy of person perception, (c) self-perception and assumed similarity, and (d) inferences from descriptive traits, as well as a number of studies using free

response techniques. The conclusion from the combined evidence was that sex differences in person perception were far from widespread (Warr and Knapper, 1968, pp. 185-194).

Until recently the consequences of age differences on person perception have not received much attention, though other developmental research (e.g. Piaget, 1929, 1932) suggests that person concepts would increase in their complexity and sophistication with age. While some studies conducted during later childhood indicate that the number of discriminations on a given construct increases with age (Signell, 1966), as does integration of perceptions (Yarrow and Campbell, 1963), information on person perception in children is fairly limited. A recent study by Peevers and Secord (1973) using naturalistic descriptions of peers obtained from subjects in five age levels from kindergarten to university provides some important information on age changes in person perception. They found that with increasing age perceivers see others in a more sharply differentiated way as an individual. The descriptions of the youngest children failed to differentiate the other person from his possessions or environment whereas the university students frequently used dispositional terms. Age differences were also found on the dimensions of personal involvement, evaluative consistency and depth.

Amongst a number of other stable perceiver characteristics which have also been investigated may be noted social and cultural background (e.g. Tajfel, 1969; Triandis, 1964) and political and religious beliefs (Warr and Knapper, 1968). There is evidence that these factors can have important influences on person perception in certain situations.

A large number of studies have examined the relationship between the person perception and the personality of the judge. Schrauger and Altrocchi (1964) provide a detailed review of this area, examining

studies concerned with such variables as authoritarianism, hostility, dominance, sociability, adjustment, and the use of psychological as opposed to physical characteristics. In general, there is little reliable evidence that a judge's personality is related to the accuracy of perception. While several personality characteristics appear to have some influence on judgments made about others, personality variables which are consistently related to how others are perceived have not been identified.

One other aspect of individual differences in person perception that has received a good deal of consideration is that of cognitive style. The degree of conceptual differentiation (the tendency to make fine distinctions among people) in person perception has been the subject of a number of studies though partly due to methodological difficulties the findings are not consistent (see Shrauger and Altrocchi, 1964). Complexity-simplicity of cognitive structure has also aroused considerable attention as a factor influencing the way in which an individual perceives and evaluates others. More complex or abstract observers use a larger number of dimensions or constructs in describing persons (Bieri, 1955, 1961). In addition, they are better able to attribute and integrate somewhat conflicting traits relating to a person (Harvey, Hunt and Schroder, 1961). A review of research concerned with the relation between cognitive complexity and accuracy in interpersonal judgment is provided by Crockett (1965).

In general, there appear to be more consistent differences in person perception related to the general cognitive characteristics and processes of the perceiver than other personality characteristics. One of the difficulties is that cognitive style variables may interact in rather complex ways with other characteristics of the perceiver, characteristics of the stimulus person, the situation and the nature of

the judgmental task (Tagiuri, 1969).

A number of cognitive processes important to person perception such as individual differences in implicit personality theories and the use of categories have not been dealt with thus far. These aspects and others relating to the role of the perceiver in the process of person perception will now be examined. While the main focus is on the perceiver as an active information processor, the extent to which perceiver characteristics interact with those of the situation and the stimulus person will also be discussed.

The Process of Person Perception

Hastorf et al. (1970) detail three attributes of human experience which influence the ways in which individuals perceive others; namely, that perceptions are structured, and tend to be both stable and meaningful. Accordingly, the perceiver engages in a number of cognitive processes in order to arrive at a considerable degree of structure, stability and meaning in perceptions.

Experiences of other people are structured by selection and categorization processes. There is evidence that the categories a perceiver uses to select and organize perceptions of others are determined more by the personal relevance and functionality of the categories than by the characteristics of the stimulus person (Dornbusch, Hastorf, Richardson, Muzzy and Vreeland, 1965; Norman and Goldberg, 1966; Passini and Norman, 1966; Rommetveit, 1960). Recent findings suggest that the relative influence of perceivers and the perceived on categories of person perception may vary with the purposes of interaction and the perception of social roles (Touhey, 1972, 1974). This emphasizes the active role of the perceiver in creating perceptions of other people and producing structure and

organization in his interpersonal world. In impression formation it is necessary for the perceiver to gather as much information as possible about the other person or persons in order to structure relationships. However only information that is congruent with the perceiver's goals, roles, interests and so on are likely to be attended to.

Schutz (1970) suggests that people use 'interpretive schemes' to make sense of data in social situations. Some of these interpretive schemes may be unique to the individual as a result of his life experiences, others may be common to a member of a group or subculture, and some may be shared by all members of a culture. Appropriate interpretive schemes will be used to select and interpret information depending on the perceiver's 'system of relevancies' at the time. This notion of instrumental relevance in the selection of categories individuals use when forming impressions of others seems to account for a good deal of variance. It has been suggested that this should be taken into account in studies of category or construct usage in the judgment of other persons (Rommetveit, 1960). It is apparent that the system of relevancies will vary according to the situation which provides the context for person perception.

In addition to preparing the ground for social interaction, the use of categories in impression formation serves an important economic function in organizing the mass of potential information about other people. By placing a person in categories a perceiver can reduce the complexity of the environment and can respond to that person in terms of class membership rather than uniqueness (Bruner, Goodnow and Austin, 1956). Of course this has both positive and negative aspects. By recoding the diversity of stimuli into simpler form a serious loss of information and/or the addition of misinformation may eventuate (Bruner,

1958). This is likely to be the case in stereotyping, the tendency to place a person in a category on the basis of some easily identifiable characteristic and to attribute a socioculturally agreed upon set of characteristics to any person identified as belonging to that category (Secord and Backman, 1974). However, it should be noted that stereotyping is not necessarily an undesirable response. Responses based on stereotypes may often be more accurate than when personal observations and inferred individual differences are taken into account (e.g. Gage, 1952; Stone, Gage and Leavitt, 1957). When little information is available about the person or class of persons being judged the perceiver is forced to make a judgment in terms of a category.

Though stereotyping may be an exaggerated form of typification or categorizing, people tend to have their own personal stereotypes as well as social stereotypes of the kind described above. Such personal stereotypes have been termed 'implicit personality theories', a concept introduced by Bruner and Tagiuri (1954) and elaborated by Cronbach (1955) to refer to individual differences in person perception relating to assumptions made about the nature of other persons. Schneider (1973) provides a recent review of the area. On the basis of implicit personality theories a perceiver may invent concepts or attributes (form personal constructs in Kelly's (1955) terms), assume relationships between these concepts and make predictions on the basis of the assumed relationships.

Some of the factors likely to influence the initial selection of constructs used to organized perception have already been mentioned (e.g. personal relevance and functionality in a particular situation). Other ways in which people typically perceive and think about others have been mentioned as distinctive qualities of person perception (e.g. the tendency to assume similarity and see others as origins of actions). In implicit personality theories there appears to be a tendency to assume

that clusters of characteristics go together - usually in an integrated configuration which maximises balance and minimises dissonance of elements (e.g. Pepitone and Hayden, 1955; Secord, Backman and Eachus, 1964).

This tendency to view sets of traits as going together in impression formation seems to be a general human characteristic (Koltuv, 1962). The early work of Asch (1946) on impression formation investigated the way in which trait information is processed and integrated. While Asch's interpretation of his results have since been queried (Bruner, Shapiro and Tagiuri, 1958; Wishner, 1960) it is evident that on the basis of some information (often limited) people go on to make inferences about a far wider set of attributes or dispositional qualities (traits, attitudes, abilities, intentions). In addition, within sets of traits some appear to be more central than others, serving to structure the organization of trait inferences. This occurs in a variety of contexts, from the artificial stimulus person represented by a trait list in Asch's (1946) study, to an actual stimulus person introduced using words from Asch's trait list (Veness and Brierley, 1963), to more natural situations using more lengthy newspaper reports (Warr and Knapper, 1968).

The cognitive processes involved in implicit personality theories are also similar to those postulated in other constructs such as the 'halo effect' (Thorndike, 1920) and 'logical error' (Guilford, 1936; Newcomb, 1931).

In life situations, overall perception of a person is often of more interest than individual bits of information and inferences from a single input. A number of investigators have concerned themselves with the problem of how inferences are combined to form judgments about people.

Cook (1970) suggests that judgments of others are based on two kinds of inference rules: identification rules which deal with how to recognize people who have particular attributes, and association rules concerning which attributes or traits are associated with each other.

In inferences utilizing identification rules it seems pertinent to note, as Brunswik (1956) and Heider (1958) have done, that proximal cues are highly interchangeable and many different cues may result in inferences related to a particular attribute or dispositional quality. In addition, the same composite social event may "betray" a number of different distal attributes (Rommetveit, 1960). Once an inference has been made in regard to an attribute on the basis of an identification rule it may be assumed that association rules are used within the framework of an implicit personality theory or social stereotype to assign further attributes to the person.

A number of mathematical models have been developed to deal with the way in which a cluster of inferred attributes are combined to form overall judgments, but as yet the best principle for predicting a judgment or impression based on complex information is not clear. Linear models emphasizing averaging, additive and multiplicative functions have been proposed and Anderson (Anderson and Jacobson, 1965; Anderson, 1971) has produced a good deal of data in support of a weighted averaging model. Warr and Knapper (1968) in a review of models and research on combination rules see a non-linear configural approach as being more useful but argue that modes of combination will vary with judge, situation and task.

The integration of information about another person may also be affected by the order in which the information is received. Primacy and recency effects in impression formation have been the subject of a number of studies and a useful review by Jones and Goethals (1972)

highlights the difficulty of predicting the effects of order in a complex natural setting with unfolding behaviour sequences. They set out to show that:

"the information conveyed by the order of events itself is contingent on the context in which these events unfold and on the nature of the entity being considered as an attributional target." (p. 28)

Several processes are identified as determinants of primacy and recency by Jones and Goethals. Primacy effects may result from attention decrement, discounting or assimilation. Assimilation appears to be the most pervasive phenomenon here and implies that the categories (expectancies) established by earlier information shape the perception of value, intensity or frequency of later units of information. However, there does seem to be some point of information discrepancy beyond which assimilation cannot take place. Recency seems to result from processes of recall readiness, judgmental contrast or a number of content and context related hypotheses. The latter includes the likelihood that if the entity is known to change and develop then more recent manifestations are likely to be seen as more significant.

Throughout this discussion of the selecting, categorizing and organizing activities of a human perceiver in a social world it has been suggested that there is a tendency to think of other people in terms of dispositional qualities and thereby attribute to them a high degree of invariance. By focusing on invariant (and often unobservable) characteristics rather than on the ever-changing aspects of behaviour individuals attempt to simplify, as well as make more consistent and predictable, a very variable human environment. The processes involved seem to be comparable to those involved in seeking constancies in visual perception (Brunswik, 1956; Heider, 1958; Jones and Davis, 1965; Warr and Knapper, 1968). The search to perceive invariant properties in other people and to make attributions of intentionality

and causality are both aspects of the attempt to achieve some stability in experience. Although, as noted earlier, stability and simplicity can contribute to rigidity, some stability seems necessary to make future interactions more predictable. Bannister (1962) found that schizophrenics have disorganized construct systems and are unable to make consistent and useful classifications of other people.

Having pointed out the tendency to perceive relatively invariant properties in other people it is appropriate to consider the implications of this. Mischel (1968) argues persuasively that there tends to be an overemphasis on individual differences at the trait level and that the relative impact of situational variance is underestimated. He contends that there is little evidence of broad trait concepts except in the cognitive structure of observers. A review of studies found little evidence of behaviour generality presumed to reflect a given trait which held across settings, with the exception of abilities and ability related traits (Mischel, 1968). The reviews by Mischel (1968) and Argyle and Little (1972) strongly favour situations and the combination of individuals in situations as sources of variance in behaviour. This kind of position is also posited by Secord and Backman (1975) and is clear in their interpersonal congruency theory (Secord and Backman, 1961, 1965).

If personality traits (dispositional qualities) and the role of others as causal agents tend to be overattributed why is it that we perceive and think about others in this way? Jones and Nisbett (1972) contend that there are a number of forces which operate to sustain such a view and similar reasons are put forward by Hastorf et al. (1970). First, there is usually an informational bias in that perceivers are likely to observe others in a restricted range of roles and situations and may in addition evoke a restricted range of complementary responses

to their own behaviour. Second, a number of information-processing biases may operate (e.g. tendencies toward cognitive consistency, primacy effects, assimilation processes). The physical constancy of others may also produce the illusion of behavioural and therefore dispositional consistency. Third, linguistic bias and distortions may facilitate the inference of traits. In the English language the same term may be used to label an action and the reflected underlying disposition. Fourth, disconfirmation of traits may be rare.

Jones and Nisbett (1972) note, however, that the low empirical validity of trait and dispositional concepts may only be important to the psychologist:

"The observer, in his daily life, may achieve fairly high predictability using trait references that the psychologist can show to be erroneous. If the observer is habitually insulted by a given actor, it may make little difference to the observer whether the reason for this consistent behaviour is the hostility of the actor, the actor's dislike of the observer, or the fact that the observer sees the actor only in the early morning when the actor is always grouchy." (p. 91)

If the behaviour of others tends to be seen as a manifestation of dispositions and traits rather than as responses to situational cues it is important to ask the further question of how the individual perceives himself and the causes of his own behaviour. Bem (1965, 1967) argues that people as perceivers of others or in self perception use the same kinds of evidence and logic to make inferences from behaviour. However, Jones and Nisbett (1972) argue on the basis of theory and a small number of empirical studies that actors and observers will perceive the same behaviour in different ways as a result of differences in the availability of relevant information and differences in information processing relating particularly to the differential salience of information. They conclude that whereas observers will tend to attribute another's actions to stable personal dispositions, those same actions

will tend to be attributed by the actor who performed them to situational requirements (Jones and Nisbett, 1972).

This view of divergent perceptions of the causes of behaviour is further complicated by the notion that there appear to be important differences among individuals in their orientation toward understanding and controlling their worlds. One dimension of difference is in the tendency to perceive the locus of causality and the control of reinforcements as internal or external (Crandall, Katkovsky and Crandall, 1965; Crandall, Katkovsky and Preston, 1962; deCharms, 1968; Lefcourt, 1966; Rotter, 1966). This may result in variations in aspirations, expectancies and information-seeking as well as in a number of other behavioural indices. The perception of causes of behaviour as being either stable or unstable has also been of recent interest, particularly in the area of achievement motivation (e.g. Weiner, Frieze, Kukla, Reed, Rest and Rosenbaum, 1972).

This discussion of the role of the perceiver in the process of person perception (a role which it soon became clear was inextricably entwined with that of the situation and the person being perceived) began by noting that perceptions of others tend to be structured, stable and meaningful. It has been seen that a number of cognitive processes are involved in arriving at a structured and relatively stable view of other people. Such processes also give meaning to perceptions. The recognition of the importance of meaning in perception goes back to Bartlett (1932) and beyond and highlights the fact that in organizing perceptions individuals are trying to make sense of what they see and experience. This view of individuals trying to make sense of their world is stressed by writers such as Heider (1958) and Kelly (1955).

Thus far, person perception has been discussed primarily in terms of the perceptual process. Emphasis has been placed on the ways that perceivers actively process stimuli to create interpersonal meaning.

This has been done because one of the aims of this dissertation is to examine some of the stimuli teachers attend to in the process of perceiving and judging their pupils.

The emphasis on process in person perception also reflects a general shift in recent research interest away from studies of the accuracy of person perception. However, because some of the problems and trends have wider application some comment on accuracy in person perception is warranted.

Accuracy in Person Perception

These studies have focused on the outcome and veridicality of judgments of other people and on the ability to be a good judge. Two broad classes of investigation have been undertaken, one concerned with the recognition of emotions and the other concerned with the accuracy of personality and dispositional judgments. Some of the earliest experimental studies on person perception concerned the recognition of emotional states in others. Summaries and reviews of the research on judgments of emotion are to be found in Davitz (1964), Honkavaara (1961), and Tagiuri (1969).

Studies concerned with the measurement of interpersonal accuracy and the 'ability' to judge others also began fairly early and their numbers increased in the 1940's and 1950's. Reviews of the literature on person perception up to and including the early 1950's show that most of the studies at that time were concerned with the identification and measurement of the ability to accurately judge the psychological characteristics of others (see Bruner and Tagiuri, 1954; Taft, 1955). However, soon afterward it became clear that there were a number of methodological problems which rendered many of the studies in perceptual accuracy largely uninterpretable (Campbell, 1955; Cronbach, 1955;

Gage and Cronbach, 1955; Hastorf, Bender and Weintraub, 1955).

Three major areas of difficulty were identified (Warr and Knapper, 1968). First, there was the problem of what judgment perceivers should make. Here the difficulty was one of deciding on what constitutes a satisfactory measure of person perception when different measures were found to yield varying assessments of a person's ability to judge others. Second, there was the problem of how to assess the criterion against which perceivers' judgments are compared. A variety of approaches have been employed in defining the criterion, such as a consensus of judges or self-reports from the person being perceived. The predictive validity of judgments has also been examined. Investigations using different modes of defining the criterion cannot be assumed to be comparable. Third, some of the most complex and subtle difficulties concerned the relationships between perceiver and stimulus. Many early studies used global scores assumed to represent a general ability to judge others accurately. However, Cronbach (1955) in his classic paper analysed typical accuracy scores as a function of the perceiver and person judged. He showed that global judging scores could be broken down into a number of components and proposed methods to isolate the elements involved. Briefly, Cronbach isolated four major components of person perception ratings, namely: "elevation", which reflects the way the judge uses the rating scale; "differential elevation", which measures the variance of an individual judge's ratings; "stereotype accuracy" or the ability to judge the generalized other; and "differential accuracy" or sensitivity to individual differences.

Since Cronbach's (1955) paper was published there have been many attempts to circumvent problems in the three broad areas described (e.g. Bronfenbrenner, Harding and Gallwey, 1958; Cline, 1964; Cline

and Richards, 1960; Crow and Hammond, 1957; Jackson and Messick, 1963; Smith, 1966). Tagiuri (1969) has noted that:

"The lack of evidence of a general ability to judge others; the positive evidence in favour of independent abilities, and the attempts at classifying them; the demonstration of the operation of various confounding sets and components - all these can be viewed as useful conclusions resulting from this line of work." (p. 413)

However, Tagiuri was forced to express the view, as Cronbach (1958) had done earlier, that it was difficult to draw any conclusions about accuracy in person perception and a fully satisfactory technique to measure judging accuracy had yet to be developed. Similar views had earlier been expressed by Cline (1964) and Schrauger and Altrocchi (1964) and continue to be expressed in more recent publications (e.g. McHenry, 1971).

Person Perception, Interpersonal Behaviour and the Notion of Expectancy

Many of the studies in the area of person perception have been undertaken in situations where there was no opportunity for interaction between perceiver and perceived. In most natural life situations, however, the people whom we perceive, evaluate and come to know are most often those we interact with (exceptions are, for example, indirect perceptions of other people through newspapers, radio, television, films and books). The relationship between perception and action is thus a particularly pertinent one to investigate.

It has become apparent in the preceding discussion of the person perception process that one important aspect of person perception is the development of a conception of another person which is then used as a basis for developing expectations and predictions about that person's behaviour in future interaction situations. The manner in which individuals perceive each other is clearly one determinant, though not

the sole one, of the way in which they behave in relation to each other. As Tagiuri (1969) notes, it was the desire to understand the interplay between the perception of another person and action toward that person that provided one of the sources of impetus for much work in the area of person perception. Despite this interest, and the writings of people such as Heider (1958) and Steiner (1955, 1959) on interpersonal relations, knowledge of the complex nature of the interaction between person perception and interpersonal behaviour is as yet incomplete.

A useful distinction among the outputs of a perceptual system is proposed by Warr and Knapper (1968), through their suggestion that the perceptions of others have three components: the attributive component, the expectancy component and the affective component. The attributive component of person perception whereby we process information from the stimulus person and the situation, and go on to attribute characteristics to that person has been discussed above. It will not be dealt with any further here, except to note the distinction Warr and Knapper (1968) make between two categories of attributive judgment. Episodic judgments are those to do with a temporary state of the person during a particular sequence of behaviour (e.g. she is bored), while dispositional judgments are relatively independent of particular episodes of behaviour and concern more permanent characteristics (e.g. she is intelligent). Both types of attributive judgment may be of overt or covert phenomena.

The second component of judgment identified is the expectancy component. This is particularly relevant in the context of this dissertation. Perception of others in terms of categories or dimensions is not the only aspect of our judgments. Related to those attributive judgments are a range of expectancies. Such expectancies are very often not conscious and explicitly formulated but may be recognised when surprise is felt at their disconfirmation (Brown, 1965).

In the earlier discussion of the process of person perception the notion of expectancy or expectation was mentioned in relation to its role as an input selector. The work of Bruner (1957, 1958) and others relating to perceptual expectancy and the use of categorization was cited in this regard. Expectations about what characteristics or traits 'go together' in implicit personality theories and stereotypes were also noted as important.

However, in addition to influencing the input and processing of future perceptions, expectancy is also an important component of what Warr and Knapper (1968) term perceptual output or response. Insofar as the output of a perceptual system involves attributing dispositional qualities to a person it also involves expectancies about that person (e.g. how he or she will behave as a result of those qualities). Episodic judgments, too, will often have expectancies associated with them such as when we place a person in a role category. To perceive someone as being in a position corresponding to a certain role is to expect him or her to behave in certain ways in that situation. There is also a tendency to extrapolate from episodic to dispositional judgments where the expectancies extend to a far wider range of situations.

The final aspect of a person perception response considered by Warr and Knapper (1968) is the affective component. They note that when a person is perceived or judged the perceiver responds in an emotional way in addition to classifying and making predictions. Affective responses of liking, sympathy, attraction, respect, interest and so on may have an important influence on the other components of judgment and on the kind of interaction that takes place.

In summary, perceptual responses to other people may be conceived of as having attributive, expectancy and affective components. The expectancy component of perception seems particularly pervasive and

operates at several stages of the perceptual process. Expectations may act as selectors and organizers of incoming information, and may affect the processing of that information in terms of inference rules and implicit personality theories. Generalized expectancies about groups of individuals (stereotypes) may be part of a perceiver's relatively stable characteristics and a perceiver's current state may result in some short term expectancies. Finally, expectancies in a person's perceptual response to another enables predictions to be made which act as a guide to future interpersonal behaviour.

When looking at perceptual situations involving interpersonal behaviour it appears that the context and the perceiver's current state assumes particular importance (Secord and Backman, 1974; Warr and Knapper, 1968). The nature of the interaction situation may have implications for person perception. Classifications of interaction situations in terms of the degree of reciprocity and the nature of the participants' goals have been proposed (Jones and Thibaut, 1958; Sorbin, Taft and Bailey, 1960). Both groups of writers suggest that these factors will affect the type of perceptual judgment made. Broadly speaking, the degree to which the perceiver's behaviour is contingent on the behaviour of another participant will affect the tendency for the perceiver to make dispositional attributions. In addition, the individual's goals in an interaction situation will influence the perceiver's set and judgments of others. A number of other researchers also emphasize the salience of the characteristics of the situation and certain aspects of the perceiver (e.g. goals) in person perception where interpersonal behaviour is involved (Heider, 1958; Jones and Davis, 1965; Kelley, 1967).

In interaction situations not only does a perceiver have to generally assess others, he or she also has to interpret the behaviour

of the other person or persons and make some predictions about their future actions in order to prepare for responding. A perceiver's expectancies are thus of particular consequence in direct interpersonal situations. While the relationship between person perception (including perceptions of self) and interaction are very complex, Tagiuri (1969) sees it as a very important area of concern. He concludes that "If there is to be a science of interpersonal behaviour, it will be based, to some extent, upon our learning more about how people come to perceive other people as they do" (Tagiuri, 1969, p. 435).

The concept of expectancy has been of major importance for many psychological theorists (e.g. Allport, 1950; Kelly, 1955; Rotter, 1954). Tolman's (1932, 1949) expectancy theory has been particularly influential and this is apparent in the writings of Brunswik (1951) and Postman (1951). Lewin's (1951) field theory and Bruner's (1951) writings on perception and personality also evidence an expectancy point of view. The trend to include a cognitive mechanism such as expectancy has continued and grown since Tolman's time and more recent theoretical attempts in the area of achievement motivation (e.g. Atkinson, 1964; Weiner, 1974) and social learning theory (Bandura, 1977a, b) all include an expectancy construct. The inclusion of cognitive processes in formulations relating to the acquisition and regulation of human behaviour seems to be on the increase and an expectancy construct appears particularly useful in predicting and explaining behaviour in humans, as well as complex behaviour sequences in lower animals.

It is pertinent to note that in the literature the terms expectancy, expectation and expectation set have often been used interchangeably though this is not to say that the construct is defined in the same way by all writers. There are a number of aspects of the concept of expectation or expectancy which are relevant to the present study and these will now be briefly discussed.

Secord and Backman (1974) writing in the context of social roles, note two features of expectations which are important if the concept is to be understood; that is, their anticipatory nature and their normative quality.

The anticipatory nature of expectations is important because it guides the behaviour of an individual. As Finn (1972) writes, "it is the anticipation that shapes the manifestations of expectations" (p. 390). The importance of anticipation in interaction has long been recognized. Mead (1934) spells out the point and suggests that in anticipating the attitudes and behaviours of others, social interactions may be rehearsed beforehand. The fundamental postulate in Kelly's personal construct theory is that "a person's processes are psychologically channellized by the ways in which he anticipates events" (Bannister and Fransella, 1971; Kelly, 1955). The importance of anticipation in expectations is apparent when examining the feelings of uncertainty and the tentative, shifting quality of interaction in situations where expectations are minimal (Secord and Backman, 1974).

Finn (1972) also makes a further point in stating that it is anticipation that distinguishes expectations from hopes, desires and aspirations. Expectations involve the additional estimation of reality factors. In other words, expectations imply the anticipation of the behaviour seen as most likely to actually occur given the circumstances and the individual being perceived.

The other aspect of expectations identified by Secord and Backman (1974) is their normative quality. This is related to the fact that a person's own behaviour is partially contingent upon the anticipation of how the other will react. Norms specify a range of behaviour considered appropriate for a given situation and if behaviour is outside this range there are likely to be pressures to conform,

Expectations, particularly when they are well established and shared, Secord and Backman (1974) argue, also have this obligatory quality. In addition to expecting that a person will behave in a certain way, it is believed that he or she should behave in that way.

This discussion of the nature of expectations has largely focused on expectations concerning others. It should be realized, however, that there is a considerable body of research which looks at self expectations for performance. Much of this research is based on Rotter's (1954) definition of expectancy as a probability or contingency held by an individual that any specific reinforcement or group of reinforcements will occur in any given situation or situations. Rotter sees an expectancy as being composed of expectancies generalized from related tasks or situations and a specific expectancy related to the task or situation at hand. A number of investigations have examined the influence of social reinforcement on stated expectancies, particularly achievement expectations (e.g. Adelman, 1969; Crandall, 1963; Crandall, Good and Crandall, 1964; Crandall, Katkovsky and Crandall, 1965). Earlier, Worell (1956) had found that the level of stated expectancy was affected by the value of a goal.

The relationship of performance expectancy to actual performance has also received attention (e.g. Aronson and Carlsmith, 1962; Cottrell, 1965; Feather, 1966; Means and Means, 1971; Ward and Sandvold, 1963; Wlodkowski, 1973; Zajonc and Brickman, 1969). Some of these studies, beginning with that of Aronson and Carlsmith (1962) looked at the effect of confirming or disconfirming an expectancy in terms of Festinger's (1957) cognitive dissonance theory.

The notion of expectation as a cognitive representation of the contingency between voluntary responses and an outcome has been utilized by Seligman (1975) in his recent discussion on learned

helplessness. Seligman argues that when a person has learned that an outcome occurs independently of all voluntary responses, and he or she is thus helpless, the expectation that this is so will have behavioural, cognitive and emotional consequences. Seligman reviews helplessness studies and suggests they provide empirical support for his theory. He states that where a situation of learned helplessness exists:

"Behaviorally, this will tend to diminish the initiation of responding to control the outcome; cognitively, it will produce a belief in the inefficacy of responding and difficulty at learning that responding succeeds; and emotionally, when the outcome is traumatic, it will produce heightened anxiety, followed by depression." (Seligman, 1975, p. 46-47).

The learned helplessness paradigm, with its expectation of response independence has been investigated in classroom situations by Dweck and her colleagues (Dweck, 1975; Dweck and Bush, 1976; Dweck and Gilliard, 1975; Dweck and Repucci, 1973).

Expectations and Bias in Psychological Research

This dissertation is primarily concerned with interpersonal expectations rather than self expectations. It has been seen that expectations of other people are normal outcomes of perceptual and conceptual responses to others. Such expectations may influence behaviour and future perceptions. Since participants in an interpersonal situation are both perceivers and objects of perception, it is likely that the perceptions and behaviour of others may also be influenced,

Most of the systematic research on interpersonal self-fulfilling prophecies comes from investigations of expectancy bias in formal experimental situations. Rosenthal (1964, 1966, 1969a) delineated several ways in which an experimenter might inadvertently influence the

results of the research being undertaken. The personal attributes of experimenters (age, gender, race, status and other personal characteristics) may, for example, affect the behaviour of subjects, sometimes by interacting with subject attributes. However, as Rosenthal (1966) notes, the personal attributes of the experimenter are not likely to affect subjects' responses differentially as a function of treatment conditions. Experimenter bias or expectancy effects on the other hand are thought to affect the experimental outcome in ways related to the experimental treatments.

There is likely to be little disagreement that researchers often expect or desire different responses from subjects assigned to different conditions and frequently have hypotheses relating to the nature of these responses. However, Rosenthal's notion of experimenter bias effect, if supported, would have serious implications for experimental methodology and the state of present psychological knowledge. Using Merton's concept of the self-fulfilling prophecy, Rosenthal (1964, 1966) suggests that the expectation or prediction of an event (i.e. an experimental result) changes the experimenter's behaviour so as to make the predicted event more likely. In a series of reviews a number of studies with animal and human subjects were outlined in relation to experimenter bias effects (Rosenthal, 1964, 1966, 1967, 1969a) and it was concluded that "the phenomenon may well be a fairly general one" (Rosenthal, 1966, p. 310).

While the studies of experimenter bias or expectancy effects will not be reviewed in detail here, several representative studies will be briefly described. A number of studies have used laboratory rats as subjects and experimental psychology students as experimenters. Rosenthal and Fode (1963a) had student experimenters each run five rats through a simple maze ten times a day for five days. The rats were drawn from a homogeneous colony but half the experimenters were told

their rats had been bred for "maze-brightness" and half were told their rats had been bred for "maze-dullness". The experimenters who expected their rats to be bright obtained significantly better maze running performances from their subjects than those who expected their rats to be dull. Moreover the experimenters with "maze-bright" rats rated the animals as brighter, more pleasant and more likeable, describing their own behaviour to the rats as more friendly, enthusiastic and gentle. They also reported handling the rats more and talking to them less than experimenters with "maze-dull" rats. Similar results were found by Rosenthal and Lawson (1964) with teams of student experimenters working with rats in Skinner boxes using seven more complex learning tasks.

As with experiments using animal subjects, the basic paradigm for the study of experimenter expectancy effects with human subjects has been to create groups of experimenters with different expectancies or hypotheses about the data they will obtain. Most of the studies in this area used a person perception task in which subjects were required to look at a series of photographed faces and rate the amount of success or failure the people in the photographs had been experiencing. The scale ran from -10 (extreme failure) to +10 (extreme success) and student experimenters were typically told what average ratings they could expect (+5 or -5). The first of these experiments, by Rosenthal and Fode (1963b) found a significant difference between the mean ratings obtained by experimenters expecting success and those expecting failure. The subjects of experimenters expecting success ratings rated the photographs higher in terms of success than did the subjects of experimenters expecting failure ratings.

Barber and Silver (1968) critically examined over thirty studies which attempted to demonstrate a biasing effect on the results of

experiments due to experimenters' expectancies. Many of these studies involved the person perception task and a small number involved animal subjects. Barber and Silver (1968) claimed that the majority of the studies did not clearly demonstrate the experimenter bias effect and were critical of such inadequacies in data analysis as not performing an overall statistical analysis to exclude the null hypothesis and the possibility of "probability pyramiding" when post mortem tests were used. Nevertheless, they did suggest that a number of studies appeared to demonstrate the effect and, like Rosenthal (1964, 1966, 1967), proposed that mediation of the effect may be due to the communication of expectancies by paralinguistic or kinesic cues. Barber and Silver (1968) also suggested that experimenters may misjudge, misrecord or misreport results; or verbally reinforce subjects for expected responses. Perhaps the greatest divergence from the explanations advanced by Rosenthal was in Barber and Silver's opinion that mediation in any of these ways may be either unintentional or intentional. In Rosenthal's view the intentional biasing of subjects' responses or experimental results was extremely rare.

The principal conclusion of Barber and Silver (1968) was that while an experimenter bias effect had been demonstrated, it was by no means as easy to obtain or as pervasive as Rosenthal had suggested. This conclusion was reaffirmed by Barber, Calverley, Forgione, McPeake, Chaves and Bowen (1969) who made five unsuccessful attempts to replicate the Rosenthal and Fode (1963b) study and argued that further research was needed to determine the preconditions necessary for the operation of the experimenter bias effect.

Interest in the psychological experiment as a social situation worthy of investigation had also been evidenced by Riecken (1962) and Orne (1962). Both these writers have made an analysis of the social

nature of the psychological experiment. As Orne (1962) showed, the subject will go to great lengths to give an adequate performance. He rejected the idea of the subject as a passive responder to stimuli and argued that subjects make active attempts to respond appropriately to the totality of the experimental situation. This totality includes contextual variables or what Orne called perceived demand characteristics. These include:

"the rumors or campus scuttlebutt about the research, the information conveyed during the original solicitation, the person of the experimenter and the setting of the laboratory, as well as all explicit and implicit communications during the experiment proper. A frequently overlooked, but nonetheless very significant source of cues for the subject lies in the experimental procedure itself, viewed in the light of the subject's previous knowledge and experience." (Orne, 1962, p. 779)

The "good subject" will make use of the cues within the demand characteristics of the experimental situation to work out what the hypothesis is and to behave in a way which will support the hypothesis. While subjects may have other aims such as maximising rewards (e.g. course credit, pay, personal insight) and representing themselves in a favourable light (Orne, 1962; Riecken, 1962), the appropriateness of their performance in terms of the perceived underlying rationale of the experiment is likely to be a major concern. In this light the subject is likely to be especially sensitive to any subtle cues concerning the experimenter's expectations and is likely to be an active partner in their fulfillment.

The Concept of the Self-Fulfilling Prophecy

The concept of interpersonal expectations acting as self-fulfilling prophecies has been discussed within the context of behavioural research and experimenter bias effects. However, the origins of the concept of the self-fulfilling prophecy come much

earlier and within a rather different frame of reference.

Thomas' (1928) theorem that "If men define situations as real, they are real in their consequences" (p. 527) has been a major impetus for conceptions of the self-fulfilling prophecy. Merton (1957), with whom the concept is commonly associated, points out that Thomas provides an unceasing reminder of the importance of the meaning of the situation. Once individuals "have assigned some meaning to the situation, their consequent behaviour and some of the consequences of that behaviour are determined by the ascribed meaning." (Merton, 1957, p. 422)

Merton defined a self-fulfilling prophecy as an initially false definition of the situation which initiates a series of events which makes the originally false expectation or prediction come true. In this way the specious validity of the self-fulfilling prophecy perpetuates what Merton terms a "reign of error".

A well-known example given by Merton (1957) of the operation of a self-fulfilling prophecy is that of bank collapses where a rumour of insolvency leads to its own fulfillment once enough depositors believe the rumour and withdraw their savings. Merton also looks at the dynamics of racial and ethnic conflicts in terms of the self-fulfilling prophecy and examines the way in which a prophecy may come true through "moral alchemy" whereby in-group virtues are turned into out-group vices. Application of the self-fulfilling prophecy concept to large scale phenomena was also undertaken by other writers. Allport (1950), for example, does this in the area of international tension and war. Other 'everyday life' examples are provided by Rosenthal and Jacobson (1968a).

As it has been already noted, much of the systematic research by psychologists on expectations and their possible self-fulfilling effects has been conducted in formal experimental situations.

Psychologists have also been interested in the phenomenon as it applies in clinical investigations and psychotherapy. This literature has been reviewed by Goldstein (1962) and Rosenthal (1966). Rosenthal (1969b) reviewed studies dealing with the effects of the clinician's expectancy about the behaviour of his client on the clinical interaction and concluded that the research supported the view that clinician expectancy effects exist. However, client prophecies and expectations fed to clients appear to be rather inconsistent in their effects on therapeutic change (Rosen, 1976; Wilkins, 1973).

The debate over the reality of the self-fulfilling prophecy continues. Archibald (1974) examined alternative explanations for the self-fulfilling prophecy and concluded that there was reasonable empirical support for the concept. However, Wilkins (1977) severely criticizes Archibald's review on the basis of omissions and errors in reporting and argues that the conclusion that self-fulfilling prophecies exist is unwarranted.

One thing is clear. It would obviously be inappropriate to view expectations as operating always as self-fulfilling prophecies. In many instances expectations may be confirmed because they were accurate in the first place and in other instances expectations may be adjusted when they are found to be inappropriate. The fact that an expectation or prophecy is confirmed is not sufficient evidence that it had self-fulfilling properties.

Within Merton's (1957) framework, there needs to be some evidence that the initial expectation was somehow inappropriate or 'false' and also that the prophecy initiated events which led to its fulfillment. He suggests that the mediation of the self-fulfilling prophecy is through resource denial and 'moral alchemy'. This is a largely negative viewpoint, being concerned with stopping the cycle of the self-fulfilling prophecies which are seen as having negative

consequences. From his sociological standpoint Merton argues that the only way to break the cycle is by changing the situation (e.g. societal structures, laws, norms) as a prerequisite to changes in perceptions and behaviour.

While Merton presents some useful insights into the sociological aspects of the self-fulfilling prophecy his position appears to be relatively narrow and restrictive and has limited applicability to expectancy research. Three areas of difficulty suggest themselves. The first is the view of self-fulfilling prophecies as negative, on-going processes which require halting. While this viewpoint is important it also seems important to consider the likelihood that changes in the situation brought about to halt negative prophecies may also act to engender new prophecies which may have either positive or negative consequences. Merton ignores the possibility of positive self-fulfilling prophecies. As Brameld (1972) and Wilkins (1976) propose, it may be as important to engender positive expectations at both the cultural and personal level together with forthright programmes of dynamic change.

The second area of difficulty in Merton's position is his adherence to a situation-referenced hypothesis. He argues that the only way to change perceptions (and thus expectations or prophecies) is to restructure the situation. The locus of change therefore is seen as residing in the situation. While this general position may be an effective one to work from in some instances it does not seem to be the only viable perspective. The research on experimenter bias and the experimental manipulations used in some teacher expectation studies, for example, are based on the assumption that prophecies could be both broken and started by working directly with the perceptions of the individuals involved. This approach sees inter-personal perceptions themselves as the locus for change without any

prior change in the environment. Wilkins (1976) outlines a number of conditions pertaining to the relationship between perceptions and the situation within this second approach. He notes that there is a difference between instances in which false or inappropriate meanings are ascribed to a situation because of an inability or unwillingness to recognize objective features of the situation, and instances which involve mistaken perceptions. In the latter case, perceptions may be able to be directly influenced. Providing the individual with information may change his perceptions and consequently alter his behaviour.

While it seems reasonable to assume, in line with Merton's position, that the provision of information and verbal argument may often be insufficient to change expectations the alternative does not necessarily seem to lie in changing the situation. It could be argued that assimilation processes might operate in such a way that the situation is still interpreted in a manner congruent with expectations already held. It often seems that underlying attitudes and values of the individual may be involved suggesting that particular attitudes may need to be changed as a prerequisite to changing perceptions (Wilkins, 1976). This is likely to be a complex process.

The third area of difficulty in Merton's general position lies in his assumption that self-fulfilling prophecies necessarily involve false expectations. This is linked to his view of self-fulfilling prophecies as essentially negative phenomena. However, using a broader framework which also encompasses prophecies or expectations having positive consequences the notion of false expectations appears unduly limiting. For if a positive prophecy is fulfilled are we then to argue that the initial expectation was false? If a teacher perceives a pupil to be intelligent and expects him to achieve at a high level if given the right kind of help - and he does - is this to

say that the teacher's initial definition of the situation was false? Apart from the conceptual and methodological problems involved in attempting to determine the 'falseness' of perceptions, it is not necessary to require perceptions and expectations to be inaccurate as an essential condition of a self-fulfilling prophecy. More important is the idea of the expectation causing the initiation of a series of events which result in the expectation being confirmed. In the above example, if the teacher provided a favourable classroom environment, learning resources and instructional procedures to give 'the right help', it seems reasonable to argue that a self-fulfilling prophecy is in operation. It does not seem very fruitful in this instance to postulate that the teacher's expectation was false. Absence of a self-fulfilling prophecy would have been indicated by a) low pupil achievement or b) high achievement without any evidence to suggest that the expectation resulted in any events (e.g. teacher behaviour) which contributed to the prophecy being confirmed.

Within the educational context, it may be pertinent to recall the comments of Jones and Goethals (1972) about the divergent perceptions of actors and observers regarding the causes of behaviour. This may apply to teachers as well as researchers. What is perceived and defined as a self-fulfilling prophecy by researchers may not be perceived in the same way by the teachers unless the expectation-behaviour relationship is a conscious intentional process on their part. Beckman (1970, 1973) found that teachers and observers showed some significant differences in their perceptions of causality for a child's performance. In addition, teachers' attributions of causality for a pupil's performance may vary with the pattern of performance, e.g. stable (high or low) or changing (improving or deteriorating). Teachers tend to perceive themselves as responsible for improvement in pupil performance but to attribute consistently low or deteriorating

performance to child or situational factors (Beckman, 1970; Brandt, Hayden and Brophy, 1975; Johnson, Feigenbaum and Weiby, 1964). However, these findings have not received unequivocal support (Beckman, 1973). In addition, while the studies just cited used either fictitious students or a short laboratory teaching situation, there is some suggestion that teachers working in natural classroom situations tend to show less evidence of self-serving or defensive attributional biases (Ames, 1975).

In the pertinent educational literature the concept of the self-fulfilling prophecy has become one of the more dominant themes. Some of this literature will be reviewed in the following chapter. Suffice it to say at this point that research on teacher expectations as self-fulfilling prophecies, as with experiments on the self-fulfilling prophecy in other areas, has not produced consistent and unambiguous findings. Wilkins (1976) suggests that one of the reasons for this is that researchers have failed to understand the conceptual framework from which the idea of self-fulfilling prophecy evolved and have in many cases not considered the ways in which such a phenomenon operates. One of the aims of this discussion has been to outline the roots of the self-fulfilling prophecy concept. In addition, some of the kinds of evidence required as support for the concept and mechanisms through which it may be mediated have been touched upon.

This chapter has reviewed the relevant literature in the area of person perception in order to provide a theoretical base from which to examine interpersonal expectations and their implications for interaction. The concept of the self-fulfilling prophecy was examined in this regard. In the following chapter the focus of attention will be narrowed in order to review the literature concerned with teachers' perceptions, expectations and interpersonal behaviour.

CHAPTER TWO

TEACHERS' EXPECTATIONS AND CLASSROOM BEHAVIOUR

In the previous chapter the theory and research in the field of person perception and interpersonal behaviour was reviewed and discussed as the frame of reference for this study. The concept of expectancy was outlined and the possibility of expectations acting as self-fulfilling prophecies was discussed.

Thus far, consideration of research on interpersonal expectations has largely been limited to that concerned with the effects of experimenters' expectancies on their behaviour, on subject behaviour, and on experimental results obtained. It was from this background, in conjunction with efforts to go beyond the laboratory in the study of interpersonal expectations, that research interest in the expectations of teachers for their pupils grew.

Rosenthal and Jacobson's (1968a) Pygmalion in the Classroom was an extension of the earlier work on interpersonal self-fulfilling prophecies in the laboratory and reported an experiment designed to test the hypothesis that the expectations teachers held for their pupils' achievement could act as self-fulfilling prophecies. This publication in particular stimulated a great deal of interest and controversy concerning teacher expectations and their effects. Since this time the professional literature dealing directly with the issue of teacher expectations and 'teacher-bias effects' has grown rapidly.

The impetus for Rosenthal and Jacobson's study (Rosenthal and Jacobson, 1966, 1968a, 1968b) did not come solely from studies of the effects of experimenter expectancy however. During the 1960's in the United States there was increasing concern about poverty and the

disadvantaged. The view was strongly put forward by a number of writers that teachers expected children defined as disadvantaged or culturally deprived to be unable to learn (Clark, 1963, 1965; Harlem Youth Opportunities Unlimited, 1964; Katz, 1964; Passow, 1963; Silberman, 1964). Assumptions associated with the term 'cultural deprivation' were seen as an alibi for educational neglect (Clark, 1965). It was argued that teachers had low performance expectations for the children which acted as a self-fulfilling prophecy and that effective poverty relief programmes would "only come from a firm belief and insistence that the pupils can perform" (Harlem Youth Opportunities Unlimited, 1964, p. 244).

During this period the emphasis on the assumed causes of the academic failure of low status and minority group children shifted from assumed deficiencies in the child and the home to the inadequacies of teachers and school administrators who held low expectations and engaged in negative stereotyping, either deliberately or inadvertently. Clark (1965) saw the motivational problems of ghetto children being solved when teachers could be motivated to set high standards of scholastic performance and to provide good quality instruction combined with emotional acceptance and support.

During this time sentiments ran high, although supporting empirical evidence was not widely available. Within this climate of concern for the poor and the disadvantaged, and with schools and teachers being held responsible by many for their learning difficulties and poor academic achievement, it is scarcely surprising that Pygmalion in the Classroom (Rosenthal and Jacobson, 1968a) received wide publicity in the popular press. For what Rosenthal and Jacobson concluded from their research appeared to confirm what many critics of the schools had already been saying.

Rosenthal and Jacobson (1968a) administered the Flanagan Test of General Ability (TOGA) to all the children of 'Oak School', an elementary school in a lower socio-economic status neighbourhood. TOGA was a group intelligence test but was described to teachers as a test which could predict the likelihood that a child was a "late bloomer" and would show a significant spurt in academic and intellectual functioning during the school year. Twenty per cent of the children were identified as "potential spurters" (actually at random) and the names of these children were supplied to their teachers. TOGA was then readministered to all children one semester, one academic year and two academic years later, Rosenthal and Jacobson (1968a) reported that the expectancy group ("spurters") showed greater gains in IQ than the rest of the children, particularly in total IQ and reasoning IQ scores. A number of other factors were also analysed to determine their effect on gain scores, namely: ability track, sex, minority group status and grade level. The overall results were interpreted as demonstrating that "teachers' favourable expectations can be responsible for gains in their pupils' IQs and, for the lower grades, that these gains can be quite dramatic" (Rosenthal and Jacobson, 1968a, p. 98).

The reaction in the popular press was in the main excessively enthusiastic, uncritical and oversimplified. Some writers made claims which were far beyond those of the original authors and the notion of teacher expectations seemed to acquire a magical quality as if expectations automatically and inevitably became self fulfilling.

At the other end of the spectrum there arose considerable controversy over the study in academic circles and a number of vigorously critical reviews appeared. The study was strongly criticised on the grounds of questionable experimental methodology, problems of design and sampling, problems of measurement and data analysis, inaccurate data reporting and interpretation, and overgeneralization of

the findings (Gephart, 1970; Jensen, 1969a, b; Neurmberger, 1969; Snow, 1969; Thorndike, 1968, 1969). An extensive critique and reanalysis is provided by Elashoff and Snow (1971). Rosenthal has replied to a number of the criticisms made by Thorndike (Rosenthal, 1969c), by Snow (Rosenthal, 1970) and by Elashoff and Snow (Rosenthal and Rubin, 1971). The debate over whether the literature adequately demonstrated a "Pygmalion effect" or was indeed concerned with the most relevant variables continues (Grieger, 1971; Grieger and Saavedra, 1972; Rosenthal, 1972a, b, 1974).

The extreme negative reaction that set in soon after the publication of Rosenthal and Jacobson's (1968a) study, particularly with the negative criticism of Thorndike (1968) and Snow (1969) and the publication of an early replication failure (Claiborn, 1969), has currently abated somewhat. Certainly it seems reasonable to conclude that the original study, while suggestive, did not demonstrate adequately the phenomenon of teacher expectations acting as a self-fulfilling prophecy and provided no evidence on the processes whereby it operated. However, developments have been such that it now seems futile merely to conduct more studies solely aimed at finding out whether teacher expectations can act in a self-fulfilling manner that biases children's learning. This author would agree with Brophy and Good (1974) in their statement that:

"Regardless of where one stands concerning Rosenthal and Jacobson's original data, work by a large number of investigators using a variety of methods over the past several years has established unequivocally that teachers' expectations can and do function as self-fulfilling prophecies, although not always or automatically." (p. 32)

Before going on to consider some of the research literature which supports this sort of conclusion it is appropriate to briefly comment on the term 'teacher expectations'.

Teacher expectations have traditionally been defined as expectations held by teachers for their pupils' intellectual potential and academic achievement. However, in addition to facing the task of instruction the teacher also faces the task of social control (Jackson, 1968; Jackson and Lahaderne, 1967; Parsons, 1959). Given the inseparable quality of these two facets of the teaching process, it seems likely that teachers will develop expectations for student performance related to both the instructional and normative/social control dimensions (Brophy and Good, 1974; Williams, 1976). Here the term teacher expectations will be used to refer to expectations teachers hold for their students in terms of academic achievement, intellectual potential and general classroom behaviour.

The nature of expectations in general was discussed in the previous chapter. The role of expectations as both input and output factors in person perception, their relationship to attributive and affective elements of judgment, and their anticipatory and normative qualities are all highly pertinent to any consideration of teachers expectations. The literature directly relating to teacher expectations, however, rarely draws on the body of theory and research in the area of person perception and interpersonal behaviour. Where appropriate, links between the two fields will be made in this chapter.

One other point should also be made clear. In much of the teacher expectation literature the term teacher expectations seems to have acquired a negative connotation, with a focus on bias effects and the possibility of negative self-fulfilling prophecies. This seems to have happened despite the fact that the early studies growing out of the Rosenthal and Jacobson (1968a) tradition were concerned with the experimental manipulation of positive expectancies. Perhaps one of the major reasons for this was the concern to seek causes for minority group

and lower class failure in the schools, It needs to be remembered that expectations for others are inevitable outcomes of perception. They are based on observations and inferences made about other people. They are not typically illogical though they may vary in their degree of accuracy and flexibility. Because of their ubiquitous nature, however, it seems fruitless to suggest that teachers should not expose themselves to any information concerning their students which might result in them forming expectations for those students. As it was noted in Chapter 1, the fact that a person's expectations for another may affect his or her behaviour towards that other person does not necessarily imply that a self-fulfilling prophecy effect is at work or that the other person is treated unfairly.

In reviewing the literature on teacher expectations and classroom behaviour it seems useful to make the distinction introduced by Brophy and Good (1974) between studies involving experimentally induced expectations and those which have focused on teachers naturalistically formed expectations. In the studies involving induced expectations some kind of treatment or intervention was used to provide teachers with false or biased information concerning pupils' capabilities. It was assumed that the information provided by the researchers would determine the teachers' expectations for pupil performance. In the latter instance there was no attempt to provide false information or bring in any other kind of treatment designed to influence expectations. A number of different measures have been used in both types of study and once again Brophy and Good's (1974) distinction seems useful. Some of the measures used may be termed product measures as they reflect the 'products' of teachers' expectations (e.g. measures of students' intellectual ability, academic achievement, self-concept). These, it is argued, are necessary to demonstrate the reality and potency of teacher expectation effects (in the

self-fulfilling sense). Process measures on the other hand, involve interactions between teachers and students. Here the interest is on the mediation of teacher expectations and gaining an understanding of the likely causal mechanisms underlying expectation effects.

The following review of teacher expectation studies will of necessity be somewhat selective. As noted earlier, the literature in this area has increased rapidly and a considerable amount of research is currently available. Baker and Crist (1971), Braun (1976), Brophy and Good (1974), Dusek (1975), Finn (1972) and Rosenthal (1974) all provide detailed reviews.

Studies of Induced Expectations

A number of studies have attempted to replicate or partially replicate Rosenthal and Jacobson's (1968a) data. One of the first of these was Claiborn (1969) who used the same method of inducing expectancies and the same intelligence test but found no significant expectancy effect on IQ, even though he used first grade classrooms where Rosenthal and Jacobson's results had seemed most significant. In addition, process measures showed no evidence that teachers were interacting with the 'late bloomers' more frequently or favourably. However, the treatment period was shorter and did not begin until the second semester of the school year. These results were supported by José and Cody (1971) who conducted a similar study which showed no expectancy effects in IQ, achievement data or interaction measures.

A number of other studies which were replications or near replications of the Rosenthal and Jacobson (1968a) investigation fairly consistently demonstrated no evidence of teacher expectations acting as a self-fulfilling prophecy reflected in product measures (e.g. Anderson and Rosenthal, 1968; Conn, Edwards, Rosenthal and Crowne, 1968; Evans

and Rosenthal, 1969; Fielder, Cohen and Feeney, 1971).

Fleming and Anttonen (1971a, b) conducted a study which examined the effects of teacher expectancy on student achievement, self concept and teacher assigned grades. Teachers of second grade students were provided with one of four kinds of information about each student: (1) Kuhlmann-Anderson IQ scores, (2) IQs inflated by sixteen points, (3) Primary Mental Abilities percentiles, and (4) no intelligence test information at all. In addition a measure of teachers' opinions toward IQ tests was obtained. No differences were found between the four test information groups on arithmetic achievement, self concept or teacher grades and there was only a short term effect on reading achievement. Thus, inflated IQ information did not benefit the students concerned. Another phase of the investigation showed that student susceptibility to teacher expectancy effects did not vary with the ability level of the student (Fleming and Anttonen, 1971c).

An important finding was that the teacher's opinion of the usefulness and validity of intelligence tests was directly related to improved pupil performance, whether or not specific and accurate information about a child was provided (Fleming and Anttonen, 1971a). Higher achievement test performance and grades were attained in classes where the teachers valued IQ tests highly, and this was more marked in middle socio-economic classrooms. The manner in which this process operated was not investigated though the authors suggest it underscores the complexity of teacher-pupil interaction. In general, Fleming and Anttonen (1971a, b, c) conclude that their investigation fails to support the generalized self-fulfilling prophecy phenomenon. Interestingly, when teachers were asked to assess the accuracy of the test information they had been given regarding their students, those scores identified as inaccurate tended to be the inflated IQs (Fleming and Anttonen, 1971b). It would not be surprising under these conditions if the inflated IQ scores failed to have

any effect on teachers' expectations,

This highlights the fact that the teachers acceptance of the information provided by the researcher is very important in studies involving induced expectations. Further illustration is provided by Schrank's (1968, 1970) studies on the labelling effect of ability grouping. Here teachers' expectations of entire class groups were manipulated. Schrank (1968) assigned ability-level labels to randomly assigned mathematics class sections at a United States Air Force Academy, which were then taught by several instructors using standardized materials. The highest label group achieved significantly better mathematics grades than the group having the lowest label, with the means of the groups in between descending in order according to the ability level label. However, in a further experiment Schrank (1970) found no such effects when the instructors knew that the ability labelled class sections had not actually been grouped according to ability.

Several other studies which involved the manipulation of teachers' expectations found no significant self-fulfilling effects of the induced expectations on pupils' intelligence and achievement test scores.

A short term experiment with tutor-child pairs in an experimental enrichment program failed to show differences on measures of reading and verbal ability attributable to induced expectations concerning a child's level of functioning (Pellegrini and Hicks, 1972).

Mendels and Flanders (1973) report a partial replication of the Rosenthal and Jacobson (1968a) with two major differences. First, they attempted to establish equivalence between experimental and control groups on the basis of pretest data and second, the Cognitive Abilities Test (CAT) was used instead of TOGA, which had been the subject of much criticism. No significant differences were found between the expectation groups on the posttest CAT IQs or raw scores. Analyses of assigned

teacher grades also showed no significant differences between the groups. The results were interpreted as not supporting the Rosenthal and Jacobson findings,

Dusek and O'Connell (1973) used the Stanford Achievement Tests (SAT), disguised as tests to measure academic potential, to manipulate teachers' expectations for their pupils, while at the same time measuring teachers' own expectations regarding the pupils performance in language and arithmetic skills at the end of the year. There was no evidence of teacher-bias effects resulting from the experimental manipulations on SAT performances at the middle and end of the academic year. However, there were strong consistent effects due to teacher ranking with children ranked higher by the teacher scoring higher on the SAT at each testing period. A follow-up study showed that these results continued into the next year, even though no mention of the experiment was made to the new teachers (O'Connell, Dusek and Wheeler, 1974). The results were interpreted as demonstrating a teacher expectancy effect (i.e. that teacher expectations are related to students achievement test performance) but not a teacher bias effect (where significant effects are due to experimentally induced expectations) (Dusek and O'Connell, 1973). This distinction is maintained in Dusek's (1975) review of the teacher expectation literature.

The most recent attempt by Rosenthal to replicate the teacher bias effect was that of Rosenthal, Baratz and Hall (1974). Working in a predominantly black inner-city school the traditional induction treatment was used, though this time TOGA was disguised as a test of creative potential. At the initial testing session with TOGA at the beginning of the year the children were also asked to draw a person on one side of a piece of paper and as many things as they could on the other. Both TOGA and the drawing test were readministered at the end of the year.

The drawings were rated by a panel of judges to obtain 'creativity' scores. The reliability and validity of the 'creativity test' and the reliability of the scoring procedure has been questioned by Dusek (1975). For the school as a whole there were no expectation group effects on students' performance on either the TOGA or creativity measures though these were found in the hypothesized direction for the fifth grade. Rosenthal et al. (1974) also attempted to examine the effects of the induced expectations on the tone (positive or negative) of teacher interactions with a subsample of students in both the experimental and control groups. It was concluded that students identified as likely to gain in creativity were treated more negatively by teachers, a finding supported by Rubovits and Maehr (1973) with black students. However, this difference only reached borderline significance when based on the ratings of two classroom observers ($p < .08$) and did not hold equally for both observers.

The studies considered thus far have been largely concerned with product measures and induced expectations. However, there are a number of additional studies involving experimentally manipulated expectations which also include process measures.

Beez (1968) undertook a study with tutors in a Head Start program and manipulated expectations through the provision of biased 'psychological evaluation' folders. Using a word learning task this study showed that children in the high expectation group learned significantly more words than the low expectation group. Moreover, when the tutors expected the children to do poorly, they attempted to teach less, spent more time on each task, gave more examples of meaning, repeated more and engaged more frequently in non-task behaviour. In addition, tutors with low expectations rated the children lower on achievement, social competency and intellectual ability, and felt the task was more difficult than did

high expectation tutors (Beez, 1968).

Another study which used optimistically biased psychological reports to induce expectations concerning severely retarded children found no difference in test performance and behaviour of the children or frequency of teacher-child interaction due to experimental conditions (Soule, 1972). However, Mason (1973) found that psychological reports containing favourable, neutral or unfavourable interpretations did produce significant differences in the marks teachers expected the child to receive at the end of first grade though no differences were evidenced on observational ratings of a videotaped test performance. The effect of a lecture to the teachers on bias effects had mixed results, depending on the sex of the child and the nature of the psychological report.

More recently Smith and Luginbuhl (1976) looked at dimensions of teacher-student feedback as a function of teacher expectancy and awareness of possible expectancy effects and found that teachers who had received special instruction concerning expectancy effects did not treat students of allegedly differing abilities in a qualitatively different manner. However, teachers who were unaware of possible expectancy effects directed more criticism and encouragement towards students who were presumed to be of higher ability.

Meichenbaum, Bowers and Ross (1969) report a small study in which expectancies were induced in four teachers of fourteen institutionalized adolescent female offenders. Girls identified as 'late bloomers' gained significantly in comparison to those in the control group in objectively measured academic performance but not in terms of teachers' subjective evaluations of assignments and class participation. Late bloomers also improved significantly more in the amount of appropriate classroom behaviours than control subjects. Induced expectations were not related to total teacher attention, however there was a significant decrease in negative contacts towards 'bloomers' and some teachers

significantly increased positive contacts. A number of methodological concerns appear to limit the usefulness of this study (Greiger, 1971), with the small sample being a particularly important consideration.

Kester and Letchworth (1972) in a much larger study also investigated the effects of teacher expectancies on student achievement, teacher-student interaction and students' school-related attitudes. Average ability students designated as intellectually superior showed no significant advantage on any of the achievement or attitude measures. However, process measures showed that teachers were more positive, accepting and supportive and spent more time with the 'superior' students. Similar results for the effect of teacher expectations on teacher-student interaction were reported by Rubovits and Maehr (1971). On the other hand, Rothbart, Dalfen and Barrett (1971) in a simulated classroom situation found that there were no expectation group differences in the amount of teacher praise and criticism, but teachers were more attentive to students in the more talkative high expectation group. Students in the low expectation group were evaluated less favourably by teachers in terms of intelligence and potential for future success and were seen as having a higher need for approval.

The idea that teacher expectations are communicated through differential teacher behaviour is a recurring one. Most studies concerned with teacher-pupil interaction have obtained measures of the quantity and/or quality of interaction that is primarily verbal. Chaikin, Sigler and Derlega (1974) tested the hypothesis that tutors would differ in their non-verbal behaviours towards students as a function of induced expectancies regarding student performance. They found that there was a higher rate of leaning forward, eye gaze, affirmative head nods and smiles to the 'bright' students. That these behaviours were indices of approval and attraction had already been established by Hall (1966), Mehrabian

(1971) and others.

A question that arises here is whether or not students perceive differences in teacher nonverbal communication. One study which bears on this question is that of Conn, Edwards, Rosenthal and Crowne (1968). Although the study as a whole produced negative results regarding the effects of teacher expectations on test performance, it was found that students who could more accurately judge the emotional component of an adult female's voice did show significantly greater advantage from positive teacher expectations in comparison to the rest of the experimental group.

Rosenthal and his associates have developed an instrument using sound film which is designed to measure differential sensitivity to various channels of nonverbal communication (Rosenthal, Archer, Koivumaki, DiMatteo and Rogers, 1974). One reason for developing the Profile of Nonverbal Sensitivity (PONS) was to aid in predicting the outcome of teacher expectation effects. Pupils could be tested with the PONS and teachers tested for skills in communication when using different nonverbal channels. However, the results of such studies are not yet available. One study which has investigated teacher expectations and the PONS found that teachers showing greater positive effects of their expectations had slightly higher PONS total scores and were rated substantially higher on interpersonal sensitivity by supervisors.¹

In the studies reviewed so far induced expectations were an indirect way of influencing student performance. The notion that this may have occurred through the mediating variable of change in student perceptions or expectations has been put forward from time to time. There

¹ Personal Communication, R. Rosenthal, 9. 7. 75. The study was undertaken by B. McCoid, doctoral candidate, University of Pittsburgh.

is some evidence that student behaviour and performance may be influenced by direct manipulation of students' self-expectations (e.g. Dweck, 1975; Entwisle and Webster, 1972; Means and Means, 1971; Meichenbaum and Smart, 1971). As with induction treatments with teachers' expectations, the degree to which the subject actually believes the expectancy statement is important (Biddle and Moore, 1973; Gagné and Biddle, 1973). Much earlier Kelley (1950) had demonstrated that student perceptions and behaviour toward a university lecturer could be manipulated by varying students' expectations of him. Those students who expected the lecturer to be warm rather than cold engaged in more frequent interaction with him.

Several studies have dealt with teachers' and examiners' behaviour in administering or grading tests. These are important in that they suggest a further way in which teachers' expectations may be mediated through their behaviour. In other words, even apart from the proposition that teachers' differential behaviours may cause students to achieve at expectation related levels, teachers may perceive students' academic performance in ways which are congruent with perceptions and expectations already held and score or grade accordingly. Here, expectations may operate as input factors, influencing the selective organisation of present perceptions.

In a study similar to that of Mason (1973), Jacobs and DeGraaf (1973) manipulated the expectations of practising psychologists using fictional case reports. The psychologists' judgments of children's videotaped test performance were found to be significantly related to the nature of the report. The effects of induced expectations (usually through varying referral information) on the scoring of "standardized" intelligence tests also receives support in a number of other studies (e.g. Hersh, 1971; Simon, 1969). The possibility that differences in

the test scores of children in different expectation groups were a function of testers' differential behaviour affecting the children's performance has also been investigated, with mixed results. Hersh (1971) found that testers gave higher scores on the Stanford-Binet to children they had been induced to perceive as being high in intellectual, social and academic abilities. Nonetheless, there were no significant differences in tester behaviours such as encouraging, smiling and leaning toward the child. However, an earlier study had found that students' perceptions of differential treatment by examiners, while related to the examiners' expectations, did not significantly affect the scores students obtained (Wartenburg-Ekren, 1962, reported in Rosenthal and Jacobson, 1968a).

These studies have been concerned with expectations insofar as they affect the administration and scoring of standardized tests. It may be argued that teacher assessed school grades are even less objective than standardized measures and are thus more open to the effects of teachers expectations. Many of the studies cited in this review show no significant effects on school grades related to induced teacher expectations. However, Finn (1972) in an elaborate study looking at the effect of fictitious information about a student on teachers' gradings of an essay allegedly written by that student suggests that teacher-rated performance measures may be biased by expectations. The IQ level, race and sex of the student did not in themselves affect the essay grade but there was a locale of teacher by IQ information interaction. Urban teachers rated the same essays higher when they had high expectations than when they had low expectations about the presumed essay writer. These differences between urban and suburban teachers were attributed by Finn to gross environmental effects (such as facilities and working conditions) which help to set teachers' reactions to pupils. A number of other interaction effects were also found.

Another study which found evidence that teachers' perceptions influenced their grading behaviour was undertaken by Heapy and Siess (1970) looking at the behavioural consequences of impression formation. As in the Finn (1972) study teachers were asked to grade an essay, this time allegedly written by either a nonaggressive or a very aggressive boy. The essay was one of two previously judged as highly creative and very uncreative. Even though the information on student attributes was not directly relevant to the essay being graded a halo effect operated, with noncreative essays receiving lower grades when they were allegedly written by an aggressive boy.

In general, then, the studies on scoring and grading behaviour support the view that the expectations of the person making the evaluation may affect the grade or score given. High expectations may result in greater leniency and giving the benefit of the doubt whereas low expectations may tend to result in more strict or harsh grading. Less evidence is available concerning the effect of expectations on student performance via differential tester behaviour toward students.

It should be noted that the studies specifically concerned with scoring or grading generally involved teachers or testers with differing expectations evaluating standardized products (e.g. essay, test performance) and did not use students known to the person grading or scoring. Most of the studies cited in other sections of this review which show no differences in assigned grades related to induced expectations were conducted in the teachers' own classrooms. The performances to be graded were of course not standardized and once again the success of the induction must also be questioned. The possibility that grades given were related to the teachers' own naturally formed expectations rather than those the experimenter tried to induce cannot be ruled out.

In summary, a number of points emerge from this review of studies

involving the experimental manipulation of expectations. First, attempts to replicate the controversial findings of Rosenthal and Jacobson (1968a) have largely failed. However, most of the studies have tended to use weaker treatments in that the induction of expectations occurred later in the year when teachers own expectations were presumably more firmly established. In addition, serious questions must be asked about whether in fact the teachers did adopt the expectations the researchers intended to induce. More recently, the question arises as to whether teachers may be aware of the nature of the experiment after the publicity that Pygmalion in the Classroom has received, both in the media and in educational circles.

Second, most of the studies using product measures showed no expectancy bias effects. Where there were significant effects on product data due to the expectancy condition this was more likely to be with measures of student attitudes and self concept, or academic achievement (particularly where this was teacher-controlled, e.g. grades) rather than on intelligence test scores.

Third, in studies employing process measures there was some evidence that teachers behaved differentially to students in different induced expectation groups. Characteristically, this took the form of teachers interacting in a more favourable manner and more frequently with students designated by the experimenter as brighter or likely to achieve more. In some studies, while significant differences related to expectancy groups were reported on process measures of teacher and student classroom behaviour there were no corresponding differences on product measures.

Fourth, situational factors appear to be important. The studies which found evidence of the biasing effect of induced teacher expectations tended to be in tutoring or simulated classroom situations and/or where teachers had relatively few students,

Finally, the studies considered so far have been valuable in that they demonstrate that under certain circumstances teacher expectations can act as a self-fulfilling prophecy. In addition, studies involving process measures have suggested some ways in which expectation effects may be mediated. However, a number of problems do arise in research involving the experimental manipulation of expectations. For one thing, if the studies are undertaken in laboratory conditions, as many have been, the greater degree of experimental control is offset by the lack of generalizability to classroom situations. On the other hand, if studies are undertaken in a natural classroom setting the manipulation of teacher expectations raises ethical problems if negative expectations are to be induced. This means that only one side of the expectation coin can be fully investigated. Further, considerable inference problems arise if it is uncertain whether the experimental treatment worked (that is, whether the expectation induction actually resulted in the teachers adopting the intended expectations for particular pupils).

Even apart from familiarity with the Pygmalion study, it appears that teachers may identify information that is not credible and dismiss it. As Fleming and Anttonen (1971b) suggest, the ongoing experience of the behaviour and academic performance of students in the classroom provides teachers with more potent input than one single piece of information provided by a researcher. This implies that expectations arising from more credible natural inputs may be more salient and may have more effect on variables such as teacher and student behaviour and school achievement. It is to a consideration of studies involving teachers' naturally developed expectations for their pupils that we now turn.

Studies of Naturally Formed Expectations

With increasing recognition of problems involved in studying induced expectations there has been a move toward undertaking studies in

regular classrooms with a focus on teachers' own naturally formed expectations. Accompanying this has been an increased emphasis on studies involving process measures as researchers have attempted to acquire more information on the mediation of teacher expectation effects. However, a small number of studies have related teachers' expectations to product measures, usually school achievement, and these are now briefly reviewed.

Palardy (1969) found that teachers' expectations about the probable success of boys, as compared to girls, in learning to read were significantly related to the performance of their male first grade pupils on a standardized reading achievement test. Doyle, Hancock and Kifer (1972) in another study examining reading achievement at first grade level, found this to be related to teacher estimates of IQ. However, Schwarz and Cook (1972) found in special classes for educable mentally retarded children no significant relationship between teachers' expectations for pupil improvement in academic areas (subject matter skills) and actual academic progress during the year.

An interesting study by Seaver (1973) using school records considered experience with siblings as a natural source of expectations for teachers. Seaver argued that experience with an older sibling would tend to result in teachers expecting similar performance from a younger sibling. It was found that when the older sibling's performance had been high the younger sibling scored significantly higher on three subtests of the Stanford Achievement Tests if they had been taught by the same teacher. Conversely, when the performance of an older sibling had been low, younger siblings achieved at a higher level when taught by a different teacher.

A number of studies of tracking or streaming lend indirect support to the notion that teacher expectations may affect student achievement. However, in almost all cases there was no formal collection of teacher

expectation data. Streaming appears to maximise the achievement of students placed in high streams and minimize that of students placed in low streams, with variability in student performance being greater than in situations where rigid streaming is not practised (Barker Lunn, 1970; Dahlóff, 1971; Pidgeon, 1970). There is some evidence that placement in a track or stream is based in part on factors other than students' achievement (Douglas, 1964; Goldberg, Passow and Justman, 1966; Husén and Svensson, 1960; Jackson, 1964; Mackler, 1969). Several participant observational studies of British streamed secondary schools highlight ways in which teachers' perceptions of pupils according to stream influence the material taught and amount of teacher preparation (Keddie, 1971), the expectations of teachers, self-perceptions of pupils and behaviour of both teachers and pupils (Hargreaves, 1967; Lacey, 1970).

A number of studies using process measures have attempted to investigate a proposed linkage in the teacher expectation cycle in natural classroom settings by looking at the relationship between differential teacher expectations for pupils in their classrooms and behaviour toward those pupils. Such studies have found differences in quantity and/or quality of teacher-pupil interaction related to the teachers' expectations.

Rist (1970) in his case study of a class of black ghetto children over a two and a half year period from the time they entered school provides a great deal of rich descriptive detail concerning ways in which a teacher's expectations may influence children's achievement. When the children entered kindergarten they were quickly divided into three groups, seated at different distances from the teacher, on the basis of the teacher's impressions regarding their likely success in school. These impressions reflected the social class composition within the whole group. The teacher interacted with the high status "fast learners" group in an increasingly favourable manner, as well as more frequently. Much

less attention and encouragement was given to the lower groups and Rist provides some striking examples of inappropriate behaviour toward the lower groups who were not expected to succeed. Student behaviour and perceptions were also affected. The high group began to internalize the attitudes and behaviour of the teachers, saying that they were better students who were receiving better treatment and attempting to control and ridicule children from the lower groups. The lower status students tended to respond to the behaviour of the teacher and their high status peers by withdrawal and in-group hostility. Both the group placement and the patterns of interaction were maintained in first and second grade. Rist (1970) suggests that the "caste" system of the classroom may both mirror the class configurations of the larger society and also contribute to their maintenance. It appears that this process does not only occur with white teachers and black pupils, for in Rist's study the teachers as well as the pupils were black. Several other case studies of ghetto schools also provide some insight into ways in which teachers may help children to fail (Fuchs, 1968; Kozol, 1968; Schwartz, 1967).

Evidence of differential teacher behaviour has also been found in several more structured studies using teacher rankings as measures of naturally formed expectations. A number of criteria were used in the ranking procedures, such as expected achievement, potential for success, efficiency in learning and general ability.

Dalton (1969) reports a small study at the fourth grade level in which teachers were more direct and critical when interacting with children perceived as likely to be low achievers but behaved more indirectly toward expected high achievers. Similar results were also found by Kranz and Tyo (1973).

Two studies of first grade classrooms found that the frequency of teacher-student interactions was significantly lower when the students were perceived by the teachers as low achievers than when they were

perceived as high achievers (Good, 1970; Kranz, Weber and Fishell, 1970). Both quantity and quality of interaction were related to expectations in studies involving classes containing migrant and non-migrant children (Tyo and Kranz, 1973) and special education classes (Willis, 1970). In each case high teacher expectations for students were associated with more frequent teacher contacts. Differences in the quality of interaction favoured high expectation students in terms of more positive contacts (Tyo and Kranz, 1973) and more appropriate verbal responses to student comments (Willis, 1970).

Further evidence of differences in the quality of interaction is provided by Rowe (1972). Teachers were asked to name the five best and five worst pupils in their classes and observations were made of teacher-student interaction. Rowe found that teachers tended to wait for longer for a response from their better pupils than they did from their poorer pupils. It is somewhat ironic that pupils who may be less likely to respond correctly may be given less time to think about their responses and if they are to get a chance to respond at all will have to do so more rapidly than the better achievers. That teacher behaviour does influence student behaviour is also supported by Rowe's (1972) treatment study in which teachers were instructed to increase their waiting times. When this happened the length and quality of student responses increased and the bottom group began to participate more in class discussion.

Haigh (1974) looked at the communication of teacher expectations via teacher-pupil verbal interaction as part of a study involving New Zealand Standard 4 classes. Six out of the eight teachers interacted more frequently with pupils for whom they held high expectations (measured by teacher rankings of expected reading performance). No significant differences in the quality of teacher responses to pupil answers were found.

Alpert (1974) examined whether teachers used more "good" behaviours with children placed in high or low reading ability groups. "Good" teacher behaviours were defined as "those teacher behaviours experts judged likely to increase reading performance" (Alpert, 1974, pp. 348-349). These included four non-verbal behaviours (more reading group time, more materials provided, allocation of reading group time when teacher felt most motivated to teach, fewer pupils in reading group) and a set of 20 verbal behaviours. The results indicated that the teachers generally treated the top and bottom groups similarly with respect to the good teacher behaviours. However, significantly fewer pupils were placed in the bottom than in the top reading group. Although Alpert interprets this finding as an indication of preferential treatment and concludes that teacher behaviour may not be adversely affected by teacher expectations, such an interpretation could be queried. As there was no measure of actual reading performance reported there is no way of knowing whether there may have in fact been fewer poor readers than good readers in the middle-class school population studied. It is possible that the teachers allocation of pupils to reading groups may have fairly accurately reflected the reading abilities of their pupils.

In a further study Alpert (1975) asked teachers to increase their "good" behaviours to the bottom reading group and to keep a daily log of their use of such behaviours over fifty days. Unlike Rowe (1972), Alpert (1975) found that an increase in "good" teacher behaviours did not result in changes in student reading performance. There is some question, however, as to whether the intervention was incorporated as no systematic observational data were obtained over the intervention period. There was some evidence from teacher logs that they tended to increase good non-verbal behaviours but no data were available concerning their use of good verbal behaviours.

The most comprehensive series of studies looking at how teachers' own expectations affect their behaviour and that of their students are those of Brophy, Good and associates. All these studies used the same system for observing and coding classroom interaction (Brophy and Good, 1969, 1970b) and have been reviewed in detail by Brophy and Good (1974). Here only the major findings and general trends will be discussed.

The initial study in the series (Brophy and Good, 1970a) was conducted in four streamed first grade classrooms at a lower class school. Differential teacher expectations for children were associated with a variety of interaction measures although, as Brophy and Good (1970a) note, objective differences in children's behaviour accounted for many of these relationships. This was particularly the case where quantitative differences in teacher-child interaction were involved. There were, however, other differential teacher behaviours not attributable to observed differences in child behaviour and these were seen as being consistent with the hypothesis that teacher expectations function as self-fulfilling prophecies. The differences in teacher-child interaction related to the teacher's own expectations were mostly in terms of quality rather than quantity. The teachers demanded better performance from the children for whom they had higher expectations and tended to praise such performance when it occurred. Conversely, teachers were less likely to persist in eliciting appropriate responses from children for whom they had low expectations and though good performance occurred less frequently with such children it was less likely to receive praise. These results were largely replicated by Jeter and Davis (1973).

Three follow-up studies at different grade levels attempted to replicate the findings of the initial study and to search for evidence of systematic polarization over time in terms of increasing differences between students for whom the teacher held high or low expectations.

Few of the key findings from the initial study for teachers as a

group were replicated in the follow-up studies (Brophy, Evertson, Harris and Good, 1973; Evertson, Brophy and Good, 1972, 1973). The teachers showed no evidence of favouring high expectation students or of treating low expectation students less appropriately and there was some evidence that teachers were attempting to compensate for differences in student behaviour. However, when the data were examined for each teacher, a mixed pattern of results was found. Some teachers in each of the follow-up studies interacted more favourably with high expectation students, some tended to favour the low expectation students and a number showed no clear-cut pattern of differences in teacher-child interaction with the high and low expectation groups. Thus the pattern of teacher communication found in the initial study (Brophy and Good, 1970a) was not found across all teachers though it was found in some. The polarization hypothesis was not satisfactorily tested because the studies did not contain enough teachers who showed a pattern of expectation effects.

An additional finding from this series of studies of teacher student interaction at different grade levels was that as the grade level increased and students got older, expectation effects were more likely to show up in quantitative rather than qualitative measures. As noted above, most of the significant interaction differences related to teacher expectations at the first grade level were qualitative (Brophy and Good, 1970a). At the fifth grade level, however, when teacher expectation effects were operating they tended to be mediated through quantitative aspects of teacher-child interaction (Brophy, Evertson, Harris and Good, 1973). This trend continued in seventh and eighth grade junior high classes (Good, Sikes and Brophy, 1973; Mendoza, Good and Brophy, 1972). A further study using the same observation system to look at teacher interaction with high and low expectation students in high school social studies classes found significant group differences on both quantitative

and qualitative measures (Cornbleth, Davis and Button, 1972).

The mixed results of the series of studies undertaken by Brophy, Good and associates appears to be characteristic of results generally in the whole field of research in teacher expectations. While there is evidence that teachers' expectations can operate as self-fulfilling prophecies and the kinds of teacher-student interaction differences observed are parts of the mediation process of teacher-expectation effects, "the mixed pattern of findings show that expectation effects are not universal across teachers and that susceptibility to such effects is an individual difference variable" (Brophy and Good, 1974, p. 114). Variability across teachers rather than general expectation effects was also evidenced in Garner and Bing's (1973a) findings. These showed that there was considerable variation in the extent to which teachers' perceptions of pupils' attributes were related to their behaviour toward pupils.

Pupil Attributes and Teacher Expectations

Having examined the research relating to the effects of teachers' expectations using a number of product and process measures it is appropriate to go back one step and consider the evidence concerning the pupil characteristics or attributes thought to influence teacher expectations. A number of studies have investigated the relationships between characteristics attributed by teachers to their pupils and teachers' expectations for those pupils. Evidence is available which shows that in certain situations a number of group and individual differences may influence teachers' expectations and behaviour. Three group differences which appear to have some effect are race or ethnic group, social class and gender.

a) Social Class and Race

The proposition that the socioeconomic status of pupils influences teachers' perceptions and expectations for those pupils has received a good deal of empirical support. In an interview study by Becker (1952) teachers frequently brought up problems seen as being created by social class differences and the data indicated that teachers took social class into account when making judgments about students. A study involving fictional case history reports found that despite matching information on IQ, history of behaviour problems and school grades, social class information significantly affected ratings of likely academic success in the future, behaviour in class and achievement after high school (Miller, McLaughlin, Haddon and Chansky, 1968). Goodwin and Sanders (1969) showed that teachers considered socioeconomic status to be a very important predictor of school success. Social class was also found to be the most important determinant of teachers' attitudes towards pupils by Yee (1968b).

The case study conducted by Rist (1970) also supports these findings. On entering school, group placement and designation of pupils as fast or slow learners was based primarily on socioeconomic status. Studies of streaming or ability grouping show similar results in that, compared to their measured ability, higher social class children tend to get placed in higher streams and lower class children tend to be placed in lower streams (Douglas, 1964; Goldberg, Passow and Justman, 1966; Husén and Svensson, 1960).

As part of a larger study Nash (1973) found that while there was no significant relationship between pupils' actual social class background and teachers' judgments of their ability there was a highly significant association between teacher-perceived social class and expectations of ability. This distinction would seem important to make in further research.

The research on impression formation cited in Chapter 1 showed that people often form unified impressions of people on the basis of limited information. Several studies have shown that social class and race differences lead to the attribution of different personality traits or stereotypes (e.g. Freedman, 1972; Karlins, Coffman and Walters, 1969). Relevant to the school situation is the finding from these studies that American blacks and lower-class people are generally seen as being less intelligent and less motivated toward success than their white middle-class counterparts.

The relationship between the variables of social class and race or ethnic group insofar as they affect teacher expectations has also received attention from researchers. Mazer (1971) studied the effects of teachers' stereotypes on expectations and found that social class information was more important than information on the race of a hypothetical student in determining teachers' rated expectations. These results were supported by a recent study by Freijo and Jaeger (1976) of teachers' evaluative ratings of pupils related to social class and race. Cooper, Baron and Lowe (1975) found that expectations about a pupil's academic performance were influenced by both race and social class information. However, the pattern of results was complex with interactions among race, social class and respondent type (university students in psychology or education). Varying results were also found when different measures of expectations were used (academic grades, student locus of control, causal factors for performance). In both the Cooper, Baron and Lowe (1975) and Freijo and Jaeger (1976) studies, similarity between the perceiver and the stimulus person was the subject of some attention, with results suggesting that socioeconomic status was more important than ethnic group in determining social distance, assumed similarity and evaluative ratings.

While different patterns of teacher-pupil interaction related to both social class (e.g. Hoehn, 1954; Leacock, 1969; Rist, 1970) and ethnic group (e.g. Jackson and Cosca, 1974; Rubovits and Maehr, 1973) have been observed, many of the studies looking at expectations and pupil attributes have either involved hypothetical students or have asked teachers to rank the importance of various types of information in predicting school success. In the first instance the teachers making the judgments have only very limited information to go on (and none based on observed child behaviour), so it is not surprising if stereotyped responses are evidenced. In the second instance teachers may not always be aware of the bases for their judgments of others.

Brophy and Good (1974), after noting some discrepant findings on race and social class as they affect teacher expectations, concluded that these variables are only used when other more specific and relevant information is unavailable. This conclusion is supported by some of the recent findings of Moles and Perry (1975) in their study of the sources of early teacher expectations using a path analysis technique.

b) Gender

Goebes and Shore (1975) examined teacher expectations for male and female students related to the gender of the teacher. They found that female teachers viewed the behaviour of girls as significantly closer to the 'ideal student' than that of boys, while male teachers did not.

Pupil gender may also have an influence on the affective component of teachers' perceptions. Jackson, Silberman and Wolfson (1969) found female teachers to show greater signs of personal involvement with boys than girls, even though their descriptions of boys contained more negatively toned statements.

There do seem to be individual differences among teachers in the way in which pupil gender affects their expectations for pupil achievement. At least two studies have shown that the achievement of girls and boys in reading (Palardy, 1969) and in science (Rowell, 1971) is related to teacher expectations. Where teachers expected similar levels of achievement from girls and boys, that is what occurred. When differing expectations were held for the two groups girls and boys achieved at different levels in line with the expectations.

As far as behaviour is concerned, significant differences are frequently found in the way boys and girls behave in the classroom and in the kinds of interactions they have with their teachers. However, there is little evidence that gender differences in pupil behaviour are affected by whether the teacher is male or female (Brophy and Good, 1974; Good, Sikes and Brophy, 1973).

There is some evidence that gender tends to interact with other group variables in its effect on teacher expectations. Pederson (1968) compared teacher estimates of intelligence with high school students' measured IQ and found that teachers tended to overestimate the intelligence of working class boys and to underestimate that of girls, regardless of their socioeconomic status. Jaeger and Freijo (1975) investigated the hypothesis that the degree of composite halo exhibited by teachers' ratings of pupils depends upon the race and gender of both teacher and pupil. Further assumptions were made regarding the relationship of perceived social distance to race and gender and to the degree of composite halo. Though the general hypothesis was confirmed, the pattern and direction of results hypothesized on the basis of the underlying assumptions was not supported. Socioeconomic status was suggested as a potentially confounding variable.

In addition to group differences in ethnic group, social class

and gender, a number of individual differences in students have been suggested as important determinants of teachers' expectations and evaluative judgments of pupils.

c) Physical Attractiveness

Evidence that differences in physical attractiveness are attended to and used in forming impressions and expectations regarding others is not difficult to find (Berscheid and Walster, 1974). Dion, Berscheid and Walster (1972) show that a physical attractiveness stereotype exists along the lines of "What is beautiful is good". It was found that physically attractive persons were assumed to be more socially desirable, more intelligent, to achieve more material benefits and to be happier in all spheres of life than less attractive persons.

Turning more directly to the educational situation, there also appear to be advantages for the physically attractive pupil. Clifford and Walster (1973) found that teachers' expectations about a child's intelligence, likely progress in school, parental interest in education and popularity with peers were associated with the child's physical attractiveness. In addition to evaluations of the person and the attribution of personality characteristics being related to physical attractiveness, evaluation of the person's behaviour is also likely to be affected, whether it be transgressions (Dion, 1972; Rich, 1975) or academic products such as essays (Landy and Sigall, 1974).

d) Behavioural Style

Researchers working within an interactionist model of child development have provided some evidence that teacher expectations for a pupil's ability are related to the pupil's behavioural style (defined

as a child's typical style of response to new classroom situations and activities). Though some discrepancies in results occur, the general hypothesis was supported at both kindergarten level (Gordon and Thomas, 1967) and junior high (Lerner and Miller, 1971). Specifically, teachers' estimations of intelligence were higher for children who were seen as reacting positively and quickly to new situations than for children who reacted negatively to most situations and required a lengthy acclimatization time to change this response.

e) Name Stereotypes

Research in interpersonal perception has indicated that a person's name may have an influence on impression formation and that name stereotypes exist (Buchanan and Bruning, 1971; McDavid and Harari, 1966). Harari and McDavid (1973) call attention to the influence of name stereotyping in teaching practices, showing that teachers' expectations of student achievement behaviour are related to students' first names. Garwood (1976) found that children having first names considered desirable by teachers had higher scores on measures of self concept and achievement than children whose first names were considered undesirable by teachers. He suggests that this may be due to differential transmission of teacher expectations.

f) Language Characteristics

A number of studies have shown that children who speak non-standard English are likely to be perceived more negatively by teachers than children who speak 'standard school English' (Freder, Brown and Lambert, 1970; Guskin, 1970; Williams, Whitehead and Miller, 1972). Teachers' language attitudes have been found to be related to their expectations for subject matter performance (Williams et al., 1972)

and student speech characteristics to be related to teacher assigned grades even when students are matched for age and intelligence (Freder et al., 1970). Seligman, Tucker and Lambert (1972) found that speech cues were very important in determining teachers' composite evaluations of children though other information (photographs, drawings and compositions) was used to modify the stereotype elicited by speech. It is important to note that attitudes to language per se are virtually non-existent. A review of methods of investigating attitudes to language shows that speech functions as a social identity marker and research results on language attitudes demonstrate that the attitudes pertain to those who use particular codes rather than the codes themselves (Holmes, 1976).

g) Personality Factors

While teachers undoubtedly perceive and react to students having varying personality characteristics in differing ways, attributed student personality factors do seem to have more influence on the affective component rather than the expectancy component of person perception (Willis and Brophy, 1974).

Feshbach (1969) found that female student teachers preferred pupils whose behaviour was perceived as reflecting either (a) rigidity, conformity and orderliness or (b) dependency, passivity, and acquiescence rather than students perceived as either (c) flexible, nonconforming and untidy or (d) independent, active and assertive. Expectations for intelligence and school grades were also obtained and differed somewhat from the overall pattern, varying with the gender of the child. Whereas the flexible boy was perceived to be the most intelligent, the rigid conforming boy was expected to get the highest grades. In the case of girls, higher expectations were held for rigid, conforming girls

in the case of both intelligence and school grades. These findings were confirmed by Helton (1972) with practising teachers. A further replication, employing both male and female student teachers, suggested that the role expectations for teachers and children influence teacher preferences, regardless of the gender of the teacher (Good and Grouws, 1972).

h) Seating Location

While a number of studies have looked at the relationship between seating location and classroom interaction patterns (Adams and Biddle, 1970; Bates, 1973; Delefos and Jackson, 1972) the direction of the relationship is often difficult to ascertain. Moreover, there are few studies which investigate the relationship between teacher expectations and seating location. Rist (1970) did show that children for whom the teacher held higher expectations were assigned seats closer to the teacher. There is the possibility, however, that when seats are not assigned by the teacher the teacher's physical distance from a student may affect teacher perceptions independent of other student characteristics. Schwebel and Cherlin (1972) tested this hypothesis and found that when pupils were randomly assigned new seats, occupancy of seats at the front of the class resulted in more positive perceptions of pupils by teachers, peers and the pupils themselves. Observed pupil behaviour also changed with changes in seating location.

It is apparent that a number of pupil attributes as perceived by the teacher are related to judgments made about pupils and expectations held regarding them. Some of these attributes do not seem directly relevant to evaluations of pupil ability and likely future achievement and it is therefore appropriate to briefly review those studies which examine the accuracy of teacher expectations together with their stability.

Accuracy and Stability in Teacher Expectations

The assessment of the accuracy of teacher expectations is fraught with the same difficulties that exist generally when the assessment of judgmental accuracy in person perception is at issue (see Chapter 1). In the field of teacher expectancy research it has usually been a case of obtaining correlations between teacher estimates of a child's ability or expected school achievement and measures of ability or achievement using standardized tests and/or school grades. In general the results have varied depending on the experience of the teacher and the period of interaction with the pupils being judged, together with the particular child characteristics being rated.

Wilson (1969) found considerable variation in the accuracy of primary school teachers' expectations for pupil achievement at the end of the year when teacher expectations were measured early in the school year. However, later teacher expectations showed an increase in accuracy with correlations ranging from .63 to .96. Lower correlations were found by Jackson and Lahaderne (1967) between teacher estimates and measures of children's intelligence and achievement (ranging from .31 to .51). Good, Williams, Peck and Schmidt (1969) present results which suggested that while teachers were able to recognize the relative level of pupil performance within their classes they were not reliably able to judge pupil capability.

The findings from several studies conducted by Brophy, Good and their associates (Brophy and Good, 1970a; Evertson, Brophy and Good, 1972) show generally quite high correlations between teacher rankings of expected achievement and ranked performances on standardized achievement tests given at the end of the year or the following year. The accuracy of teachers' judgments did not markedly improve as the school year progressed. Comparable results were obtained by Willis (1972) and in New Zealand by Haigh (1974).

Both Willis (1972) and Haigh (1974) found that in addition to teachers having fairly accurate expectations for their pupils' achievement after only a few weeks of school there was also a great deal of stability in teachers' expectations as the year progressed, despite the fact that the teachers would have had greater opportunity to observe children's classroom behaviour and access to test information.

The evidence generally available on the stability of teacher expectations is more clear cut than that on accuracy. In addition the data do not have many of the methodological problems of measuring judgmental accuracy involving, in particular, difficulties in defining the stimulus and obtaining reliable and valid criteria against which to compare teachers' judgments.

There appears to be clear evidence that once teachers have formed a definite impression about a person primacy effects tend to operate to produce relatively stable teacher perceptions and expectations. In addition to the studies cited above, several experimental studies demonstrate primacy effects in teachers' perceptions (Feldman and Allen, 1972, 1973; Murray, Herling and Staebler, 1972). Some of the important determinants of primacy and recency effects were briefly outlined in Chapter 1. These included possible attention decrements, discounting of new information (which seems to have been the case in at least some of the induced expectation studies), and assimilation effects (where early expectations may shape later perceptions). If recency effects are to be operating in the classroom in the sense that later events may alter teachers early expectations, it would seem from the person perception literature that the magnitude of discrepancy between expectation and observed behaviour would have to be fairly large and consistent (Jones and Goethals, 1972). Even when this is the case the teacher's affective response to the pupil may have important consequences

for teacher-pupil interaction (Willis and Brophy, 1974). In addition, views on the nature of ability and achievement in terms of stability or change (Pidgeon, 1970) and teachers attributions for the locus of causality of pupil performance (Beckman, 1970; Johnson, Feigenbaum and Weiby, 1964; Weiner and Kukla, 1970) may also be important factors in determining the rigidity or flexibility of teachers' expectations in situations where expectations for pupil behaviour are not borne out.

Teacher, Pupil and Situation as Factors Influencing Expectation Effects

In looking at the conditions under which expectation effects occur it appears that there are a number of factors which may influence whether or not teacher expectations have an effect on the behaviour of teachers and pupils, pupil perceptions and/or pupil achievement. One set of factors clearly lies in differences among teachers. Brophy and Good (1974) suggest that there are "three general types of teachers with regard to their susceptibility to teacher expectation effects" (p. 115). The proactive, reactive and overreactive teachers are differentiated on the basis of the accuracy and flexibility of expectations and the teacher's role in structuring classroom interaction. Garner and Bing (1973a) suggest that differential educational philosophies and differences in the perceived attractiveness of child characteristics may account for some of the differences among teachers. Other differences in perceiver characteristics discussed in Chapter 1 may also be important. The nature of teachers' perceptions and expectations are likely to be influenced by differences in cognitive style and other stable characteristics. The implicit personality theories of teachers and whether or not they have a concept of the 'ideal pupil' against which children are measured may also influence expectations.

Pidgeon (1970) argues that a teacher's attitudes and beliefs regarding the nature of intelligence will influence expectations and

educational practice. This argument is in accord with the proposition of Jones and Goethals (1972) in their review of primacy and recency effects in impression formation that the acceptance and integration of more recent information regarding an entity (e.g. in this case intelligence or ability) is determined at least in part by views on the nature of the entity and the extent to which it is likely to change and develop. This would have important implications for the flexibility of teachers' expectations and the extent to which they are adjusted in line with observed pupil behaviour. It could also be postulated that teachers' views on the nature of intelligence or ability may influence whether or not they see their role as an active one having implications for the level of pupil achievement.

Earlier in this chapter the relationship of various pupil attributes to teacher expectations was discussed. Differences among pupils will also affect the extent and way in which they are influenced by teacher expectations. One factor may be sensitivity to non-verbal communication. Davidson and Lang (1960) found that children's perceptions of their teachers feelings towards them were significantly related to their self perceptions, academic achievement and classroom behaviour. The stability of the pupil's existing self concept may also influence the response to specific expectancy cues communicated by the teacher (Braun, 1976; Gergen, 1971). In addition, the extent to which pupils accept the teacher's expectations for them is likely to be a function of the extent to which they perceive the teacher as a 'significant other', especially with respect to estimates of their ability (Hargreaves, 1972).

The roles that pupils play in actively determining the amount and kind of interaction that takes place between themselves and the teacher is another factor which is likely to vary. That pupils can and do influence teacher behaviour is well documented (Emmer, Oakland and Good,

1972; Herrell, 1971; Klein, 1971; Noble and Nolan, 1976; Yarrow, Waxler and Scott, 1971; Yee, 1968a). Nash (1974) found that the expectations pupils held for teachers had an important influence on both their behaviour and that of the teachers. The unidirectional model of teacher-to-pupil influence has come under increasing criticism as being an inadequate characterization of classroom interaction patterns (Fiedler, 1975).

From the studies of teacher expectations reviewed in this chapter it is apparent that there is a third class of factors in addition to those having to do with individual differences in teachers and pupils which may influence the effect of teacher expectations on teacher and pupil behaviour and pupil performance. This class of factors has to do with the situation in which the phenomenon is being studied. For example, self-fulfilling expectation effects have largely been found to exist where teachers and students did not know each other when the study began, when the teacher only spent a short time with the students and when there were a very small number of students involved. Generally speaking, situations involving attempts to induce expectations in teachers have produced largely negative results in terms of the self-fulfilling prophecy hypothesis.

Studies in situations involving teachers' naturally formed expectations for their own classes on the other hand have mostly shown that teachers expectations can have significant effects, particularly when process measures are used. However, even here some qualifications must be made. First, in those studies which looked at the data for each teacher separately, not all teachers showed a pattern of differential expectations leading to differential treatment of students or to self-fulfilling prophecy effects. Second, although teacher expectations may lead to differential patterns of teacher-child interaction in the classroom these expectation-behaviour

relationships are not necessarily self-fulfilling in terms of the Merton (1957) paradigm. Third, there is a paucity of naturalistic studies using both process and product measures. Though teachers may treat students differentially in accordance with their expectations the studies cited do not show how differential interaction patterns are related to student performance.

Fourth, there is, as with all research on teacher expectations, the "question of preponderant causation" (West and Anderson, 1976). West and Anderson (1976) look at a series of causal linkages between a number of elements commonly included in teacher expectancy research, namely: information about a student (both subjective and objective), a teacher expectation regarding a specific student, teacher behaviour toward the student, student achievement and student measured intelligence. They suggest that relative to certain other forces acting in the classroom, teacher expectancy linkages (e.g. teacher expectancy influences student achievement) are difficult to consistently replicate. Competing linkages do exist (e.g. current student achievement influences teacher behaviour and teacher expectations) and may in fact be preponderant.

This chapter has reviewed the literature on teacher expectations and their effects on a variety of process and product measures. Studies investigating the relationship between pupil attributes and teacher expectations have been examined. Evidence pertaining to the accuracy and stability of teacher expectations was reviewed and, finally the teacher, pupil and situation were considered as factors influencing expectation effects. Together with Chapter 1, this chapter provides the background to the model underlying the present investigation and the research questions derived from it. These will be discussed in Chapter 3.

CHAPTER THREE

MODEL AND RESEARCH QUESTIONS

The present chapter will briefly consider a number of models which have been proposed to describe various parts of a cycle in which teachers' expectations may be generated, communicated and have an effect on pupils' attitudes, behaviours and achievement. The model underlying the present research, grounded in the theoretical framework outlined in Chapter 1 and drawing on research on teacher expectations reviewed in Chapter 2, will then be presented and discussed. Additional research findings bearing on aspects of the model will be referred to. Finally, the specific research questions considered in the present research will be detailed.

Models of Teacher Expectation Effects

One of the first clearly explicated models set up to detail the cycle whereby a teacher's expectations could be communicated and result in a self-fulfilling prophecy was proposed by Brophy and Good (1970a). Their model set out six steps describing the processes underlying teacher expectation effects. All of the steps are viewed as necessary if teacher expectations are to be considered as having a self-fulfilling effect and are described as follows:

- "(a) The teacher forms differential expectations for student performance;
- (b) He then begins to treat children differently in accordance with his differential expectations;
- (c) The children respond differentially to the teacher because they are being treated differently by him;
- (d) In responding to the teacher, each child tends to exhibit behavior which complements and reinforces the teacher's particular expectations for him;
- (e) As a result, the general academic performance of some children will be enhanced while that of others will be depressed, with changes being in the direction of teacher expectations;

- (f) These effects will show up in the achievement tests given at the end of the year, providing support for the "self-fulfilling prophecy" notion." (Brophy and Good, 1970a, pp. 365-366).

Since then this model has been extended and while essentially retaining the same six steps now allows for differences among teachers in terms of the appropriateness and degree of flexibility of their expectations (Brophy and Good, 1974, pp. 39-40). This model does seem a useful guide to research in the area of teacher expectations, specifying a series of observable and measurable cause and effect relationships. The main difficulty that arises is related to a point already made earlier concerning Merton's (1957) conception of the self-fulfilling prophecy.

According to Brophy and Good (1974), true teacher expectancy effects involve a situation in which "an inappropriate and rigid expectancy causes a teacher to condition a student to behave differently than he might have behaved otherwise" (p. 40). Some of the problems associated with requiring expectations to be false or inaccurate were outlined in Chapter 1. Another can now be identified relating specifically to teacher expectations. As Brophy and Good (1974) note, differential teacher treatment of students may show differential effects on process and product measures. This seems fairly straightforward. They then go on to state that it is when teacher expectations are rigid and inappropriate (too high or too low) that they will be self-fulfilling. In terms of process and product measures (e.g. classroom behaviour and academic achievement) the thing that is said to distinguish this situation from one where the teacher's expectations are appropriate and flexible is that in the latter instance the child's classroom behaviour and achievement is about what would be predicted on the basis of past performance, whereas achievement levels and behaviour in class will deviate from those predicted from past performance when self-fulfilling

teacher expectancy effects are in operation.

There seems to be an assumption here that if a pupil's classroom behaviour and levels of academic achievement in relation to other pupils in the class are about the same as in previous years then the teacher's expectations must have been accurate. However, this author would argue that the self-fulfilling prophecy effects of interpersonal expectations are just as likely to be operating in situations where the status quo is being maintained as in situations involving change. Achievement consistent with that in the past, even if it is in line with the present teacher's expectations, is not sufficient evidence of either (a) the absence of a self-fulfilling prophecy effect, or (b) the accuracy and/or flexibility of the teacher's expectations. Similar arguments can be made pertaining to change in pupil behaviour and achievement. In this case, inaccurate expectations cannot be assumed on the basis of a change in pupil achievement level even if the change is in the direction of the present teacher's expectations. An alternative explanation might be that previous achievement was not a good indicator of the pupil's capabilities under the conditions provided by a different teacher. Past achievement may not always be a satisfactory criterion against which to judge the accuracy of a teacher's perceptions and expectations. Presumably the possibility exists that teacher expectations could also have had self-fulfilling effects in the past.

Some of the difficulty in Brophy and Good's (1974) model surrounding the nature of teacher expectations themselves seems to stem from a lack of recognition of the methodological complexities involved in trying to ascertain the accuracy of perceptions about other people. There is little in the model itself concerned with the process of forming and adjusting impressions about pupils, though Brophy and Good (1974) do recognize the need for research on the formation of expectations and the kinds of pupil characteristics that teachers attend to

and use in forming impressions.

The model of processes underlying teacher expectation effects proposed by Brophy and Good has been discussed in some detail because it has been the most influential. A number of other models have also been developed and these will now be outlined.

Mason (1972) suggested that on the basis of the empirical and theoretical work in the field of teacher expectations there appeared to be nine steps in the formulation, manifestation and maintenance of teacher expectancy effects. The principal difference between Mason's (1972) model and the one previously discussed lies in the attention given to the perceptual process. Mason's first four steps are all concerned with a process in which it is hypothesised that the teacher is initially introduced to specific concrete information about a child (e.g. sex, race, physical appearance, school records), uses this information to form a character generalization which then provides the basis for assigning specific traits, and the child is subsequently evaluated in terms of the teacher's expectations, needs, values and felt pressures. The fifth step deals with the area of major concern in Brophy and Good's model. Here the teacher and child interact. The teacher's behaviour is seen as being based on expectations and as communicating performance expectations to pupils. There is selective teaching and encouragement for pupils to validate the teacher's expectations. The next three steps again deal with the teacher's perceptions and outline a process whereby the teacher both subjectively and objectively evaluates the pupil's performance, weighs the relative significance of these evaluations, and internalizes or adjusts his or her concept of the child. The final step in the expectations process is characterized in teacher assigned grades, achievement test scores or other criteria.

While Mason's (1972) model has not received wide attention it does seem to provide a useful complementary viewpoint to that of Brophy and Good, placing more emphasis on the perception of people and their behaviour.

Another model of the dynamics of teacher expectancy effects has recently been put forward by Braun (1976). This involves a series of input and output factors covering the behavioural cycle from teacher input to learner output. Braun proposes that a number of input factors may act as sources of teacher expectancy and that teachers may be differentially susceptible to these input factors. Expectancy cues are then transmitted through a number of teacher output or interaction variables which serve as input for pupil self-expectations. Braun considers various learner responses to teacher output cues. Finally, the pupil's self-expectation influences pupil output which may then cycle back as input to teacher expectations. This model is not markedly different from the two previously described except for the fact that more emphasis is placed on the pupil's self-concept and self-expectation as an important element in perpetuating the cycle.

Finally, Rosenthal (1973, 1974) has proposed a four factor "theory" to account for the mediation of what he terms "Pygmalion effects". Like Brophy and Good (1970a, 1974) Rosenthal is primarily concerned with the interpersonal communication and influence processes involved in mediating expectation effects. He suggests that when teachers have been led to expect superior performance from some of their pupils, they appear to treat these pupils differently from the others in four ways:

Climate. Teachers appear to create a warmer socio-emotional climate for their "special" students.

Feedback. Teachers appear to give to their "special" students more differentiated feedback as to how these students have been performing.

Input. Teachers appear to teach more material and more difficult material to their "special" students.

Output. Teachers appear to give their "special" students greater opportunities for responding." (Rosenthal, 1974, p. 15)

While this model seems to have been proposed with the induced expectation paradigm in mind, there seems to be no reason why it should not also apply to naturalistic situations where teachers' own expectations are in operation. The examples given relate to positive expectations but presumably the four factors would still be applicable where teachers hold negative expectations for their pupils. The four factors themselves were proposed by Rosenthal on the basis of a summary of thirty or so studies dealing with the mediation of interpersonal expectancy effects and were put forward as a set of working hypotheses.

All four models would appear to have some value as heuristic devices to aid the understanding of various aspects of the perceptual and interpersonal processes associated with teacher expectations. At the time when the preliminary work for this dissertation was underway, however, only the Brophy and Good (1970a) model was available to the author. What follows now is a description and discussion of the model which underlies the present research and grows out of the theoretical framework relating to person perception and interpersonal behaviour outlined in Chapter 1.

The Model Underlying the Present Research

Teachers' perceptions of their pupils

Initially, a teacher has access to a number of sources of information about a new pupil in the class such as the early observations of the child's behaviour and academic performance, school records, staff-room conversation, experience with siblings and so on. In line with the view that the perceiver plays an active, selective, structuring role in perception, and that the cue function of stimuli is related to a number of individual and situational factors, characteristics of both the teacher and the educational setting are seen as influencing teachers' perceptions of a pupil.

Employing Warr and Knapper's (1968) concept of the three elements of response in person perception, the teacher's perception of the child is viewed as consisting of characteristics, qualities and behaviours attributed to the child, associated affective responses and expectations for the child's behaviour related to the categories and dimensions used in the attributive responses. Many of the characteristics attributed to the child may be straightforward adoption of information available about the child. While this may involve selective attention the level of inference is minimal. In other instances stable dispositional qualities may be inferred from selected cues on the basis of the teacher's past experience, stereotypes, implicit personality theories or other personal characteristics. Here a variety of identification, inference and combination rules may be employed (see Chapter 1).

The expectations a teacher has for a child, then, are seen as being related to perceived child characteristics. Evidence to support this was presented in the previous chapter where a variety of studies were reviewed showing that a number of group and individual characteristics of pupils may influence teachers' expectations and behaviour. Variables such as ethnic group, social class, gender, physical attractiveness, behavioural style, language characteristics, personality factors and even children's names have been found to be important in certain situations.

Teachers, like other perceivers, also make affective responses to other people in addition to attributing overt and covert characteristics to them and generating a range of related expectations and predictions related to the characteristics. This affective component may interact with both the attributive and expectancy components of person perception. Relevant to the field of teacher expectations are a number of studies which look at child characteristics and patterns

of teacher-child interaction in relation to teachers' affective attitudinal responses,

One such study was conducted by Silberman (1969) and looked at teacher attitudes of attachment, indifference, concern and rejection toward students. The results of this study were largely supported by the subsequent findings of Jenkins (1972), Good and Brophy (1972) and Brophy and Good (1974). In general, the attachment students tended to be high achieving, conforming individuals who responded warmly to the teachers. None of the studies found evidence of gross teacher favouritism toward attachment students though it was suggested that the observational instruments may not have been sensitive to some of the subtle behaviours likely to be involved. Indifference students were characterized by low rates of interaction with the teacher and there was some evidence that the interactions that did occur tended to be brief and low in emotional intensity. Child attributes associated with teacher indifference were not identified by these studies. Both the concern and rejection students tended to be low achievers, but teacher reaction associated with these affective responses were quite different. Students for whom the teachers felt concern had high rates of interaction with teachers involving help in academic areas. However, most interaction with rejection students was regarding classroom discipline.

Recent research has looked at the origins of these teacher attitudes through examining first grade teachers' early impressions of pupils (Willis and Brophy, 1974). This study generally supports the earlier findings and provides additional information on the personal qualities of students in the four teacher attitude groups. Of particular interest in the context of the present research is the finding that teachers' judgments of student ability were generally quite accurate for all but the children in the rejection group. One of the

responses to these children, who provided unrewarding personal contacts for the teacher and caused discipline problems, was that the teacher attributed a number of inappropriate and inaccurate qualities to them, including low ability which as measured was not characteristic of the rejection group. Thus there was some evidence that the teachers' attributions and expectations were influenced by their strong affective response of rejection.

Little has been said thus far concerning the kinds of teacher characteristics which might influence the perceptions of pupils. It seems likely that stable characteristics such as age, sex, attitudes, values, personality characteristics, social class, cognitive styles and so on are likely to affect teachers' selective attention to the cue characteristics of present and stored information about pupils. Evidence relating to the role of some of these perceiver characteristics on person perception was reviewed in Chapter 1.

Additional factors relating to the situation or context may also affect perceptions and particularly the set of expectations the teacher brings to the classroom. Apart from having expectations for individual pupils the teacher is likely to have a generalized expectation for the class as a whole which may reflect past experience with other classes, the characteristics of the pupils as a group, constraints of time, pupil numbers and materials, and self-perception of instructional abilities (Finn, 1972). The research findings of Good and Dembo (1973) show differences among teachers in their general expectations for the class's success or failure in mastering the material presented and that these general expectations influence the ways they teach. Teachers who have generally high expectations and who tend to overestimate their pupils' IQ's have been found to be more successful in teaching the curriculum to their pupils than teachers with lower general expectations (Doyle,

Hancock and Kifer, 1972).

The teacher's perception of curriculum constraints may also affect their general expectations of what the class could or should learn. In Sweden, Dahlóff (1971) and Lundgren (1972) have shown how the curriculum may exert a considerable influence on the behaviour of teachers.

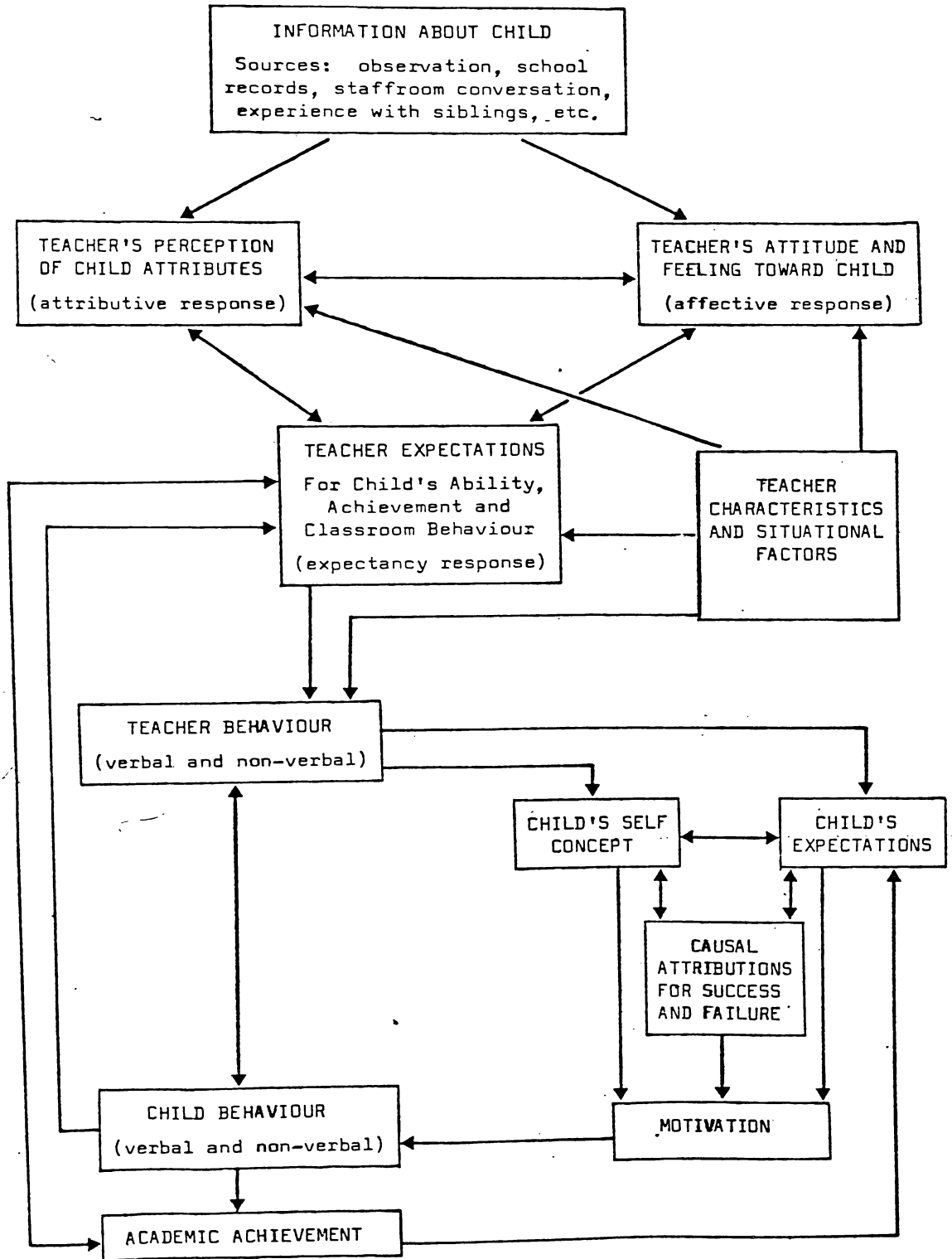
The final set of situational factors that will be considered are the teacher's role perceptions and general orientation. Expectations held by the teacher regarding his or her role behaviour and that of the pupil as a member of the role set is likely to have an effect on category usage in the perception of pupils. It is also hypothesized that whether the teacher is mainly concerned with fostering positive human relationships and classroom climate, with control or custodial functions, or with putting across material and ensuring pupil mastery, will influence that teacher's general and individual expectations as well as behaviour.

The process of person perception culminating in the formation of teacher expectations is summarized in schematic form in Figure 1 as part of the full model which underlies this research. The double headed arrows linking the three response elements of a teacher's perceptions of a pupil indicate that they interact, with each having an influence on the other.

Teacher expectations affect pupil achievement directly via
teacher and child behaviour

Teacher expectations are viewed as functioning as guides to action which influence teacher behaviour toward the pupil concerned. The idea that anticipation is involved in expectations has already been discussed and the important role interpersonal expectations play in structuring social interaction was indicated. A teacher's expectations are not, of

FIGURE 1: Model Outlining Processes Involved in the Formation, Mediation and Effects of Teacher Expectations



course, always formulated in an explicit or conscious manner. Phenomenologically it may seem to be a single step from the perception 'he is a shy child' - attribution of a covert dispositional quality - to refraining from asking the child questions in front of the class. However, it seems reasonable to postulate an intervening cognitive variable such as an expectation, e.g. 'if I ask him to answer questions in front of the whole class he will get anxious and embarrassed'. As suggested earlier, it is often when our expectations are not confirmed that we become aware of them.

Teacher expectations are assumed to guide both verbal and non-verbal behaviour toward a pupil and a variety of studies were reviewed in Chapter 2 which support this view. It is further assumed that the teacher's behaviour toward a child will have some effect on both the pupil's response to the teacher and the pupil's behaviour in relation to academic activities. Thus a bi-directional model of teacher-pupil interaction is postulated here (Fiedler, 1975) with the behaviour of both participants viewed as having a causal effect on the behaviour of the other.

A pupil's classroom behaviour, like his or her achievement, may serve to alter the teacher's expectations if it is disconfirmatory. However, in view of the relative stability of teacher expectations once formed (see Chapter 2) the change may have to be consistent and marked if primacy effects are not to operate. Any adjustment which does occur in a teacher's expectations for a pupil may also have implications for the attributive and affective elements of the teacher's perception.

Though most of the literature on teacher expectations has not been concerned with relationships between specific teacher or pupil behaviours and pupil achievement a number of studies have been undertaken which examine this question and are thus relevant to the model as

presented. These studies have arisen alongside the growth and development of methods of observing and analysing what goes on in classrooms and do not deal directly with teacher expectations as such. Some of the reasons for the recent growth in studies of classroom activities, in addition to the availability of new methods for observation and data analysis, have been the relatively unproductive findings of teacher effectiveness research focusing largely on teacher characteristics. This has been coupled with the need to move away from models of the teaching-learning process which include only predictors and criteria. Process variables have been seen as the "missing link" (Jansen, Jensen and Mylov, 1972).

A number of reviews of research on relationships between teaching behaviours and measures of pupil growth and achievement do indicate the existence of some significant relationships though the results are somewhat complex and not always consistent (Campbell, 1968; Dunkin and Biddle, 1974; Nuthall, 1968; Rosenshine, 1970, 1971; Soar, 1972). Indirectness and flexibility in teacher behaviour, for example, tend to be positively related to achievement gain but there is evidence of complex interactions between classroom behaviour, the nature of the learning task and pupil characteristics (Soar, 1972).

The overt classroom behaviour of pupils and their academic achievement has also been investigated. Measures of attention have fairly consistently been associated with achievement (Cobb, 1972; Lahaderne, 1968; McKinney, Mason, Perkerson and Clifford, 1975; Samuels and Turnure, 1974; Soli and Devine, 1976). In addition, interaction with peers that was concerned with academic material was positively related to achievement (Cobb, 1972; McKinney et al., 1975). Social behaviour has also been found to be important. Aggressive and disruptive classroom behaviours were associated with lower levels of

academic achievement in a longitudinal analysis (Feldhusen, Thurston and Benning, 1970). Presumably children who regularly behaved in this way would also be less attentive and task-oriented in peer interaction,

It is often assumed that the amount of overt pupil participation in lessons will influence the amount learned. However, this is questioned by Hughes (1973) who found that pupil participation in the form of overt responses to teacher questions had little effect on achievement. More important was the nature of teacher reactions to pupil responses,

Finally, the arrow from teacher expectations to academic achievement in Figure 1 is not intended to imply that teacher expectations have some mysterious quality about them which directly causes a child's achievement to be what it is. Rather, it indicates the possibility that teachers' expectations may influence their evaluations of pupil performance. The studies cited in Chapter 2 concerning the effects of expectations on scoring or grading support the idea that this factor needs to be allowed for.

Teacher expectations affect pupil achievement indirectly via pupil self-concept, expectations and motivation

Teacher expectations are seen as affecting teacher behaviour which in turn influences and is influenced by pupil behaviour. Pupil behaviour in turn is related to academic achievement. In addition to this path however, it is also hypothesized that any influence teacher expectations have on pupil achievement may be mediated via pupil self-concept, self-expectations and motivation. Teacher expectations may be communicated through a teacher's verbal and non-verbal behaviour in a way that affects the child's views of self.

Videbeck (1960) found that evaluations made by others can affect

self-evaluations. Viewing self-evaluations as largely the attributive element in self-perception (with associated affective responses) it follows that the characteristics a child attributes to self will have an associated range of predictions or expectations. Once again the influence of the situation cannot be ignored in the model. While self-concept is a multidimensional notion, not all dimensions are of equal relevance to the class setting and school achievement. Of particular interest is self-concept of ability and attainment. These dimensions will have associated expectations regarding the likelihood of success and failure and their consequences in the educational setting.

Further, it is suggested that both a child's self-concept and expectations will affect motivation and thus behaviour and achievement. Evidence for a positive correlation between various measures of self-concept and academic achievement is provided by many researchers (see Purkey, 1970 for a review of studies) though the direction of the causal relationship is not entirely clear. Pupils' perception of their attainment relative to peers has been shown to have a moderate positive relationship to achievement behaviour in the classroom and to academic achievement (Nicholls, 1975, 1976a).

While self-perceptions of ability and attainment are linked to academic expectations in a relationship that is at least partially reciprocal and both expectations and self-concept are seen as having an influence on motivation and achievement behaviour, there is also another factor which appears important. This is the child's causal attributions for success and failure which it is hypothesized may vary with self-concept and expectations. For example, self-perception of failure as caused by a lack of ability is likely to have quite different effects on achievement behaviour than when failure is perceived as due to a lack of effort (Weiner et al., 1972). Children's perceived reasons for success and failure have been found to be useful

predictors of achievement behaviour (Weiner, 1972a, 1974) and motivational differences are likely to be involved. It is possible to bring about changes in behaviour and achievement through direct modification of causal attributions (Dweck, 1975). In a review of research on attribution theory in relation to the educational process Weiner (1972b) concluded that:

"It has rather convincingly been demonstrated that causal attributions influence the likelihood of undertaking achievement activities, the intensity of work at these activities, and the degree of persistence in the face of failure. These behaviours manifestly will influence the degree of learning in academic settings." (p.213)

Finally, it is assumed that a pupil's academic achievement, in addition to having the potential to alter or reinforce teacher expectations, may also provide feedback to the child which may confirm or result in some change in expectations and self-concept of ability and attainment. A recent large scale study using cross-lagged panel analysis found that adolescents' academic performance was causally predominant over their self-concept of ability, perception of others' assessment of their ability and expectations about how far they will go in school (Calsyn and Kenny, 1977).

There are of course many extensions that could be made to a model such as the one presented. For instance learner characteristics (abilities, skills, attitudes, etc.) may affect achievement independently of teacher expectations and teacher behaviour. Also, pupil characteristics may interact with the nature of the learning task in their influence on pupil outcomes (Bloom, 1976). Expectations of parents and peers may also influence the self-expectations of pupils. However, a model cannot accurately represent the world in its totality. While much of the educational environment and many individual difference variables in both teachers and pupils are omitted, the model is a useful

aid in recognizing the complexity of the classroom as a social situation in which the participants are enmeshed in a network of perceptions, expectations and interactions.

The Research Questions

The research on teacher expectations reviewed in Chapter 2 concluded by noting firstly, that while there is evidence that teacher expectations may under some circumstances influence teacher-pupil interaction and pupil achievement such an effect is not automatic or general across all teachers. The conditions under which teacher expectations operate and the extent to which they may be self-fulfilling are still not entirely clear.

A number of difficulties were identified concerning research which attempted to experimentally manipulate or induce expectations such as the inference problems regarding the nature of the interpersonal expectations, the ethical problems if low expectations are to be induced and the low level of generalizability. Despite the greater control over sources of variation in teacher and pupil behaviour which may be gained in experimental studies carried out in laboratory conditions, it would seem to be much more fruitful to pursue further research in the natural classroom setting. Schools as an action setting assume considerable importance in the lives of children when it is realized that attending school takes up more of their time than almost any other activity apart from sleeping (Jackson, 1968).

Investigating some of the relationships among perceptions, cognitions and actions in the classroom may provide useful information on interpersonal perceptions and social interaction which have consequences on the lives of a large number of individuals.

One area which does seem in need of particular attention has to

do with the bases on which teachers form impressions. In other words, what categories or dimensions do teachers tend to use when they make judgments about their pupils? Rather than try to impose certain expectations and then see what happens to achievement it seems far more useful to try to find out the bases on which teachers ordinarily form their own expectations.

Almost all of the research to date which has looked at the relationships between various child characteristics and teachers' expectations has been in terms of attributes the researcher has thought might be important. In many cases, this has meant the researcher has engaged in traditional methods of obtaining information about how an individual perceives his social environment, involving giving the subject a set of rating scales, inventories or check lists the content of which has been determined by the researcher. There is no guarantee in such instances that the scales are representative of or relevant to the way a subject usually perceives particular individuals or situations.

In addition, many of the studies looking at pupil attributes and teacher expectations have used fictitious pupils. Here the teacher only has very limited information on the child (e.g. photograph, report card or short description) on which to form an impression. The teacher may only use the information given because there is nothing else to go on. There is some evidence that this occurs when the variables of race and social class are used in such studies (Brophy and Good, 1974).

There does appear to be a need, then, for research into teachers' actual perceptions of pupils in their own classrooms. The problem of relevance in person perception has been recognized for some time (Hastorf, Richardson and Dornbusch, 1958; Rommetveit, 1960) but only very recently has it been explicitly dealt with by those involved in research on the perceptions teachers have of their pupils (Nash, 1973;

Taylor, 1976).

Another point that becomes evident from the literature review in Chapter 2 is that most studies have been concerned with only a small part of the whole process of the formation, communication and effects of teachers' expectations. Most of the naturalistic studies to date, for example, deal only with the relationship between teacher expectations and classroom interaction. While it is unrealistic to expect a single study to deal with all phases of a model such as the one presented above, it would be useful to conduct a study using ordinary classrooms in which both process and product measures are obtained and more than one segment of the proposed cycle is included.

Viewing the field of teacher expectations from a New Zealand perspective it also becomes apparent that there is a great deal that needs to be known about the nature and operation of the phenomenon in this country. Only one study has been carried out on teacher expectations in New Zealand to date (Haigh, 1974) and there is a dearth of empirical data available on 'what goes on' in classrooms generally from either a psychological or sociological point of view. In particular, there have been no New Zealand studies in which teachers' perceptions of, expectations for, and interactions with, children from different ethnic groups have been investigated.

The lower academic achievement of Maori children than Pakeha (European) children has received considerable attention in New Zealand (Harker, 1971, 1973, 1976; Lovegrove, 1966; Ramsay, 1975; Walsh, 1973) and a variety of explanations or causal factors have been suggested. These have ranged from factors in the personality and home environment of Maori children, low socio-economic status and lack of parental interest in their children's education to explanations in terms of cultural deprivation and linguistic or intellectual deficits (Harker, 1971; Metge, 1976). There has been a shift in recent years from seeking

causes located in the child and his or her home background to looking for causes in the inadequacies of teachers and the school system in catering for bi-culturalism and minority group needs (Dewes, 1968; Walker, 1973). This parallels similar changes in emphasis in the United States regarding the causes of low achievement levels in minority groups (Clark, 1965; Katz, 1967; Passow, 1963). The focus on teachers and the schools also finds support in subsequent suggestions in cross-cultural psychology that factors of situation and context may affect the way in which cognitive processes are applied and achievement related behaviours are elicited (Cole, Gay, Glick and Sharp, 1971; Maehr, 1974). However, most studies concerned with levels of school achievement in New Zealand have been based on input-output models, largely ignoring classroom process variables.

One possible set of contextual factors influencing achievement concerns the stereotypes and expectations teachers hold regarding their pupils and in New Zealand's multi-racial society ethnicity may often act as a social marker in person perception. The idea of race as a role-sign has been explored by Banton (1967) who suggests that the phenomenon only occurs in situations in which expectations of behaviour have crystallized into patterns. Certainly the data on Maori and Pakeha stereotypes would seem to be indicative of such a situation (Archer and Archer, 1970; Vaughan, 1964, 1972). One component of the stereotype of Maoris shared by both Maori and Pakeha is that they are perceived as being of lower intellectual and academic ability than Pakehas.

Consistent with this evidence is the recent finding of Nicholls (1976b) that both Maori and Pakeha children were less likely to attribute the success of children shown in films to high ability when the child succeeding was Maori than when the child was Pakeha. Children's

ethnicity may also have implications for their teachers, both in terms of the kinds of causal attributions made by teachers for pupil success and failure and in terms of a number of stereotyped characteristics being inferred on the basis of the pupil's ethnic group. It is possible that teachers' expectations and behaviour may be influenced through this process. Certainly the idea of differential teacher behaviour toward minority group children has been entertained and discussed, but while there is some overseas evidence of this (Coates, 1972; Jackson and Cosca, 1974; Rubovits and Maehr, 1973) it is assumption and anecdote that has prevailed in New Zealand. Teacher expectations and the possibility of educational self-fulfilling prophecies have also been commented on from time to time with regard to the level of Maori scholastic achievement. Walker (1973), for example, argues strongly that the teacher's expectations for a child have a lot to do with how that child performs. While recognizing that categorizing is necessary for social interaction, Walker suggests that the mythology involved in the stereotyped expectations for Maori pupils may become self-fulfilling prophecies. However, once again there is no empirical data available on teachers' perceptions of and expectations for Maori and other minority group pupils as compared with Pakeha pupils.

In light of the above considerations, relating to both the study of teacher expectations generally and to New Zealand ethnically mixed classrooms in particular, the following specific research questions were formulated:

- 1, What categories or dimensions do teachers find relevant in perceiving their pupils?
- 2, How are pupil attributes related to each other in teachers' perceptions?

3. How do teachers' perceptions of pupil attributes vary with pupil ethnic group and gender?
4. How do the pupil attributes as perceived by the teacher relate to expectations concerning general ability?
5. How do teacher expectations relate to standardized achievement test results?
6. What is the relative contribution of teacher expectations and pupil ethnicity to teacher-rated school achievement variance?
7. Are there any differences in teacher-pupil interaction related to differential teacher expectations or pupil gender?
8. Does pupil ethnic group have a significant effect on teacher-pupil interaction?
9. How are measures of teacher-pupil interaction related to teacher-rated school achievement?
10. Are there any expectation group differences in pupils' perception of teacher behaviour?
11. How are pupil perceptions of teacher behaviour related to observed teacher behaviour?

CHAPTER FOUR

METHOD

Sample

The sample of 90 children was drawn from five Standard 3 classes in four primary schools in the South Auckland Education Board district in 1973.

Four criteria operated in the selection of classes for inclusion in the study. First, schools were selected which had approximately 25% non-European pupils (most of whom were Maori). Second, school populations were to be relatively heterogeneous in terms of being drawn from catchment areas with a wide range of socio-economic backgrounds. All schools selected were judged by the head teacher to have a mix of both middle and lower class pupils with a bias toward children from lower socio-economic backgrounds. Third, single teacher classrooms were required. Open plan classes with a large number of pupils (e.g. 60-70) and two or three teachers, or classes involved in team teaching schemes were not included in the study to avoid some confounding variables. Since the study was concerned with teacher expectations and their possible effect on teacher-pupil interaction and pupil performance it was imperative to hold the teacher variable constant in each class. Fourth, classes having final year Teachers College students on section during the second term were excluded as this was the period during which classroom observations were to take place. Two classes, however, were assigned students after the study had commenced. As it was too late to select replacement classes a decision was made to avoid observation sessions when the students were present.

The five classes selected for the study were not streamed (though it should be noted that unofficial and implicit streaming may have

operated). Three teachers were female and two were male, with teaching experience ranging from one to nineteen years. One of the female teachers was Maori,

Three criterion groups of children were selected from each class comprising a high, middle and low teacher expectation group as determined by teacher rankings of pupil general ability made early in the school year. Preliminary discussions and trial runs of ranking classes on various criteria with three Standard 3 teachers not involved in the investigation revealed that some difficulty was experienced in ranking thirty or more children by simply listing names in rank order. It was found that the teachers all felt that the ranking task was simplified when they were provided with the names of the children on slips of card which they could lay out and move around until they were satisfied about the order in which the names were arranged. The teachers also indicated that they were more certain of their final judgments when the ranking task was carried out in this manner.

Accordingly, sample selection proceeded as follows. In March, each of the five teachers were provided with an envelope containing the names of all the children in the class typed on cards 6 cm x 1 cm. A sheet of paper on which the final ranking was to be listed and a page of instructions were also provided. The instructions were:

"On the basis of your knowledge of the pupils in your class, please rank them in order of their general ability. To do this, arrange the names of the pupils (which have been provided in the envelope) until you are satisfied that they are in the right order as you see it. If you really cannot decide between children you may place their names side by side in the same position. When you have ranked the pupils from high to low according to their general ability in this way, please write the list down the page on the paper provided."

When the rankings were completed they were placed in an envelope and sealed before being returned to the researcher. While no criteria or guidelines regarding what was meant by general ability were provided,

discussion with the teachers after they had ranked their classes revealed that they all interpreted and used 'general ability' in the sense of a child's general ability to do well in school.

From each set of rankings three groups of children were selected, each group consisting of three boys and three girls. Thus 18 children were selected from each class and across classes there were 30 children in each expectation group. Details of the sample are presented in Table 1.

Sample selection was undertaken by two judges according to rules laid down by the researcher. In each class the high expectation group consisted of the top three boys and the top three girls. The low expectation group consisted of the three boys and three girls at the bottom of the list. The middle group consisted of the three boys and three girls closest to the middle rank. When ties were involved or when an inclusion decision had to be made between two children who were equidistant from the middle then selection was random. A small number of children were excluded from the selection procedure because either (i) it was known they were going to shift to another school or class in the near future, or (ii) they had had prolonged absences at the beginning of the school year, giving the teacher very little opportunity to form stable expectations.

When the groups had been selected the sample from each class was listed alphabetically, with no indication of the expectation group to which they were assigned, before being returned to the researcher. Thus, neither the researcher nor her research assistant knew the composition of each expectation group in a class.

Children from ethnic groups other than Pakeha (European) were not equally represented in the expectation groups. The majority of non-European children were New Zealand Maori ($n = 20$) with a small number of Island Polynesian children ($n = 3$). As the study was concerned with

TABLE 1: Total Sample by Expectation
Group, Class and Gender

Class	Expectation Group						Total
	High		Middle		Low		
	M	F	M	F	M	F	
Class 1	3	3	3	3	3	3	18
Class 2	3	3	3	3	3	3	18
Class 3	3	3	3	3	3	3	18
Class 4	3	3	3	3	3	3	18
Class 5	3	3	3	3	3	3	18
Total	15	15	15	15	15	15	90

teacher perceptions, data regarding ethnic group were obtained from teachers who indicated the ethnic group of their pupils on the class lists supplied to the researcher at the beginning of the year. The only indication of difference between the perceptions of the teacher and pupils regarding ethnic group was in the case of the Island Polynesian children. One such child was described as an 'Islander' by the teacher, though regarded himself as Samoan, and in another case the island of origin stated was incorrect. Two of the children were in fact from Samoa and one was from Niue. In general conversation it was not uncommon for teachers to use the term Maori to describe all the Polynesian children in the class. It should be noted, however, that the schools in which this research was carried out had very small numbers of Polynesian pupils who were not New Zealand Maori. Ethnic group characteristics of expectation groups are presented in Table 2.

General Procedure

In order to provide the reader with a clear picture of the order in which data were collected a summary is presented in Figure 2.

In February 1973, free response pupil descriptions were obtained from five Standard 3 teachers who had taught at this level for at least three years in schools of a similar pupil composition to those used in the major investigation. A content analysis of the descriptions of pupil characteristics and behaviour resulted in the identification of a number of dimensions commonly used by all the teachers. These were used as the basis for the rating scales in the 'Pupil Characteristics Questionnaire' used later in the study. A fuller description of this component of the study is contained below in the section entitled 'Pupil Attribute Measures'.

TABLE 2: Total Sample by Expectation Group and Ethnic Group

Ethnic Group	Expectation Group		
	High	Middle	Low
Pakeha	26	24	17
Polynesian	4	6	13
Total	30	30	30

FIGURE 2: Temporal Sequence of Events
in the Research Procedure

Term 1, 1973

- February = 1. Collection of information on categories used by teachers to describe their pupils.
2. Initial contact of 5 Standard 3 teachers to enlist support and obtain class lists.
- March = 1. Teachers rank classes on general ability.
2. Results of Progressive Achievement Tests collected.
- April = 1. Selection of pupils in sample.
- April-May = 1. Training of observers in use of Brophy-Good system of teacher-child dyadic interaction analysis.

Term 2, 1973

- June = 1. Observer reliability measures.
2. Orientation visits to classes and collection of class seating plans.
3. Collection of school performance data.
- June-July-August = Observation in classrooms.
- August = 1. Teachers complete "Pupil Characteristics Questionnaires".
2. Pupils in sample interviewed.
3. Taped interview with teacher and explanation of study.

Term 3, 1973

- November = School performance data collected.
-

Also in February, after prior consultation with Education Board officials and headmasters of the schools concerned, the five teachers involved in the major investigation were contacted and all agreed to participate in the project. They were informed that the research was concerned with the characteristics of children in schools at the Standard 3 level, with how they behaved in class and with how they performed academically. The requirements of the researcher and the involvement of the teacher and pupils during the year were outlined. Teachers were not informed that their own behaviour would be observed as well as that of the pupils or that observations would focus on particular subgroups of pupils. Class lists, indicating the name, ethnic group and gender of each pupil, were supplied to the researcher.

In early March, after the teachers had been with their classes for a month, pupils were ranked in terms of general ability and these class rankings were used to select the expectation groups within each class in accordance with the procedures of sample selection outlined above. Later on in the same month, the results of the Progressive Achievement Tests were collected. These had been administered by teachers to their classes as part of routine school procedure. The test results were not available to the teachers at the time they completed the general ability rankings.

Classroom observations using the Brophy-Good (1969) system of teacher-pupil interaction analysis took place during the second school term. During April and May the two observers (one of whom was the writer) engaged in training sessions involving the use of transcripts, videotape and lastly observation in a Standard 3 class, not involved in the investigation. In June, measures of observer reliability were obtained and when these reached a satisfactory level (see below) orientation visits to the five classes involved in the study were arranged. Seating plans were provided by the teacher and each class was

visited for a morning or an afternoon. These visits provided an opportunity for the teacher and pupils to become accustomed to the presence of observers and for observers to become familiar with the children. During these times checks on observer reliability were also made. Mid-year teacher ratings of school achievement were collected in late June.

Each of the classes was observed for at least two mornings and two afternoons during which a variety of general class activities were in process. Music, art and physical education were excluded from observation sessions as these lessons were considered less relevant to the mediation of teachers' expectations concerning general ability and potential for school achievement. Reading lessons were also excluded as it was felt that extending the study into this area was beyond the resources available. Different methods of interaction analysis would have been required as well as a considerable extension of observation time in order to acquire sufficient data on teacher-pupil dyadic interactions. The teachers concerned commonly focused their attention on one reading group during a lesson while the other groups engaged in a variety of individual or small group activities.

If there was no class interaction additional observation sessions were arranged as soon as possible. This might come about due to a film being shown, a test, a special activity involving the whole school (the Children's Art Theatre was touring the area at the time), or unpredicted interference (in one instance the operation of a pneumatic drill outside the window meant the teacher could only communicate by gesture and writing instructions on the board). No observations were made on Friday afternoons. The length of time for which classes were observed was as follows:

Class 1 - 6 hours 52 minutes

Class 2 - 9 hours

Class 3 - 9 hours 35 minutes

Class 4 - 9 hours 30 minutes

Class 5 - 11 hours 35 minutes

The shorter observation time for Class 1 was due to the fact that a decision was suddenly made by the school to combine this class with another in an open plan situation with three teachers. Despite attempts to be informed regarding future events in the school which were likely to affect the research, the writer was not notified of this development but found it in action on arriving for an observation session. As it was important that the teacher variable was held constant for each class no further observational data could be collected.

When the observations were completed in August the teachers were asked to fill out a set of fifteen rating scales on pupils attributes for each of the subjects. The scales were based on the information collected earlier in the year on relevant categories in teachers' perceptions of their pupils. These data were not collected at the same time as the rankings of general ability were made for two reasons. First, teachers thought that all the children in the class were being observed. This was a precaution to ensure that the teachers did not identify certain children as being of specific interest to the researcher as there was a possibility that this knowledge might affect the teacher's behaviour toward these children. Requiring teachers to complete a "Child Characteristics Questionnaire" on a subgroup of children within the class would have counteracted the precaution. Second, it was not feasible to have the teacher fill out the rating scales for the whole class as this would have taken a considerable time and it was important to retain the teacher's full co-operation through

the year. It was therefore decided to collect the teacher ratings of pupil attributes when the observations had been completed. This was the first time that individual children were identified to the teacher as being of possible special interest to the researcher.

After the pupil attribute ratings had been collected each of the 90 pupils in the sample were interviewed to obtain a simple measure of their perceptions of the teacher's behaviour toward them as compared to pupils in the other expectation groups. This measure will be outlined in further detail below.

Finally, a taped interview was held with each teacher to obtain their comments on what they thought the study was about and whether they felt that the presence of observers had affected their own or their pupils' behaviour. The full nature of the study was explained at this point.

Teachers' end of year ratings of school performance were provided from the Progress and Achievement Registers by the headmasters of the schools concerned.

Development of Pupil Attribute Measures

In order to look at the nature of teachers' expectations for pupils' general ability it was important to ascertain the relationships between those expectations and teachers' perceptions of pupils' attributes and characteristic ways of behaving in the classroom. An immediate problem that arose was to identify relevant categories or dimensions employed by teachers in the perception and evaluation of their pupils.

The problem of relevance in person perception has not always received a great deal of attention by researchers and as noted in the previous chapter most studies have presented the subject with ready-made checklists or sets of rating scales. Hastorf, Richardson and Dornbusch (1958) have argued strongly against such an approach and

suggest the lack of concern for the relevance and meaningfulness of the categories to the subject who is to employ them may be a reason why accuracy scores on experimenter-selected categories do not predict well to other aspects of interpersonal behaviour. The study of the categories of interpersonal perception is seen by these writers as an important prerequisite for investigating perception-behaviour relationships.

It was argued in Chapter 1 that the stimulus properties of the person being perceived should not be studied in isolation as determinants of perceptions and cognitions as the context is an integral part of the stimulus. The roles of the perceiver and perceived, the content and structure of the situation and the interaction goals of the participant will all be important in the cue selection and inference processes in perception (Jones and deCharms, 1958; Jones and Thibaut, 1958; Secord and Backman, 1974). As Rommetveit (1960) emphasizes, the categories used to select and organize perceptions of others are determined more by personal and instrumental relevance or functionality than by the characteristics of the stimulus person. Within the context of the classroom the teacher's role perceptions and interaction goals may be an important influence on category or construct usage.

One method of determining what categories are relevant to the people whose perceptions are being studied is to obtain exploratory free descriptions of others (Hastorf et al., 1958). In an attempt to map the attributes commonly used by teachers to explain and predict the activities and performances of pupils in their classrooms the free description approach was utilized in this investigation. A pilot study was undertaken with five Standard 3 teachers who had taught at this level for at least three years in schools of a similar pupil composition to those in the major study. In order to obtain free response descriptions of a range of pupils each teacher was required to describe twelve children varying in terms of ethnic group (Maori, European), gender and ability

level (high, average, low). In every case the child being described had to be named or an identification code used. This was to get the teachers to think of a particular child rather than a general category or typification. The teachers were then required to "Describe the important characteristics of this child as they appear to you". When this had been done they were asked to list some examples of the child's classroom behaviour to illustrate the description. This further exploration represented an attempt to find out something of the meaning of the attributes used in the descriptions and the evidence on which the inferences were based. Proceeding in this way would enable the development of a set of rating scales which were both relevant and worded more meaningfully for teacher use.

It is interesting to note that three out of five data returns on each of 'Maori boy of high ability' and 'Maori girl of high ability' were blank and two teachers could not provide descriptions of either child. In addition, one of these teachers could not describe a 'Maori boy of average ability'. On questioning the teachers about their lack of response, comments such as "I have not taught such a child" or "Never taught one in the last five years" were forthcoming.

Content analysis of the pupil descriptions revealed fourteen dimensions commonly used by all the teachers. One other construct relating to physical attractiveness was used slightly less often but was included as it had been found to be significantly related to teacher expectations and evaluations in other studies (e.g. Clifford and Walster, 1973; Dion, Berscheid and Walster, 1972) and there was a possibility that social desirability may have influenced the use of this category (e.g. One ought not to judge a book by its cover).

These dimensions included a number of constructs which differed in nomenclature but appeared similar in meaning. The examples of classroom

behaviour were used in trying to establish whether different terms tapped a dimension with a similar underlying meaning. Examples of terms used which did appear to be tapping the same construct are presented in Appendix A for each of the fifteen dimensions. A check on the meaning of the wording used in the rating scales was obtained by going back to the five teachers with the scales and asking them to elaborate on the meaning of the scale end descriptors.

The fifteen seven-point rating scales developed in this way were contained in a small booklet entitled 'Pupil Characteristics Questionnaire'. Each bi-polar scale was presented on a separate page with the scale ends labelled. Ten independent judges (all teachers and including the five in the pilot study) were unanimous in their choice of positive and negative scale ends. The scales are presented in Figure 3 with the positive end of the scale listed on the left hand side though this was randomized in the booklet as was the order of the scales.

School Achievement Measures

a) Progressive Achievement Tests

Three of these tests, developed by the New Zealand Council for Educational Research for use in New Zealand schools, were currently in use at the time of data collection. They are given to all children in Standard 2 and above by school staff early in each year. The results for the Reading Vocabulary and Reading Comprehension tests (Elley and Reid, 1969) and the Listening Comprehension test (Elley and Reid, 1971) were collected from school records. Raw scores may be converted to levels of achievement, which indicate the instructional level a child is performing at in the skills tested regardless of age or class, or to percentile norms which compare the child's performance to that of a nationally representative group of a similar age. In this study all analyses were performed using raw score data.

FIGURE 3: Rating Scales Used in the 'Pupil Characteristics Questionnaire'

perseveres at school work	___:___:___:___:___:___:___	does not persevere at school work
independent - needs little teacher guidance	___:___:___:___:___:___:___	dependent - needs a lot of teacher guidance
very confident	___:___:___:___:___:___:___	lacks confidence
physically attractive	___:___:___:___:___:___:___	not physically attractive
reacts well to new work	___:___:___:___:___:___:___	does not react well to new work
reads well	___:___:___:___:___:___:___	does not read well
good parent attitudes toward school and education	___:___:___:___:___:___:___	poor parent attitudes toward school and education
good use of English in conversation	___:___:___:___:___:___:___	poor use of English in conversation
high interest in the world about him/her	___:___:___:___:___:___:___	low interest in the world about him/her
neat appearance	___:___:___:___:___:___:___	untidy appearance
high task concentration	___:___:___:___:___:___:___	low task concentration
low frequency of disruptive behaviour	___:___:___:___:___:___:___	high frequency of disruptive behaviour
stimulating home environment	___:___:___:___:___:___:___	restricted home environment
gets on well with classmates	___:___:___:___:___:___:___	does not get on well with classmates
high participation in class or group activities	___:___:___:___:___:___:___	low participation in class or group activities

b) Teacher Ratings of School Achievement

At the middle and end of each year a survey of pupil achievement is undertaken and on the basis of performances obtained at these times teachers are required to rate each child on a five point scale in a number of subject areas. These ratings are entered in the Register of Progress and Achievement (E19/16) kept by each teacher and sent home on pupils' school reports. End of year ratings are also entered on school record forms (E19/22). The scale is as follows:

1. excellent
2. above average
3. average
4. below average
5. unsatisfactory

The guidelines provided to teachers suggest that the normal distribution be approximated in the allocation of ratings, with pupils being compared with their age peers.

Seven major subject areas were rated by all five teachers and these were oral language, written language, reading, spelling, mathematics, social studies and nature study. A composite teacher rating index of school achievement was used in the analysis consisting of an unweighted sum of ratings in the seven school subjects. Separate achievement indices were calculated for mid and end of year achievement but in the majority of cases the end of year composite teacher rating is employed in the analyses. Scores could range from 7 to 35, with a lower composite rating score indicating a higher general achievement level.

Teacher-Pupil Dyadic Interaction

In recent years the interest in systematic observational classroom research has grown apace and with it the number of observational

techniques available has rapidly increased. The publication of a fourteen-volume anthology of observational instruments (Simon and Boyer, 1970) is indicative of the strong contemporary interest in the field. Reviews of research and detailed theoretical and methodological discussions of issues involved in classroom observational research have been appearing fairly frequently (e.g. Amidon and Hough, 1967; Bealing, 1973; Dunkin and Biddle, 1974; Emmer, 1972; Hamilton and Delamont, 1974; Medley and Mitzel, 1963; Nuthall, 1974; Rosenshine and Furst, 1973).

Many of the observation systems in common use focus on the class as a unit of analysis and data are not retained separately for each pupil. Indeed, Rosenshine and Furst (1971) suggest that the correct sampling unit in classroom investigations is the class or teacher because of the lack of empirical independence between events in the categories employed. However, as Good and Brophy (1969) have argued the use of the class as a unit in observational research implies two tacit assumptions of questionable validity:

"(1) the idea that the interaction variables being studied are properly conceptualized as interactions between the teacher and the class as a group rather than as dyadic interaction between the teacher and a single student and (2) the idea that teachers are consistent across students in their classroom behaviour so that individual differences within a classroom are of little or no importance relative to inter-class differences." (pp. 3-4)

In the case of the first assumption this may often be true, particularly if the variables concerned have to do with aspects of the teacher's lecturing behaviour, when engaged in expository teaching. Here the teacher is dealing with the class as a group. However, a good deal of teacher behaviour is more appropriately conceptualized as dyadic interaction between the teacher and an individual pupil. This includes many variables commonly included in teacher effectiveness studies (e.g. teacher warmth, teacher indirectness, praise, criticism,

provision of response opportunities) which represent behaviours commonly directed to individual pupils and not the class as a whole. The importance and frequency of dyadic or personalized interaction in teaching has been emphasized by Smith and Geoffrey (1968) in their participant observational study using a "microethnographical" approach.

Conceptual objections to collecting data from a class perspective would have few practical implications, however, if there is little intra-class variation in teacher-pupil interaction patterns. If teacher behaviours are fairly consistent across pupils and if pupils respond similarly to classroom process then class means will be fairly accurate representations of how the teacher interacts with each pupil. There is a good deal of evidence, however, to suggest that this is not the norm and that considerable diversity in teacher-pupil contacts is consistently found related to a variety of individual and group differences among pupils such as sex, social status, or achievement level (Becker, 1952; Brophy and Good, 1974; de Groat and Thompson, 1949; Garner and Bing, 1973b; Good, 1970; Hoehn, 1954; Hudgins and Ahlbrand, 1970; Jackson and Lahaderne, 1967; Meyer and Thompson, 1956). Thus a class mean is not likely to accurately reflect the general behaviour of the teacher or the experience of individual pupils when dyadic interaction variables are being studied.

The conventional view of the class as a group sharing a common educational experience has also been questioned by a number of writers (e.g. Jackson and Lahaderne, 1967; Yamamoto, 1967) and Gardner (1974) argues that the nature of the relationship between teacher behaviours and pupil outcomes may be different for different kinds of pupils, with the implication that class means may not always be appropriate. This author shares the conclusion of Good and Brophy (1969) that there are both theoretical and empirical reasons for treating the pupil as the unit of analysis in classroom interaction data. In addition, the questions being

asked in this research relating to differential treatment and behaviours of groups of pupils within classes require that teacher-pupil interaction data be collected on individual pupils,

It is not being argued here that dyadic interaction is the only significant kind of teacher or pupil behaviour that goes on in the classroom. Other studies may need to focus on individual pupil behaviours not involving social interaction, on pupil behaviour in relation to peers, or on other facets of teacher behaviour which do not involve personalized interaction. It is the underlying model of processes involved in the formation, mediation and effects of teacher expectations which is the major justification for the attention to teacher-pupil dyadic interaction,

In line with Nuthall's (1968) call for a restriction on the development of new category systems for classroom observation unless there is clear theoretical justification, a call subsequently repeated by Dunkin and Biddle (1974), a new system of interaction analysis was not developed for this study. Rather an instrument was chosen which had already undergone lengthy development and which focused on variables of concern in the present investigation. This was the Brophy and Good system of teacher-child dyadic interaction (Brophy and Good, 1969, 1970b; Good and Brophy, 1970) which had been developed specifically for looking at the communication of differential performance expectations by teachers,

The Brophy-Good system may be described as a multi-faceted categorical system which does not attempt to code all classroom behaviour but is universal for dyadic teacher-pupil contacts. The identity of individual pupils involved in dyadic interaction with the teacher is always recorded and the sequence of interaction is preserved so that cycles of initiation and reaction are retained.

Briefly, four types of dyadic contacts in general class activities are coded: response opportunities, work-related contacts, procedural contacts and behavioural evaluations.

The system also has a separate coding sheet to be used during reading group or other recitation situations. However, since reading groups were not observed and pre-observations revealed that individual pupils were rarely required to engage in behaviours described in the operational definition of recitation turns, the reading and recitation coding sheets were not employed in this investigation.

On the general class activities sheet the coding within the four broad facets of teacher-pupil interaction is kept separate and coding distinctions are also made concerning the nature and sequence of the observed interaction. A comprehensive and detailed statement concerning the observation system, including operational definitions of categories used, training procedures, issues of reliability and validity, coding examples and the derivation of measures from the raw coding data is to be found in Brophy and Good (1969), which was the manual observers used in this investigation. The brief descriptions of the categories which now follow represent summaries of the detailed descriptions presented in the above source.

Dyadic Interaction Categories - General Class Activities

1. Public Response Opportunities

These involve a public attempt by an individual pupil to deal with a question posed by the teacher.

a) Types of response opportunities:

Discipline Questions

Teacher uses question as a control technique to compel attention.

Direct Questions

These cover all instances where the teacher calls on a child who is not seeking a response opportunity (except discipline questions). Here the teacher addresses a question to a particular child.

Open Questions

These are partly teacher-afforded, partly child-created. The teacher creates a response opportunity and the child indicates a desire to respond. This is the usual situation when a teacher asks a question to the class or group and waits for the children to raise their hands before calling on one to respond.

Call-Outs

Response opportunities created by children who call out answers to teacher questions without waiting for permission to respond. This is only coded if the teacher gives some feedback reaction to the child who called out.

b) Level of question:

Process Questions

This is the most complex level of question and requires the pupil to explain a complex phenomenon or outline the cognitive and/or behavioural steps that must be gone through in order to solve a problem.

Product Questions

These are questions for factual knowledge requiring an answer which can be expressed in a single word or short phrase.

Choice Questions

Here the child does not have to produce a substantive response

but simply has to choose one of a number of presented alternatives.

Self-Reference Questions

Process, product and choice questions apply only to academic subject matter. Self-reference questions require the pupil to give details of personal experience or to express opinions but do not require a demonstration of skill or knowledge of academic subject matter. As such they are not evaluated as correct or incorrect.

c) Quality of pupil's response:

Correct Answers

The child answers the question in a way that satisfies the teacher. The teacher makes a positive response or does not attempt to improve upon or replace the child's answer with another.

Part-Correct Answers

Answers which are correct but incomplete or answers which are correct from one point of view but are not what the teacher is looking for.

Incorrect Answers

The child's response is treated as simply wrong by the teacher.

No Response

This includes all cases where the child makes no response to the question whatever, indicates through word or gesture that he cannot answer the question, or mumbles something which the teacher indicates cannot be understood.

d) Teacher's feedback reaction:

Praise

Positive evaluation, the teacher does more than merely indicate that the child has given a correct response.

Affirm Right

The teacher indicates that the child's response is correct or acceptable (verbally or non-verbally).

No Feedback Reaction

Here the teacher makes no reaction to the child's answer. Also coded when the teacher repeats the child's answer without indicating whether it is correct or incorrect.

Negate Wrong

Teacher indicates that the child's response is incorrect or unacceptable (verbally or non-verbally).

Criticism

Negative evaluation, more than an indication that the response is wrong. Teacher also expresses anger at or personal criticism of the child.

Process Feedback

The teacher reviews the cognitive or behavioural processes that are to be gone through to arrive at the right answer.

Gives Answer

This is product feedback. The teacher gives the child the answer but does not get into process feedback.

Asks Other

The teacher does not provide the answer to the question but asks another child to answer it.

Call Out

Another child calls out the answer to the question before either the first child or the teacher has a chance to provide the answer.

Repeats Question

Sustaining feedback. The teacher simply repeats or refers to the question without changing it, indicating that the child is still to respond to the question if possible.

Rephrase or Clue

Sustaining feedback. The teacher still seeks the same answer but rephrases the question or provides a clue as to how to respond to it.

New Question

Sustaining feedback. The teacher asks the same child another question requiring a new answer (although it may be closely related to that required by the original question).

2. Private Work Related Contacts

Here the teacher is interacting privately with an individual pupil about academic matters idiosyncratic to that pupil rather than publicly about material meant to be monitored by the class as a whole. Such

interactions are usually about seatwork or homework assignments. Work-related contacts are separately recorded depending on whether they were initiated by the teacher (teacher-afforded) or the child (child-created). Teacher praise, criticism and process or product feedback are coded in relation to work-related contacts. If the observer cannot hear the teacher's reaction, the category of 'don't know' (?) is coded.

3. Procedural Contacts

These include all private teacher-pupil interaction not coded as work-related or behavioural. They mostly have to do with procedural matters relating to everyday classroom maintenance (e.g. performing errands, distributing equipment, putting things away) or handling some idiosyncratic need in the child (e.g. the child needs to go to the toilet or is feeling sick). Like work-related contacts, procedural contacts are coded according to whether the interaction was initiated by the teacher or the child. In the case of child-created procedural contacts teacher praise, criticism or simple feedback is also coded.

4. Behavioural Evaluations

These are coded wherever a teacher singles out a child for comment regarding general classroom behaviour. The child, as always, is identified and the teacher's behaviour is coded for praise, warning or criticism. The decision between coding warning or criticism is related to the non-verbal, expressive and gestural components of the teacher's message.

Comprehensive instructions on the use of the coding sheet are presented in the manual (Brophy and Good, 1969) together with detailed coding examples. A copy of the coding sheet is included in Appendix B. In addition to the basic observational data there is provision on the coding sheets for recording a variety of further information such as class code, times, date, number of children present and types of activities observed. There is also space for recording verbatim any noteworthy teacher communications regarding expectations and for making remarks about any unusual or unanticipated classroom events which may influence the validity of the data collected.

Before proceeding to consider issues of training, reliability and validity, a few general comments regarding the system are in order. First of all, the cycle of events involved in public response opportunities is coded in some detail. Four facets of response opportunities are dealt with concerning type of response opportunity, level of question, quality of pupil response and teacher feedback reaction. These form what Dunkin and Biddle (1974) would term an 'analytic unit' of classroom events. Such a unit parallels the question, response, evaluation cycle which other investigators have identified as appearing frequently during lessons and have termed an "episode" (Smith and Meux, 1962) and a "teaching cycle" (Bellack, Kliebard, Hyman and Smith, 1966).

The Brophy and Good system makes use of both phenomenal and analytic units in the analysis of teacher-pupil interaction but arbitrary time units are not employed. In the present investigation live observation was used rather than sound recordings or videotape and here Weick's (1968) often quoted distinction between 'recording' and 'encoding' becomes a little blurred. For what is being recorded as interaction takes place is information already encoded by the observer. However, for the most part the categories involve a fairly low level of inference and

focus on objective features of classroom events so it is reasonable to argue that what is preserved may be viewed as a sequential record of teacher-pupil dyadic interactions for the children in the sample.

Observer training followed the procedures set down in Brophy and Good (1969) and took heed of Weick's (1968) guidelines regarding training solutions to bias in systematic observation. Initially, the observers familiarized themselves with the manual and coding sheets and learned the category definitions. Examples were written and discussed and subsequently transcripts were employed in gaining coding practice. Here the coding was done independently and subsequently compared and discussed to clarify any uncertainty or misunderstandings. When coding in this way became more reliable, videotapes of a lesson being taken with a small group of primary pupils in a university "classroom" were used. Finally, several days were spent in observing and coding a Standard 3 class not involved in the investigation as such. Gradually, the number of children coded was increased until each observer could adequately code nine children using an identification number for each child.

During this time, several coding conventions were established providing guidance in ambiguous situations, though in the main the general coding rules and conventions provided in the manual were clear and adequate. All conventions were established with the aim of maintaining the validity of the data by coding in a manner consistent with the model and relevant research questions underlying the study. The system involves the objective coding of observable behaviour in naturalistic classroom situations and observations are keyed to naturally occurring and psychologically meaningful sequences of interaction that are relevant to the goals of the study. This means that the validity of the data is virtually insured if the system is reliably applied according to the instructions and coding conventions. Similar arguments have recently been put forward in a report on criterion-referenced observational

measurement in the classroom (Brophy, Evertson, Anderson, Baum and Crawford, 1976). The only real threat apart from poor reliability is if unusual or unforeseen events occur and consequent coding decisions are biased. In the present investigation such events were noted in the 'Remarks' section of the coding sheet and either decision rules were set up for future use or data were discarded (as for example, when a pneumatic drill was operating outside a classroom window resulting in atypical interaction patterns).

The issue of reliability in systematic observational methods has received the attention of a number of writers (e.g. Emmer, 1972; Medley and Mitzel, 1963; Rosenshine and Furst, 1971; Weick, 1968) and the term reliability has been used in a variety of different ways requiring different types of evidence. The two most commonly mentioned types of reliability are inter-observer agreement or precision (different observers observing at the same time or coding the same recording) and stability (the same observer observing at different times). Varying emphases have been given to these by different writers depending on the likely sources of error and the purposes of the investigation.

In this investigation, stability of the categories coded across different observation sessions was not measured. This would have been expensive and difficult to measure prior to obtaining the observations for the investigation. However, some data on the stability of variables in the Brophy and Good dyadic system have been published by Emmer and Peck (1973). Stability was estimated using the intraclass correlation across five half hour observations for each of 112 children and 28 out of 75 variables had significant stability. The others either lacked stability or were combinations of stable variables. Altogether, Emmer and Peck (1973) examined five observation systems and overall their data suggest that individual teacher and pupil behaviour is not particularly

stable across visits for cognitive and affective variables and that the intraclass coefficients vary with the variables being observed. While several different types of lessons were observed in the Emmer and Peck study, limited additional data support their findings when only one kind of lesson is observed (Moon, 1971; Sutton and Nicholls, 1977).

Emmer and Peck (1973) used their data on the stability of variables in the Brophy and Good system to reduce the number of variables for analysis. However, they do make the point that this procedure may have eliminated variables that form dimensions of classroom behaviour but which are situationally dependent. Recently Sutton and Nicholls (1977) have also argued that frequency and stability of behavioural categories may not be proportional to psychological significance, finding that some unstable categories make appreciable contributions to prediction equations.

In the present investigation observation sessions were conducted during a variety of lesson types and it is highly likely that the categories used would not all be highly stable under such conditions, reflecting situational variations in classroom behaviour. However, an attempt was made to obtain a relatively representative sample of teacher-pupil interactions by observing each class in a wide range of general class activities. The importance of obtaining a sample of classroom interactions which are a representative sample of total behaviour has been pointed out by Rosenshine and Furst (1973).

The method of assessing reliability in this investigation was that of inter-observer agreement. While Weick (1968) identifies four types of reliability that would be assessed in an ideal observational study he admits that it is only possible to approximate this in practice and argues strongly for the highest priority to be assigned to securing satisfactory inter-observer agreement of single events, "because unless this is achieved there is no assurance that any distinct phenomenon is

being preserved in the record" (p.404).

Several writers have pointed out that a problem may occur if the agreement coefficient is based on total scores (e.g. the number of times a category was used during an observation session) rather than on whether each event was coded the same way by the observers (Byrne, 1964; Mitchell, 1969). It is possible for observers to disagree on many items and still have similar or equal total scores. This author used a percentage method to ascertain inter-observer agreement based on agreement for each codable event. The percent agreement was determined by the ratio of exact agreement between observers to the combined total of exact agreements plus omissions (one observer coded and the other did not) plus disagreements (both observers coded but disagreed on the coding). Only instances where both observers coded a dyadic interaction and agreed on the category of interaction involved were treated as agreements. Brophy and Good (1969) report that after training observers were able to exceed 80% agreement using the procedure just described.

Prior to commencing observations in the five classrooms inter-observer reliability was 85%. When observations began in each new classroom data collection for the investigation did not begin until observer agreement exceeded 80%. Initial drops in reliability tended to be almost entirely due to mistakes concerning the identification and code numbers of children in the sample. Once data collection began regular reliability checks in all classrooms showed that inter-observer agreement was maintained (ranging from 83 to 94 percent). All instances of disagreement were discussed and clarified.

While reliability measures were obtained, observers both coded the interactions of a particular group of children. During data collection, however, each observer coded a separate group of nine children, thus covering the sample of 18 children in a class. Decisions concerning which observer was to code for which children were based on seating arrangements.

While working in a particular class observers coded the interactions of the same children at each observation session.

When all the observational data had been collected, the data from the coding sheets were tabulated separately for each child. Six summary tabulations were required for each child: one for questions and answers (covering type of response opportunity, level of question and quality of pupil's answer), four for teacher responses to pupil answers (one each for responses following correct answers, part-right answers, wrong answers or no response), and one summary for private teacher-pupil contacts. The totals obtained from these summary sheets form the basic observational measures, either by themselves, or in combination.

Two types of scores were used in the analyses. Frequency data reflecting the quantity of teacher-pupil interactions were expressed as a rate per hour to control for the different lengths of time each child was observed. These included not only differences between classes but absences such as when a child was out of the room on an errand, going to the dental clinic, etc. Percentage scores were also derived from the coding allowing "direct comparison of the quality of teacher-child interaction in different individuals and groups, despite differences in quantity of dyadic interactions with the teacher" (Brophy and Good, 1969, p. 98).

In all, 45 measures of dyadic interaction were derived from the raw coding data. Some categories were not used because of their infrequent use (e.g. choice question). Others were combined to get broader totals (e.g. total number of public response opportunities) or because the division between two categories was not altogether clear (e.g. warning and criticism, discipline and direct questions).

Pupil Perceptions of Teacher Behaviour

In order to get some idea of the way pupils perceived the teacher

behaving toward them in comparison to other children in the class, three simple measures were obtained relating to the amount of positive, negative and total contacts. The procedure was adapted from that employed by Silberman (1969). Each child in the sample was interviewed by the investigator in a quiet room at the school during normal school hours. The composition of the three expectation groups was known to the researcher at this stage.

After asking a general question about the teacher's behaviour toward them the child's reply was noted and they were then required to make judgments about the teacher's behaviour toward them in comparison to children for whom the teacher held different expectations. The children who were used as the comparison standards were drawn at random from subjects of the same gender in the other two expectation groups. For example, if a girl in the middle expectation group was being interviewed she would be required to make judgments about the teacher's behaviour toward her in comparison to first, a girl in the high expectation group and second, a girl in the low expectation group. The order in which the comparisons were made varied. The questions asked were as follows:

1. Does your teacher talk to you much during the day?
I mean all kinds of talk, like asking you questions, telling you what to do, helping you, or just chatting. Whatever the reason, does he/she talk to you much?

Who does he/she talk to more,

you or _____
you or _____

2. Does he/she ever say things to you like "good" or "excellent", or tell you that you have done good work or behaved well in class?

Who does he/she say these things to more,

you or _____
you or _____

3. Does he/she ever tell you off or say to you that he/she doesn't like what you've done in your work or how you've been behaving in class?

Who does he/she say these things to more,

you or _____
 you or _____

The responses to the three general questions tended to be either fairly broad and vague (e.g. yes, no, sometimes, not much) or a specific example of an incident involving the category of teacher behaviour indicated in the question. This data were not used for further analysis but provided a useful lead in to the comparative judgments. None of the children appeared to find the task required of them at all difficult; they answered readily and with little hesitation.

Initially, the judgments were scored 1 for a self choice, -1 for the teacher behaving more in a given way to the other child, and 0 if a judgment of no difference was made. However, in order to eliminate the minus signs these were converted into scores of 3, 2 and 1 respectively. The scores for the two judgments for each type of teacher contact were summed to give three measures of pupil perception of teacher behaviour. Scores could range from 2 to 6, with a higher score indicating that the child perceived the teacher as behaving more towards himself in a given way (in terms of total, positive and negative contacts) than toward others for whom different expectations are held.

Teacher Interviews

After the observations were completed and the pupils had been interviewed a taped interview was conducted with each teacher. During the interview teachers were asked to describe their class. In this way, some idea of the generalized perceptions and expectations held by teachers of their classes could be obtained.

A check was also taken on whether there had been any suspicions that the study was anything other than it had purported to be and whether this had affected their behaviour. Following Simon (1969), a statement was read which pointed out that in educational and psychological research deception is a potentially serious methodological problem in that people who feel they are being deceived may act quite differently from those who believe the researcher. The teachers were then asked whether they had felt that they had been deceived in any way, or whether they had any suspicions that the study might be something other than what they had been told. Depending on the response to this question they were then asked either "What did you think the study was concerned with?" or, "If you were describing the study to someone, what would you say it was about?"

Finally, the teachers were asked whether they felt that their behaviour or that of the pupils had been any different from usual because of the presence of observers or because of what they (the teachers) thought the study was about.

After this, a full explanation of the study was provided and teachers thanked for their assistance and co-operation.

Data Analysis

The analysis of the data was undertaken using routines from the Statistical Package for the Social Sciences (SPSS) on the Burroughs B6700 installation at Massey University. A full description of SPSS is found in Nie, Hull, Jenkins, Steinbrenner and Bent (1975). It is a statistical package which allows a data deck to be described and labelled and specific statistical routines to be called in for use with the data deck. The specific statistical procedures employed in this study were as follows:

BREAKDOWN; this procedure was used to break down scores on interval data variables by nominal or ordinal classification such as expectation group, gender and teacher. Means and standard deviations are produced for each subgroup of the cross-classification.

CONDESCRIPTIVE; this subprogram computes descriptive statistics for continuous interval-level data. The processing option causing a raw-output-data file containing z scores was utilized for dyadic interaction data. The generated z scores, derived separately within each class, were then added to the data file for subsequent analysis.

PEARSON CORR; this procedure was used to compute Pearson product-moment correlations for pairs of interval-level variables.

NONPAR CORR; this routine was used to compute Spearman or Kendall tau rank-order correlation coefficients where appropriate.

FACTOR; the PA2 method of factor analysis which involves principal factoring with iterations was used in this study to identify underlying factors of teachers' perceptions of pupil attributes. Rotation of the factors in order to simplify the factor structure was undertaken using the varimax orthogonal rotation procedure.

ANOVA; the analysis of variance program for factorial designs was used in this study to test for the effects of group differences such as expectation, gender and teacher on dependent variables such as measures of teacher-pupil dyadic interaction. In some analyses, interaction data expressed as standard scores were used as the dependent variables.

REGRESSION; the stepwise option of the multiple regression procedure was utilized to determine the relative contribution of teacher expectation and pupil ethnic group to school achievement and dyadic interaction variance. The procedure was also employed to determine the interaction measures which best predicted school achievement.

Further details relating to specific analyses will be provided in the following chapters as results are presented.

CHAPTER FIVE

RESULTS: TEACHERS' PERCEPTIONS AND EXPECTATIONS

In this chapter findings will be presented and discussed as they relate to the research questions focusing on the perceptions and expectations teachers have of their pupils.

What categories or dimensions do teachers find relevant in perceiving their pupils?

As the data relating to this question were used in the development of a set of rating scales the findings have already been briefly described in the preceding chapter. Here the categories commonly used by the teachers in perceiving their pupils will be considered more closely and also discussed in terms of other research findings.

The majority of attributes used by the five teachers to describe pupils they had taught concerned academic behaviour and work habits. As far as performance in particular curriculum areas was concerned, the constructs most commonly used by the teachers fell into two categories: performance in reading and use of English in conversation. Performances in other subject matter areas were mentioned infrequently. This is suggestive of the overriding importance placed on verbal and reading skills in the school environment.

A large number of the constructs used by teachers concerned academic work skills. Those grouped within the broader category of 'perseverance', for example, all referred to perseverance as it applied to academic work and reflected whether or not pupils 'kept at it' and did not give up easily. Similarly the broad category of independence was used by teachers primarily in the sense of whether or not pupils were able to carry out their school work with little teacher guidance.

Illustrations of constructs included under the categories used in the rating scales are presented in Appendix A.

The category labelled 'task concentration', though likely to be related to 'perseverance', does tap a different aspect of classroom behaviour. Rather than having to do with habits of not giving up easily and staying with the task even when difficulties arise, the constructs within task concentration refer primarily to attention. For example, teachers made comments about pupils being easily distracted, having a limited attention span or sitting and staring when they should be doing academic work. While most of the constructs were used negatively, referring to failure to concentrate on the task in hand, positive instances were also used in the teachers' descriptions of their pupils' characteristics and behaviour. That teachers find concentration and attention to academic tasks a relevant perceptual category to use in judging their pupils is not surprising in view of the evidence linking measures of attention to achievement (e.g. Cobb, 1972; Lahaderne, 1968; McKinney et al., 1975; Samuels and Turnure, 1974; Soli and Devine, 1976).

Another category contained constructs referring to pupils' reaction to new work. Such comments as 'adapts well to new situations and work' and 'starts new work enthusiastically' were forthcoming as well as such comments as 'will not attempt new tasks' and 'has to be encouraged to start new work'. Other studies have also found that a child's typical style of response to new classroom activities and situations is salient for teacher perceptions (Gordon and Thomas, 1967; Lerner and Miller, 1971).

Constructs relating to general interest and curiosity in what is going on in the world also formed a distinctive category. This included whether or not a pupil was eager to ask questions, was curious and interested in everything, and sought out information and materials

beyond that directly required by the teacher. Overall, the use of constructs in this category appeared to indicate the salience to the teachers of general intellectual curiosity and alertness.

The final category relating to behaviour in academic situations is that of participation in class or group activities. The constructs here were all very similar (see Appendix A), being judgments of pupils in terms of either their tendency to join in group discussion and other activities or their ability to work well in a group situation.

While the constructs produced by teachers in their pupil descriptions were most commonly and frequently to do with academic behaviours and characteristics, a considerable number of non-cognitive constructs denoting covert dispositional attributes (Warr and Knapper, 1968) were also used. These were largely personality traits not linked by the teacher to academic work situations (e.g. sensitive, spirited, considerate, stubborn, sulky, solemn, mature, temperamental). However, there was little agreement across teachers as to the salience of particular personality attributes. The exceptions to this were constructs which could be readily grouped under the category of 'confidence'. Comments which placed pupils on the dimension of 'confidence' were frequently made as well as reference to pupils being timid, shy or unsure of themselves.

Apart from 'confidence' the wide range of other personality constructs proved difficult to group in any meaningful way without further exploratory investigation with the teachers concerning their systems of meanings. In addition, perceptions in terms of constructs not frequently used by an individual teacher may have been evoked by idiosyncratic characteristics of specific pupils. Finally, since the rating scales were to be used with a different sample of teachers it was important to have categories which teachers at the Standard 3 level agreed were relevant. The fact that a number of constructs used were

discarded in the development of the rating scales does not, however, indicate that the unique nature of individuals' perceptions is being ignored or discounted. While subjective social situations are unique it does not follow that researchers should refrain from making generalizations about the perceptions which groups of individuals have of others. As Kaplan (1964) argues, "uniqueness does not imply that nothing is shared with other individuals, only that not everything is common to them" (p. 117).

The remainder of the constructs used by the teachers in describing their pupils fell into six categories. The first of these concerned the nature of a pupil's general classroom behaviour. Comments were often made as to whether the pupil was disruptive, always in trouble, a nuisance and disturbed the class or on the other hand was well behaved, quiet and orderly, never creating a scene or needing a reprimand. Categorization of pupils in this way is likely to have implications for future teacher-pupil interaction. Stebbins (1975) uses the term "disorderly behaviour set" to describe a readiness among teachers "to act to avert or arrest misconduct among their pupils" (p. 59). Perception of their pupils' tendency to behave in a disorderly or disruptive manner is likely to have considerable functional relevance for teachers. Stebbins (1975) reports that the most common reason given by teachers for confronting disorderly behaviour was "because it was seen as inhibiting teacher effectiveness or learning potential" (p. 60). The salience for teacher perceptions of pupils' behaviour in class - whether they are seen as well-behaved or disruptive - is also supported by Taylor (1976).

Two further categories contained constructs relating to home background. One of these categories concerned the parents' attitudes to school and education and here comments concerned whether or not parents were interested in their children's education and supported what the

school was trying to do. The other category had more to do with the home environment itself and the kind of experience, opportunities and intellectual stimulation provided within the home. A restricted home environment as opposed to a stimulating one was seen as disadvantaged, though the terms 'culturally disadvantaged' or 'culturally deprived' were not used by these teachers.

Notably absent from the teachers' descriptions of their pupils' home backgrounds were direct references to social class or socioeconomic status. It may be argued that the 'restricted home environment - stimulating home environment' category is a measure of social class as perceived by teachers. Nash (1973) interpreted teachers' use of the construct 'good home - poor home' in this way. However, Taylor (1976) found that when teachers used the construct 'good home background - poor home background' this was an evaluation of the degree of parental support for the child in the school rather than a judgment about the parents' socioeconomic status.

In the present study the notion of parental support is explicit in categorizations about parents' attitudes toward education and the school. It is also implicit in the home background category but the likelihood that this category reflects evaluations of socioeconomic status cannot be ruled out. Murphy (1974) highlights the problematic nature of social class in teacher typifications, finding that while teachers were able to classify most pupils according to class status when asked, everyday appraisals were generally in terms of non-class factors. He queries "whether such a category as social class significantly structures the teachers' conception of reality in general and of classroom reality in particular" (Murphy, 1974, p. 327). The implications of this would appear to be that social class or socioeconomic status as such should not be taken for granted as a critical constituent of teacher expectations and that it is important to investigate the

categories teachers themselves use in perceiving and appraising their pupils.

The final three categories used by teachers in this study related to appearance and interpersonal relationships. The constructs relating to appearance fell into two distinct categories: 'neatness of appearance' (whether they were neat and tidy, the quality of dress and grooming) and 'physical attractiveness' (good looking, attractive, pretty). Only positive examples of the 'physical attractiveness' construct were used. It is not clear whether this was due to a feeling that it was inappropriate and socially undesirable to make comments on a pupil's unattractive physical features or whether good looks were more salient.

The last category concerns the relationships a pupil has with peers in the class. Here the constructs indicated whether or not a child got on well with others, was popular or had many friends.

The findings reported here regarding category usage in teachers' perceptions of their pupils are congruent in many respects with those of two other studies which used the construct repertory grid technique with primary school teachers (Nash, 1973; Taylor, 1976). All three sets of findings showed that teachers perceived pupils in terms of attributes relating to the effort and manner in which they undertook their academic work (though there is some difference between researchers in the definition of categories as 'academic constructs' or 'personality attributes'). The studies were also in agreement regarding the salience of classroom behaviour, i.e. whether or not a pupil behaved well in class. Both the present findings and those of Taylor (1976) reflect the salience of pupil home background and half of Nash's (1973) teachers also employed such a construct.

How are pupil attributes related to each other in teachers' perceptions?

Rating scales were developed using the categories which had been

found to be relevant to teachers' perceptions of their pupils. The five Standard 3 teachers in the study proper used the scales to rate those pupils in their classes who were in the research sample. In order to examine the interrelationships among the teachers' perceptions of the fifteen pupil attributes Pearson product-moment correlation coefficients were computed. The resulting correlation matrix appears in Table 3 and provides the basis for subsequent factor analysis.

Three factors were extracted on the basis of an a priori model derived from the pilot study of category usage in teacher perceptions and an exploratory analysis of the attribute ratings using a principal components solution with an eigenvalue criterion of greater than one. The principal components solution is contained in Appendix C.

A factor analysis of pupil attribute ratings was therefore undertaken using a principal factoring method with iterations and specifying the extraction of three factors. Initial communality estimates are entered in the diagonal of the intercorrelation matrix using R^2 and an iteration procedure is then used to improve the estimates of communality. Unrotated factor solutions are often difficult to interpret, as the method tends to give a general first factor loading on all variables and remaining factors with both positive and negative loadings. Therefore the three factors were rotated for the orthogonal solution to the Varimax criterion. The rotated factor solution is presented in Table 4 and the unrotated factor solution is contained in Appendix C.

Inspection of the rotated factor matrix shown in Table 4 shows that the first factor accounts for 53% of the total variance. Its meaning is fairly clear, using .30 as the criterion for the significance of loadings (Child, 1970). It appears to tap what may be termed academic work skills, with the dominant variables in the factor being independence, task concentration, perseverance, reaction to new work, and reading. Participation in class activities, interest in the world

TABLE 3: Pearson Product-Moment Correlation Coefficients
Among Teacher Rated Pupil Attributes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. perseverance															
2. independence	79														
3. reaction to new work	78	83													
4. interest	65	64	67												
5. task concentration	86	83	86	67											
6. participation	69	69	74	75	71										
7. confidence	52	69	61	52	55	63									
8. reading	68	75	70	61	69	60	54								
9. use of English	52	59	56	51	61	46	51	70							
10. parent attitudes	42	40	45	59	46	53	43	46	52						
11. home environment	57	58	66	68	65	64	54	55	57	80					
12. level of disruptiveness	49	46	45	32	57	24	18	37	35	12	34				
13. relations with classmates	33	29	38	32	41	39	35	10	16	18	44	38			
14. physical attractiveness	27	32	39	38	34	31	39	25	37	31	44	25	.48		
15. neatness of appearance	50	42	51	51	58	38	23	39	42	47	60	40	31	59	

(Decimal points omitted)

TABLE 4: Varimax Rotated Factor Matrix for Teacher Ratings of Pupil Attributes (N=90)

Attributes	Factors			Commugality (h ²)
	1	2	3	
perseverance	.800			.765
independence	.873			.854
reaction to new work	.800		.324	.815
interest	.568	.499		.648
task concentration	.826		.416	.894
participation	.639	.430		.644
confidence	.544	.363		.464
reading	.767	.346		.709
use of English	.539	.417		.496
parent attitudes		.853		.804
home environment	.394	.707	.421	.832
level of disruptiveness	.429		.459	.399
relations with classmates			.639	.443
physical attractiveness			.627	.491
neatness of appearance		.351	.569	.523
Total % of Variance	52.6	25.6	21.9	100.0
Eigenvalue	5.14	2.50	2.14	

(loadings less than .30 not shown)

around, confidence and the use of English in conversation all have loadings above .50. The involvement of classroom behaviour (level of disruptiveness) and home environment are also indicated though both these variables have higher loadings on other factors.

Overall, the nature of this first factor is entirely congruent with the findings of Taylor (1976) that academic categories were the most important in teachers' perceptions, with classroom behaviour and home background also salient. The present findings suggest that there is some link between academic work skills and a pupil's level of disruptiveness and home environment, though whether the association lies in features of the objective situation or only the teachers' perceptions cannot at this point be ascertained. It does suggest that expectations for academic and behavioural performances may not be quite as distinctly separate as sometimes suggested (e.g. Murphy, 1974; Williams, 1976).

The second and third rotated factors also appear fairly clear and meaningful, with each accounting for more than 20% of the variance. The second factor appears to be a home background factor with the dominant variables being parent attitudes to school and education, together with home environment ('restricted home environment - stimulating home environment'). Interest in the world around, participation in class activities and use of English in conversation also figure, as do confidence, neatness of appearance and reading to a lesser extent.

The third rotated factor appears to be a social attributes factor loading predominantly on relations with classmates and appearance (physical attractiveness and neatness). Berscheid and Walster (1974) report a number of studies which support the idea of a relationship between the physical attractiveness of children (as judged by adults) and popularity with classmates.

Other variables with loadings above .30 on this factor are level of disruptiveness, home environment, task concentration and reaction to

new work. The involvement of these attributes in this factor is not entirely clear. They all loaded on the first factor, being associated with academic work skills. Here they load on a factor that is dominated by social attributes (relationships and appearance). The association between physical attractiveness and level of disruptiveness is consistent, however, with the physical attractiveness stereotype held by both adults and children (Berscheid and Walster, 1974). In one study pre-school children perceived their unattractive classmates as more characteristically aggressive and antisocial (Dion and Berscheid, 1972). Dion (1972) found that when an unattractive child had committed a severe transgression a socializing adult was more likely to attribute this to a chronic antisocial behavioural disposition than when the transgressing child was attractive.

The loadings on home environment, task concentration and reaction to new work have to be interpreted in the light of the correlation matrix (see Table 3) which shows moderate to high positive correlations among these attributes and between them and neatness of appearance and level of disruptiveness.

The factor analysis reported here is primarily exploratory in nature. Though the factors appeared largely as postulated, they are not entirely distinctive and there is some overlap of variables. Judging by the percentage of variance accounted for by the first factor in the Varimax rotated analysis (53%), teachers' perceptions of their pupils would seem to be characterized by the tendency to make holistic judgments which has been termed 'composite halo' (Freijo and Jaeger, 1976; Jaeger and Freijo, 1975). The only other study reporting a factor analysis of teachers' ratings of their pupils found a major first factor which was fairly similar across teachers (Garner and Bing, 1973). Both the Garner and Bing study and the present findings are suggestive of a common stereotype of the 'good' pupil among teachers.

While the data reported here suggest a) that the first factor is the really important one in teachers' judgments (it is the only one with an Eigenvalue greater than 1 in the unrotated principal factor solution) and b) there is the possibility that factors may be correlated (a number of variables have significant loadings on more than one orthogonally rotated factor) a more complex oblique rotation was not undertaken in view of the small sample size (N=90) and the number of attributes being rated (15).

How do teachers' perceptions of pupil attributes vary with pupil ethnic group and gender?

In order to investigate the relationship between a teacher's perceptions of pupil attributes and that pupil's ethnic group and gender, point biserial correlation coefficients were calculated. These are presented in Table 5. Means and standard deviations for the attribute ratings by pupil ethnic group and gender, as well as expectation group, appear in Appendix D.

From Table 5 a number of relationships between a pupil's ethnic group and the teacher's perception of the pupil's other characteristics are apparent. It should be noted that a negative correlation coefficient means that Pakeha children are perceived more positively by their teachers. All the significant relationships which do appear are of this kind. Pakeha children are seen as having parents with better attitudes to school and education, as being more interested in the world around, as having a better use of English in conversation and as coming from a more stimulating home environment. Better reading skills, higher participation in class or group activities, a more positive reaction to new work and greater independence (less need for teacher guidance) are also associated with Pakeha pupils. Finally, the Pakeha pupils are seen as having a higher level of perseverance and concentration.

TABLE 5: Point Biserial Correlations of Teacher Ratings of Pupil Attributes with Pupil Ethnic Group and Gender

Attributes	Ethnic Group	Gender
perseverance	-.23 *	.36 ***
independence	-.24 **	.26 **
reaction to new work	-.25 **	.18
interest	-.37 ***	.06
task concentration	-.23 *	.35 ***
participation	-.29 **	.11
confidence	-.13	.05
reading	-.31 **	.24 **
use of English	-.34 ***	.31 **
parent attitudes	-.40 ***	.02
home environment	-.33 ***	.05
level of disruptiveness	.12	.37 ***
relations with classmates	.11	.03
physical attractiveness	.07	.04
neatness of appearance	-.14	.27 **

(* $p < .05$, ** $p < .01$, *** $p < .001$)

Note: Ethnic group coded Pakeha = 0, Polynesian = 1

Gender coded Male = 0, Female = 1

Pupil Attribute Rating Scales: positive end of scale = 7

negative end of scale = 1

All in all, it seems that Pakeha pupils are perceived as being closer to the stereotype of a 'good' or 'ideal' pupil than the Polynesian pupils. It is interesting to note that the Polynesian pupils are not viewed as being more disruptive in class, despite being perceived less favourably in terms of home background and academic work skills. The Polynesian child's response to the classroom situation, at least as perceived by the teacher, would seem to be one of lack of interest and participation rather than one of disorderly behaviour.

No significant relationships were found between teachers' perceptions of pupil ethnic group and the way they got on with classmates, physical attractiveness, neatness of appearance, confidence or level of disruptiveness.

The relationships between pupil ethnicity and teacher ratings on other attributes show that the stereotypic notions of Polynesian children coming from home environments lacking in stimulation with parents who have poor attitudes to school and education remain - at least for this group of teachers. In many cases the teachers had not in fact met the parents and in most cases had not visited the pupils' homes, so it seems fair to assume that the parent and home environment variables were largely inferred on the basis of ethnicity and/or staff-room conversation. The association of Polynesian children with poorer use of English in conversation and less reading ability is also consistent with the stereotype, though here the teacher had far more information directly available from daily observation.

A number of gender differences in perceived pupil attributes were also apparent. Inspection of Table 5 shows that a lower level of disruptive behaviour and greater task concentration and perseverance was associated with girls. Girls also tended to be rated as better readers, having a better use of English in conversation, being more independent and as having a neater appearance than boys.

These findings are in line with other studies which show that teachers tend to have more negative perceptions for boys regarding the school motivation and potential for classroom disturbances and management problems (Brophy and Good, 1974). They are also congruent with the findings of a New Zealand study of the classroom behaviour of Standard 2 and 4 children (Sutton and Nicholls, 1977). Boys were found to attend to work in an approved manner less than girls, and were disruptive and in an inappropriate locale in the classroom more often. While in the present study the finding regarding teachers' perceptions of girls as more independent may appear to be in contrast to sex-role stereotypes the meaning of the category suggests this is not altogether the case. The independence-dependence continuum was used in the sense of whether the pupil was independent in school work, i.e. the degree of teacher guidance required. In this context, girls may be more independent, needing less teacher guidance, because they attend more and conform to teacher instructions more than boys.

How do pupil attributes as perceived by the teacher relate to expectations concerning general ability?

In order to look at the relationship between teacher perceived pupil attributes and teacher expectations for pupil general ability (classified as high, middle or low) the Kendall tau correlation coefficient was employed. The coefficients are presented in Table 6.

Inspection of Table 6 shows that most of the fifteen attributes are significantly correlated with expectations for pupil general ability. The coefficients tend to be higher than those between perceived pupil attributes and pupil ethnic group or gender. This is despite the fact that Kendall's tau tends to be a fairly conservative measure of association. In all cases the negative correlation coefficients indicate that more positive ratings of pupil attributes are associated with higher teacher

TABLE 6: Kendall Tau Correlation Coefficients Between Teacher Ratings of Pupil Attributes and Expectation Group

Attributes	
perseverance	-.45 ***
independence	-.55 ***
reaction to new work	-.58 ***
interest	-.45 ***
task concentration	-.48 ***
participation	-.39 ***
confidence	-.37 ***
reading	-.66 ***
use of English	-.47 ***
parent attitudes	-.37 ***
home environment	-.47 ***
level of disruptiveness	-.20 **
relations with classmates	-.10
physical attractiveness	-.16 *
neatness of appearance	-.26 ***

(* $p < .05$, ** $p < .01$, *** $p < .001$)

Note: Expectation group coded High = 1, Middle = 2, Low = 3

Pupil Attribute Rating Scales: positive end of scale = 7

negative end of scale = 1

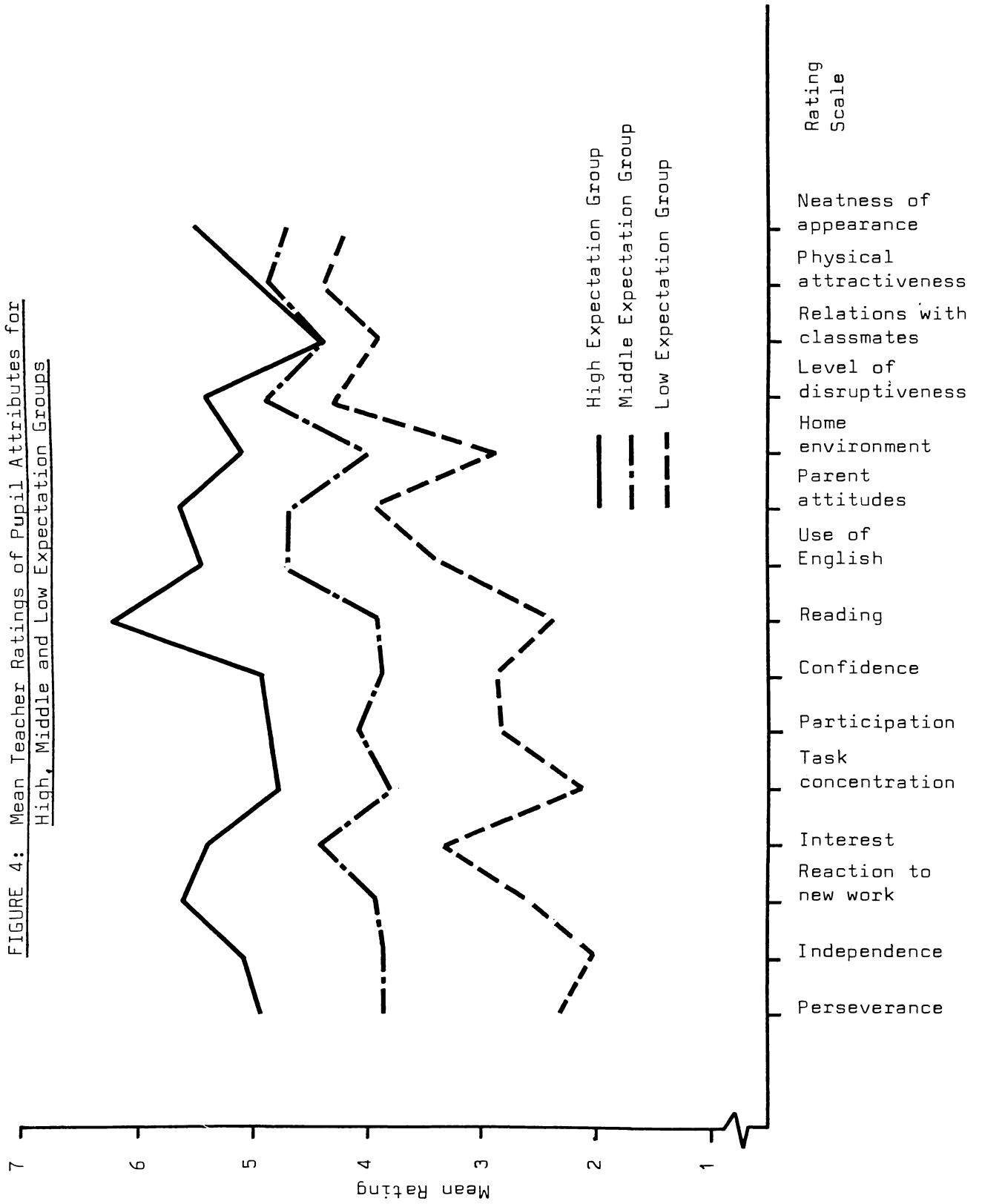
expectations of general ability.

The children for whom the teacher holds higher expectations for pupil general ability are perceived more positively than those in lower expectation groups in terms of reading, reaction to new work, independence (need for teacher guidance), concentration on the task in hand, use of spoken English, home environment, perseverance and interest in the world around, participation in class activities and confidence. The parents of children in the higher expectation groups are seen as having better attitudes toward school and education. Correlations significant at the .05 level were also found between expectation group and neatness of appearance, level of disruptiveness and physical attractiveness. However, reference to the appropriate tables in Appendix D which set out means and standard deviations for the rated pupil attributes by expectation group indicates that these low associations do not mean very much. In no case is the difference between the highest and lowest expectation group more than 1.3 scale points on the three rated attributes in question. Less than 7% of the variance was accounted for in each case.

In order to show more clearly the teachers' perceptions of pupils in the three expectation groups, profiles for the three expectation groups are presented in Figure 4.

It is apparent from these results that teachers' judgments of pupils' general ability are related to a number of pupil attributes and behaviours that would seem to be relevant to academic achievement. All those variables earlier termed academic work skills in the discussion of the factor structure of teachers' perceptions were significantly related to expectations concerning the general ability of pupils. This is in line with the earlier reported teachers' comments that they saw 'general ability' in the sense of general ability to do well at school. Home background factors were also related to expectations with the attitudes of the child's parents to the school and education, and the stimulating or restricted nature of the home environment featuring in the pattern of

FIGURE 4: Mean Teacher Ratings of Pupil Attributes for High, Middle and Low Expectation Groups



significant relationships.

The method of sample selection, with equal numbers of boys and girls in each expectation group precludes any examination of the relationship between teacher expectations and pupil gender, though it has been seen that teacher perception of a number of attributes varies with the gender of the pupil. It has also been seen that perception of pupil attributes varies with pupil ethnicity and an examination of the sample composition in terms of ethnic group shows that the Polynesian children fall mainly in the low expectation group (see Table 2, Chapter 4). There is a significant difference between the proportion of Pakeha and Polynesian children in the three expectation groups ($\chi^2 = 7.81$, $df = 2$, $p < .05$).

How do teacher expectations relate to standardized achievement test results?

In order to maintain consistency throughout the data analyses, the classification of teacher expectations into high, middle and low was maintained here. Kendall's tau correlation coefficients were therefore calculated between teacher expectation group and the Progressive Achievement Test raw scores ranked within classes. These are reported in Table 7.

From an inspection of the data presented in Table 7 it is evident that there is a significant relationship between teacher expectations and pupil performances on the Progressive Achievement Tests. The teachers did not have the PAT data available to them at the time of ranking the classes on the criterion 'general ability' so the correlations provide some evidence of the relative accuracy of the teachers' expectations. In general the correlation coefficients tend to be slightly lower with PAT Listening Comprehension than with PAT Reading Vocabulary or Reading Comprehension. This same pattern is evidenced when the three

TABLE 7: Kendall Tau Correlation Coefficients Between Teacher Expectation Group and Progressive Achievement Test Raw Scores Ranked Within Classes

	Teachers				
	T ₁	T ₂	T ₃	T ₄	T ₅
PAT RV	.79 ***	.75 ***	.77 ***	.54 **	.74 ***
PAT RC	.66 ***	.81 ***	.73 ***	.69 ***	.60 **
PAT LC	.50 **	.74 ***	.64 ***	.62 ***	.51 **

(** $p < .01$, *** $p < .001$)

TABLE 8: Pearson Product-Moment Correlation Coefficients Between Teacher Ratings of Pupil Reading Performance and Raw Scores on the PAT Reading Vocabulary and Reading Comprehension Tests

	Teachers				
	T ₁	T ₂	T ₃	T ₄	T ₅
PAT RV	.88	.81	.87	.82	.73
PAT RC	.86	.78	.87	.72	.69

(all coefficients significant, $p < .001$)

Progressive Achievement Tests are correlated with the Otis Intermediate measure of general intelligence at the Standard 3 level (see Elley and Reid, 1969, p.25; Elley and Reid, 1971, p. 25). It is also noticeable that the correlations are lower for Teachers 4 and 5. One possible explanation for this may lie in the fact that these two teachers have had less teaching experience than Teachers 1 to 3.

An indirect method of finding out something further about the accuracy of the teachers' expectations is to examine the strength of the relationship between the teacher's perception of the pupil's reading performance (which correlated $-.66$ with expectations for general ability) and performance on the two Progressive Achievement Tests in reading. These correlations are presented in Table 8. The moderate-high coefficients are evidence that the teachers' perceptions of their pupils' reading behaviour is fairly accurate when compared to standardized achievement tests in reading. Thus, if reading performance is one of the major criteria for making judgments about general ability it would seem to be a useful guide when general ability is interpreted as ability to succeed in school.

What is the relative influence of teacher expectations and pupil ethnicity on teacher rated school achievement?

As stated, the interest here was to examine the relative influence teacher expectations and pupil ethnicity have on teacher rated school achievement. It has already been seen that there is some relationship between expectations and ethnicity with the proportion of Polynesian children increasing the lower the teacher expectation group. Further, inspection of Table 9 shows that the level of school achievement rated by the teacher at the end of the school year is lower for Polynesian than Pakeha pupils and declines as teacher expectations decline. However, any significant relationship either teacher expectation or pupil ethnicity

might have with school achievement may be the result of covariance with the other independent variable.

In order to determine whether either pupil ethnicity or teacher expectations for pupil general ability make a significant independent contribution to explaining variance in teacher rated school achievement a multiple regression analysis was performed. This is reported in Table 10 (correlation matrix) and Table 11 (regression on achievement criterion). Of particular interest in relation to the research question posed are the columns in Table 11 labelled 'zero order variance accounted for' and 'variance accounted for when entered last'. The first of these gives the proportion of variance in the index of teacher rated school achievement accounted for by each of the independent variables without taking into consideration any commonalities or interactions with any of the other independent variables. The last column shows the amount of variance accounted for by the variable after commonalities with other independent variables in the regression have been semi-partialled out. This indicates the unique contribution made by each of the variables independently of any indirect effect through covariance with other independent variables.

The data show that with end of year composite achievement rating as criterion, pupil ethnicity still makes a small but significant contribution to achievement variance when the effects of teacher expectations for general ability and an ethnicity/expectation factor are semi-partialled out of the regression. In other words ethnicity still makes a significant direct contribution to variance in teacher rated school achievement over and above its indirect contribution through covariance with teacher expectation group and ethnicity/expectation interaction. However, inspection of Table 11 also shows that teacher expectations make a far greater unique contribution to achievement variance than ethnic group, accounting for 38.1% of the variance as

TABLE 9: Means and Standard Deviations for End of Year Composite Achievement Rating by Expectation Group and Ethnic Group

Expectation Group	Pakeha			Polynesian			Total		
	N	Mean	SD	NN	Mean	SD	N	Mean	SD
High	26	15.23	4.13	4	20.75	3.78	30	15.97	4.45
Middle	24	21.50	2.06	6	23.67	5.13	30	21.93	2.95
Low	17	25.47	2.76	13	28.23	4.55	30	26.67	3.85

Note: A lower score on the composite achievement rating indicates a higher level of achievement.

TABLE 10: Zero-Order Correlation Coefficients (r) and Variance Estimates (r^2) for Variables Used in the Multiple Regression Analysis of End of Year Composite Achievement Rating
(r above the diagonal, r^2 below)

	Composite Achievement Rating	Ethnic Group (A)	Expectation Group (B)	AB
Composite Achievement Rating		.43	.76	.49
Ethnic Group (A)	.185		.28	.94
Expectation Group (B)	.578	.078		.43
AB	.240	.884	.185	

(All coefficients significant, $p < .01$)

TABLE 11: Multiple Regression Analysis - End of Year Composite Achievement Rating Against Ethnic Group and Expectation Group

Criterion - End of Year Composite Achievement Rating

R = .80

R² = .63

F = 49.52 **

Independent Variable	Beta	F to delete	Zero order variance accounted for	Variance accounted for when entered last (1)
Ethnic Group (A)	.46	5.169	.185 **	.022 *
Expectation Group (B)	.74	89.289	.578 **	.381 **
AB	-.26	1.408	.240 **	.006

(* p < .05, ** p < .01)

- (1) Variance accounted for when a variable is entered last can be calculated from the sum of square of the variable when entered last (SS_{xi}), divided by the total sum of squares (SS_y). SS_{xi} can be obtained from F_{del} multiplied by the mean square of the residual. Hence: variance accounted for when entered last = $\frac{F_{del.} \times MS_{resid.}}{SS_y}$.

This is equivalent to R² with X entered last, minus R² without X from the previous step (Kerlinger and Pedhazur, 1973, pp.290-295).

opposed to 2.2% for ethnic group.

Harker (1976) recently reports a study concerned in part with the relationships between environmental variables, ethnicity and achievement in the New Zealand context. He sampled Maori and Pakeha Standard 3 pupils in schools of a similar pupil composition to those in the present investigation and employed a composite teacher rating of achievement. Using a multiple regression analysis, Harker (1976) found that the effect of ethnic group on achievement disappeared when the covariation of ethnic group with environmental variables (such as socio-economic status and family size), sex and age were taken into account. It was suggested that this showed a lack of bias, with regard to ethnicity, of teachers' ratings of their pupil's academic achievement.

The reason for the lack of agreement between the two sets of findings with regard to the independent effect of ethnic group on achievement is not entirely clear. Even the zero-order variance accounted for by ethnicity in the present study is higher (18.5% as compared with 1.3% in Harker's study). However, one of the reasons lies in the difference in the independent variables entered into the multiple regression and this has an influence on the total amount of criterion variance accounted for jointly by the independent variables. Harker (1976) entered SES, family size, age and sex as well as ethnicity and together these accounted for only 17% of the composite achievement rating variance. He suggested that other individual differences among children were likely to account for a greater proportion of achievement differences. In the present study ethnic group, teacher expectation group and an expectation x ethnicity factor together accounted for 63% of the criterion achievement variance. This is likely to have been because the teacher expectation factor did tap some of the important individual differences. Even when the effects of the other variables were semi-partialled out, expectation group independently accounted for 38% of the achievement variance.

In addition to the importance of teacher expectations in predicting to school achievement, ethnic group did continue to make a small but significant contribution to variance in achievement independently of any indirect effect via teacher expectations. Unlike Harker's (1976) findings, here the suggestion of teacher bias in the evaluation of the academic performances of minority group children cannot be ruled out. It may be that the teachers sampled in the present study expected Maori and other Polynesian children to achieve at a lower level in school than Pakeha children even when similar perceptions of their general ability were held. The literature on Maori academic underachievement would do little to dispel this expectation. Such an explanation of the findings would suggest that teachers' evaluations of the comparative school achievement of Pakeha and Polynesian pupils are adjusted in line with expectations for actual school achievement (as opposed to expectations for ability to achieve at school).

Alternatively, it may be that even when similar expectations for the general ability of Pakeha and Polynesian pupils are held by teachers, the Polynesian children in fact perform at a lower level. This would not be a case where the objective features of the situation are the same and the teacher's subjective interpretation varies with pupil ethnic group, as when Polynesian and Pakeha children in the same expectation group actually perform at similar levels but the teacher's rating of those performances is lower for Polynesian pupils. Rather, this would be a case in which the objective features do differ for Polynesian and Pakeha children in the same expectation group. If this were so, one could expect ethnic group differences favouring Pakeha children to persist on less subjective achievement measures than teacher ratings even when expectations for ability were controlled for. Using the Progressive Achievement Tests as more objective measures of achievement, this can be tested out. Means and standard deviations for Pakeha and Polynesian

children by expectation group are presented in Table 12 for the three Progressive Achievement Tests. Inspection of this table shows that while differences in performance favour Pakeha pupils overall, the differences are not so great within expectation groups. This is particularly so for the low expectation group where the numbers of Pakeha and Polynesian subjects are more comparable.

In order to determine whether ethnic group or teacher expectations for pupil general ability make a significant independent contribution to explaining variance in standardized achievement test variance multiple regression analyses were performed on the Progressive Achievement Test raw scores and are reported in Table 13 (correlation matrix) and Table 14 (regressions on PAT criteria). Inspection of Table 14 shows that for all three tests teacher expectations make a significant unique contribution to PAT variance. In the case of the reading vocabulary and listening comprehension tests, the ethnic group of pupils still makes a small but significant contribution to the variance which is independent of its indirect contribution through covariation with teacher expectation group and an ethnicity/expectation interaction. However, no unique contribution was made by ethnic group to variance in reading comprehension after the other variables in the regression had been semi-partialled out.

Thus there is some evidence of differences in standardized achievement scores between Pakeha and Polynesian pupils when the effect of teacher expectations are controlled for, but this is not the case for all the Progressive Achievement Tests.

Summary

In this chapter the findings have been presented relating to the perceptions and expectations teachers have of their pupils. A pilot study using a free response technique found that a number of categories relating to pupil traits and characteristic behaviours were commonly used by teachers in perceiving their pupils. These categories were used to

TABLE 12: Means and Standard Deviations for Progressive Achievement
Test Raw Scores by Ethnic Group and Expectation Group

PAT Test	Expectation Group	Pakeha		Polynesian	
		Mean	SD	Mean	SD
PAT RV	Total	25.11	11.13	16.35	6.97
	High	35.12	6.83	24.25	8.26
	Middle	22.09	8.01	18.00	3.90
	Low	13.81	5.88	13.15	5.70
PAT RC	Total	17.13	9.11	10.44	6.29
	High	26.38	7.22	21.00	3.65
	Middle	12.83	4.45	10.83	4.75
	Low	9.69	3.65	7.00	3.14
PAT LC	Total	25.86	6.91	19.26	5.59
	High	31.68	4.02	25.50	6.56
	Middle	23.48	3.93	19.17	4.58
	Low	20.19	7.25	17.39	4.57

TABLE 13: Zero-Order Correlation Coefficients (r) and Variance Estimates (r²) for Variables Used in the Multiple Regression Analysis of PAT Raw Scores
(r above the diagonal, r² below)

	Ethnic Group (A)	Expectation Group (B)	AB	PAT RV	PAT RC	PAT LC
Ethnic Group (A)		.28	.94	.35	.34	.40
Expectation Group (B)	.078		.44	-.76	-.78	-.68
AB	.884	.194		-.40	-.42	-.45
PAT RV	.123	.578	.160		.86	.67
PAT RC	.116	.608	.176	.740		.66
PAT LC	.160	.462	.203	.449	.436	

(all coefficients significant, $p < .01$)

TABLE 14: Multiple Regression Analysis - Progressive Achievement
Test Raw Scores Against Ethnic Group and Expectation Group

Criterion - PAT Reading Vocabulary raw scores

R = .79

R² = .62

F = 44.82 **

Variable	Beta	F to delete	Zero order variance accounted for	Variance accounted ^a for when entered last
Ethnic Group (A)	-.65	9.571	.123	.044 **
Expectation Group (B)	-.82	99.437	.578	.462 **
AB	.57	6.442	.160	.030 *

Criterion - PAT Reading Comprehension raw scores

R = .80

R² = .63

F = 46.52 **

Variable	Beta	F to delete	Zero order variance accounted for	Variance accounted ^a for when entered last
Ethnic Group (A)	-.38	3.348	.116	.015
Expectation Group (B)	-.80	96.403	.608	.437 **
AB	.29	1.696	.176	.008

Criterion - PAT Listening Comprehension raw scores

R = .73

R² = .53

F = 30.02 **

Variable	Beta	F to delete	Zero order variance accounted for	Variance accounted ^a for when entered last
Ethnic Group (A)	-.55	5.444	.160 **	.032 *
Expectation Group (B)	-.69	55.507	.462 **	.324 **
AB	.37	2.161	.203 **	.013

(* p < .05, ** p < .01)

^a see Note (1) Table 11

establish a set of fifteen rating scales for later use in the major study. Most of the categories had to do with academic characteristics: performance in particular areas and work habits. Home background and classroom behaviour were found to be salient. Categories relating to peer relationships and appearance were also used.

When the 90 pupils in the research sample were rated by their teachers using the set of rating scales developed from the free response data, the way in which teachers perceived the pupil attributes to relate to one another was examined by means of factor analysis. In the Varimax rotation, the first factor appeared to be a clear academic work skills factor, while the second and third factors appeared to be home background and social attributes factors respectively.

Two other pupil attributes: ethnicity and gender, were also of interest. A correlational analysis showed that teachers' perceptions of pupil attributes as measured by the fifteen rating scales varied with both pupil ethnicity and gender. The teachers' perceptions tended to be more positive for Pakeha and female pupils.

Most of the perceived pupil attributes were also related to the teachers' expectations for pupil general ability. This was particularly the case for those rated attributes which loaded strongly on the first factor in the factor analysis. In addition to teacher expectations being related to academic work skills of the pupils, the expectations also showed moderate-high positive correlations with standardized achievement tests.

Within the New Zealand context it was important to investigate the relative influence of teacher expectations and pupil ethnicity on school achievement rated by the teacher at the end of the year. A multiple regression analysis showed that while teacher expectations did account for a far greater proportion of achievement variance than pupil ethnicity, ethnicity still made a small but significant contribution when covariation

with expectation group had been controlled for,

CHAPTER SIX

RESULTS: EXPECTATIONS AND TEACHER-PUPIL INTERACTION

In this chapter the findings will be presented and discussed as they relate to the research questions focusing on teacher-pupil dyadic interaction. Patterns of interaction associated with teacher expectations and also pupil gender and ethnicity will be examined. The relationship of interaction measures to school achievement will be investigated. Finally, the pupil perspective on teacher behaviour will be considered and compared with observed teacher behaviour.

Observational data

The major concern in analysing the observational data was to examine differences in teacher-pupil interaction which occurred within classrooms. Did different individuals or groups of children experience and initiate different kinds of dyadic interactions with their teachers? One difficulty in using the raw mean and percentage scores as the basic data for analysis is that large differences may occur between teachers which mostly reflect contrasting teaching styles. Such differences are irrelevant to within-class teacher-pupil interaction patterns which are of primary interest in assessing the effects of teacher expectations and pupil attributes such as gender and ethnicity. Consequently the interaction data were transformed to z scores within each class (Mean = 0, SD = 1) to set the five classes on a common scale and to eliminate variance due to differences in teaching styles and subject matter taught during observation. In this way the data could be combined without altering the distribution of interaction measures within each class and thus without altering the data on within-class patterns of teacher-pupil interaction.

Another problem that arose had to do with missing data. This occurred not because of an unbalanced research design (at least as far as teacher, expectation group and pupil gender were concerned) but because not all children experienced every possible kind of interaction with their teacher.

Sometimes this was due to teaching style differences mentioned above. For instance, half the sample in one class (T_1) received no public response opportunities with the consequence that percentage measures relating to public academic questions had to be counted as missing data for these children (e.g. % academic questions answered correctly, % process/academic questions). Satisfactory standardized data (z scores) could not be calculated for this class on such measures and so the analyses of variance relating to public academic response opportunities expressed as percentages were only conducted on the data from four teachers (T_2 to T_5 , $N = 70$).

Additional problems of missing data arose when interaction data were divided up in order to take into account the sequence of events. This was particularly the case when teachers' reactions to various types of pupil responses to academic questions came to be analysed. By the time pupil responses were divided into quality of response (correct, incorrect, no response) and further into the various types of teacher feedback reaction the missing data for individual children increased. For example, if a child always made some response to an academic question then there were no data available for that child on five measures of teacher reaction to no response. Such missing data problems meant that satisfactory z scores could not be calculated for teacher reactions to pupil academic responses.

Before going on to consider the major analyses on standardized interaction scores as they relate to the research questions posed it is important to summarize the preliminary analyses on nonstandardized data

in order to provide a better context for interpretation.

Main effects and interactions involving teacher expectation group, pupil gender and teacher as classifying variables were investigated in a series of three-way ($3 \times 2 \times 5$) analyses of variance with each of 30 non-standardized interaction measures as dependent variables. A fixed effects model was assumed. Table 15 summarizes the findings from these analyses. This table shows the number of dependent variables out of 30 for which each effect reached statistical significance ($p < .05$).

As the effects of teacher expectations and pupil gender on teacher-pupil interaction will be considered when the major analyses are presented and discussed, only the effects of teacher will be briefly examined here.

It is apparent from an inspection of Table 15 that teacher is the most potent of the three classifying variables used in these analyses. There was a significant main effect for teachers on all but six of the interaction measures. Teachers differed significantly in their behaviour toward pupils in their class on a variety of measures and children's behaviour also varied with different teachers. It is not intended to discuss the differences among classes in any detail. Means and standard deviations for nonstandardized interaction data are presented for each teacher in Appendix E together with the significance level of the main effect for teacher.

Of note from the data presented in Appendix E, is the fact that there were no significant teacher effects for either the total number of teacher-pupil interactions per hour or the number of private dyadic contacts per hour. However, there was a significant difference between teachers in the number of public response opportunities per hour, $F(4, 60) = 21.90, p < .001$. Of particular interest was the difference in the number of public academic questions asked, $F(4, 60) = 20.51, p < .001$. While there was variation across all the teachers, the teacher who asked

TABLE 15: Distribution of Significant Main Effects and Interactions of Expectation Group, Gender and Teacher in 30 Nonstandardized Classroom Interaction Measures

Effect	$p < .01$	$p < .05$	NS
Expectation Group (E)	3	7	20
Pupil Gender (G)	2	0	28
Teacher (T)	23	1	6
E x G	1	3	26
E x T	4	4	22
G x T	0	4	26
E x G x T	3	2	25

the most public academic questions (T_5) did so at twelve times the rate of the teacher who asked the fewest (T_1). The fact that half the subjects in this class (T_1) were asked no public academic questions at all has already been noted. Field notes made during and immediately after observations highlight the difference in teaching style. This teacher, T_1 , tended to use more assignments where children were working on their own at their desks, either from notes on the blackboard or from texts. This tended to mean that the dyadic interactions were more likely to be private in nature. Secondly, this teacher tended to use a considerable number of chorus questions when up at the front of the room taking a formal lesson. This was the situation in which most public academic questions were asked by other teachers. However, T_1 would most often ask a question of the class as a whole and no individual child would be singled out as respondent or as the target for teacher feedback reaction to the chorused response. A number of pupils had developed strategies for dealing with this situation. The answers to such questions were usually chanted by the class, or most of it, in a sing-song fashion. Some children merely chanted along making the appropriate sort of noise while being involved in other non-scheduled activities (e.g. drawing, writing notes to friends, reading comics, carving rulers).

These preliminary analyses confirm quite clearly that differences in teacher style may affect the level of interaction scores. Low (or high) class scores on a measure will affect scores on other measures which are a subset of it. Examination of the effect of teacher expectations on interaction patterns may often be misleading if the raw data are pooled across classes.

A second feature of the data presented separately for each teacher is that teacher-pupil interactions are not equally distributed among the pupils in the classes. This is indicated by large standard deviations in relation to the mean scores.

In order to ascertain whether the distribution of various types of teacher-pupil interaction is related to teacher expectations, pupil gender or pupil ethnicity, the findings from the major analyses with standardized interaction data will now be presented.

Are there any differences in teacher-pupil interaction measures related to differential teacher expectations or pupil gender?

This question was investigated in a series of three-way ($3 \times 2 \times 5$) analyses of variance with each of 30 teacher-pupil interaction measures transformed to standard scores within classes (Mean = 0, SD = 1). A fixed effects model was assumed. While this means that there will be no significant main effects for teachers, teacher as a factor was included in the analyses so as to determine any interactive effects of the teacher with the expectation group or gender of pupils on dyadic interaction patterns. As noted earlier, transforming the interaction scores to standard z scores does not alter the pattern of interaction within classes. With teacher as a classifying variable in the analysis it is possible to see, for example, whether the kind of interactions experienced by children in high, middle and low expectation groups vary across teachers.

Mean standard scores for each of the three expectation groups and for males and females along with the probability data for the main effects of teacher expectation and pupil gender, are presented in Table 16. Since the main effect for teacher is meaningless in these standard score analyses, these data were excluded from the table.

a) Expectation Effects

Table 16 shows that teacher expectations for pupil general ability are related to a number of measures of the quantity and quality of classroom interaction. Significant main effects for teacher expectation group

TABLE 16: Mean Standard Scores (z) for Boys and Girls and for High, Middle and Low Expectation Groups on 30 Classroom Interaction Measures

Interaction Variable	Main Effects						
	Teacher Expectation			p	Pupil Gender		p
	High	Middle	Low		Male	Female	
public response opportunities/hr	.16	-.03	-.14		.12	-.12	
direct questions/hr	-.07	-.08	.15		.17	-.17	
open questions/hr	.23	.02	-.25		.03	-.03	
academic questions/hr	.10	.03	-.13		.14	-.14	
self reference questions/hr	.15	-.16	.00		.04	-.04	
correct response/hr	.24	.03	-.27	.08	.05	-.05	
incorrect + part correct response/hr	-.03	.06	-.04		.17	-.17	
no response/hr	-.12	-.10	.22		.18	-.18	
private contacts/hr	-.09	-.00	.09		.10	-.10	
% child initiated private contacts	.41	-.14	-.27	<u>.02</u>	-.03	.03	
% teacher initiated private contacts	-.38	.12	.26	<u>.03</u>	.04	-.04	
child initiated private work contacts/hr	.23	-.07	-.17		.02	-.02	
child initiated private procedure contacts/hr	-.03	.08	-.05		-.09	.09	
teacher initiated private work contacts/hr	-.13	-.12	.25		.27	-.27	<u>.01</u>
teacher initiated private procedure contacts/hr	-.22	-.15	.37	.06	-.09	.09	
behavioural contacts/hr	-.40	.25	.15	<u>.02</u>	.18	-.18	.07

Note: Only probability levels < .10 are shown.

TABLE 16 contd.

Interaction Variable	Main Effects						
	Teacher Expectation			p	Pupil Gender		p
	High	Middle	Low		Male	Female	
% warning + criticism in behavioural contacts	.01	.03	-.04		.13	-.13	
warning + criticism/hr	-.37	.28	.08	<u>.02</u>	.17	-.17	.08
% teacher praise in private contacts	-.07	-.12	.19		.13	-.13	
% teacher criticism in private contacts	-.49	.48	.01	<u>.001</u>	.11	-.11	
total interactions/hr	-.02	.02	.00		.13	-.13	
% total interactions involving praise	.11	-.16	.05		.29	-.29	<u>.004</u>
% total interactions involving criticism	-.47	.30	.17	<u>.01</u>	.10	-.10	
% direct/direct + open ⁺	-.35	-.11	.50	<u>.003</u>	.14	-.14	
% process/academic questions ⁺	.06	.33	-.42	<u>.02</u>	-.07	.07	
% product/academic questions ⁺	-.06	-.37	.46	<u>.01</u>	.04	-.04	
% correct response ⁺	.17	.11	-.30		-.07	.07	
% part-correct + incorrect response ⁺	.00	.11	-.12		-.00	.00	
% no response ⁺	-.19	-.12	.33		.12	-.12	
% pupil response followed by no feedback ⁺	.06	.02	-.09		.07	-.07	

⁺ The analyses of variance on these interaction variables were conducted on the data from four classes (T₂ to T₅, N = 70) due to the low rate of public response opportunities in one class (T₁).

Note: only probability levels < .10 are shown.

appear on nine measures of teacher-pupil interaction (with α set at .05).

No significant expectation group effects were found on any of the quantitative measures of dyadic interaction within the context of public response opportunities, although there was a nonsignificant trend for pupils to give a greater number of correct responses the higher the expectation group, $F(2,60) = 2.63, p < .08$. However, the response opportunities experienced by pupils in the different expectation groups did vary with respect to the type of question and its level of complexity. When direct and open questions were compared, pupils were asked a greater percentage of direct questions as teacher expectations declined, $F(2,46) = 6.67, p < .003$. This also means that children for whom the teachers held higher expectations were asked a greater percentage of open questions. The finding that high expectation group pupils tend to answer more questions posed to the class or a group of pupils, and to which they have expressed some willingness to respond, may be the result of differences in knowledge and ability. It may also be an indication that high expectation students are more secure and confident about performing in public response opportunity situations (and thus laying themselves open to evaluation by others). The finding that pupils in the low expectation group are asked a greater proportion of direct questions would seem to suggest that teachers are attempting to compensate for the reluctance of low expectation pupils to answer open questions by either addressing questions directly to the pupil concerned or by selecting them to respond even when they have expressed no willingness to do so.

Expectation group effects were evident regarding the cognitive level of the questions asked. A significant main effect for expectation group was found on both the percentage of academic process questions, $F(2,46) = 4.02, p < .02$, and the percentage of product questions asked, $F(2,46) = 4.91, p < .01$. It had been assumed that the cognitive level of questions would vary in line with the level of teacher expectations in a linear

fashion. Thus the percentage of academic questions which were of the more complex type would be highest for the high expectation group and decline as teacher expectations declined. Conversely, it was thought that the percentage of academic questions which were of the simpler product type would rise as expectations declined. While the findings reported in Table 16 were in line with these assumptions for the low expectation group, they did not hold for the high and middle groups. The high expectation group pupils fell in the middle on both measures and pupils in the middle expectation group received the greatest percentage of process questions and the lowest percentage of product questions.

The reason for the present finding is not immediately clear though one possible explanation may lie in the different reasons teachers have for requiring pupils to make public responses. Stebbins (1975) found that teachers themselves gave three reasons for requiring academic performances; namely, an opportunity to demonstrate or improve a pupil's ability, to find out if material is understood and to allow participation in official class activity. It may be that different reasons predominate with pupils from different expectation groups and influence the level of question asked.

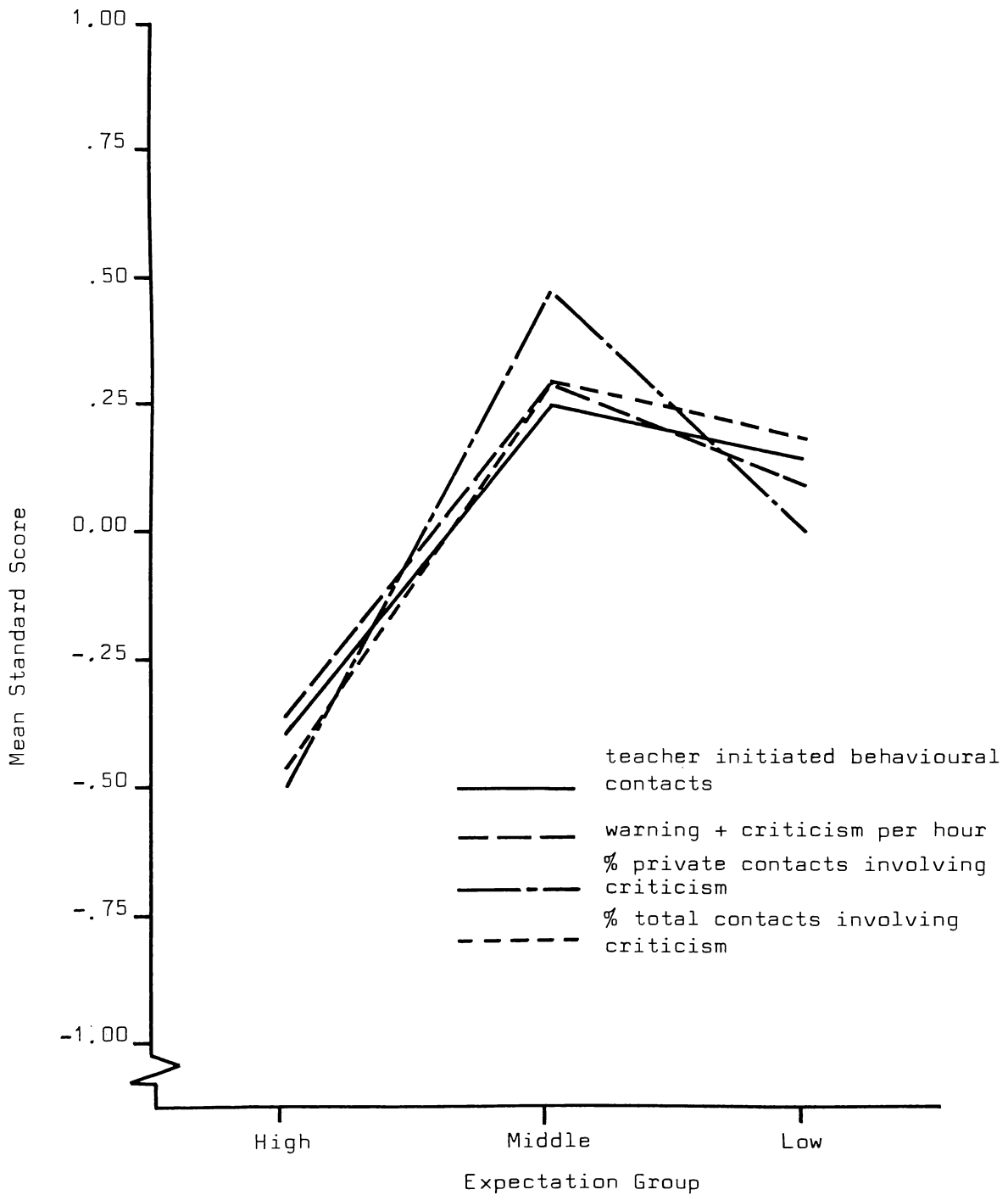
The picture is further complicated when the significant interaction of expectation group with pupil gender is examined, $F(2,46) = 4.02, p < .02$. For girls, the relationship is a linear one between expectation group and the percentage of academic questions which are either process or product questions. Girls get a greater percentage of process questions as teacher expectations get higher and a greater percentage of product questions with each decline in level of teacher expectation. For boys, the middle expectation group get a greater percentage of process questions and a lower percentage of product questions than either the high or low expectation groups.

A number of significant expectation effects were also evident in the measures of private teacher-pupil interaction, although as with public response opportunities the total number of private contacts did not vary significantly with expectation group. A clear pattern of expectation group differences emerged for the percentage of private contacts initiated by pupils, $F(2,60) = 4.21, p < .02$ and the percentage of private contacts which were initiated by the teacher, $F(2,60) = 3.66, p < .03$. Here children in the high expectation group created more private contacts with the teacher for themselves, whereas teachers initiated the greatest percentage of private contacts with low expectation pupils (see Table 16). Children in the middle expectation group scored between the high and low groups on both measures.

As with the findings on direct questions in public response opportunities the findings relating to the percentage of private contacts initiated by the pupil or the teacher do seem to indicate some attempt to compensate for the low expectation pupils' lower rate of initiating interactions. There is certainly no evidence of the teachers as a group favouring those children for whom they hold high expectations regarding general ability. However, there is some suggestion that the additional interactions initiated by the teacher with low expectation group children concern classroom procedure rather than academic work. There is a non-significant trend for teachers to initiate more procedural contacts with children in the low expectation group than with those in the middle or high groups, $F(2,60) = 2.91, p < .06$.

The four other measures on which a significant expectation group effect showed up all have to do with classroom behaviour and/or teacher criticism. The same pattern over expectation groups is evidenced in each case. While the group means are available in Table 16 the overall pattern on the four measures can be more clearly seen in Figure 5. There was a significant expectation group effect for the number of teacher initiated

FIGURE 5: Mean Standard Scores for High, Middle and Low Expectation Groups on Four Classroom Interaction Measures



behavioural contacts, $F(2,60) = 4.22, p < .02$, the number of warnings and criticisms for classroom behaviour, $F(2,60) = 3.97, p < .02$, the percentage of teacher criticism in private contacts, $F(2,60) = 8.29, p < .001$, and the percentage of total dyadic interactions (public and private) which involved teacher criticism, $F(2,60) = 5.70, p < .01$. On each measure the middle expectation group scored highest, followed by the low expectation group, with the pupils in the high expectation group experiencing a lot less of these generally negative trends of interaction.

These findings are contrary to those of at least one other study (Evertson, Brophy and Good, 1972) which found that the middle expectation group had the least number of behavioural contacts and were rarely criticised for classroom behaviour. Brophy and Good (1974) state that a general finding present in several studies conducted by them and their associates is that "the middle group is usually less salient in the classroom than the high and low groups, and teachers are usually more detached and unemotional when dealing with them" (Brophy and Good, 1974, p. 104). Certainly the findings of the present study can hardly be said to paint a picture of teachers interacting with middle expectation groups in a detached and unemotional way if contacts relating to classroom misbehaviour and teacher criticism is any indication of pupil salience and teacher emotion.

The finding that the high expectation group received less criticism regarding work or behaviour than the low expectation group is consistent with other studies (Brophy and Good, 1970a; Cornbleth, Davis and Button, 1972; Evertson, Brophy and Good, 1973; Jones, 1971).

(b) Gender Effects

The mean standard scores for boys and girls on 30 classroom interaction measures are presented in Table 16 along with the probability data for gender effects from the three-way analyses of variance. From Table 16

it can be seen that the differences between boys and girls reached significance on only two measures.

Teachers initiated more private work-related contacts with boys, $F(1,60) = 7.70$, $p < .01$ and boys also experienced a greater percentage of total interactions which involved teacher praise, $F(1,60) = 9.13$, $p < .004$. In general, these findings are somewhat at variance with those of other studies. A review of studies covering different educational levels shows a number of common patterns of gender differences in classroom interaction (Brophy and Good, 1974, Ch. 7). One of the main differences found in many studies is that boys tend to have more interactions of all kinds with teachers than girls, and especially more interactions concerned with the control and criticism of disruptive behaviour. In the present study the only significant gender effect related to quantity of interactions was on the number of private work contacts initiated by the teacher. No significant differences were found on measures of public response opportunities or pupil initiated private contacts.

None of the measures relating to the control and criticism of disruptive behaviour showed any significant gender effects. Nevertheless there was a nonsignificant trend in line with other studies, with boys tending to receive more contacts concerning classroom behaviour, $F(1,60) = 3.33$, $p < .07$, and also more warnings and criticisms than girls, $F(1,60) = 3.14$, $p < .08$.

Overall boys did not experience a more negative and critical relationship with their teachers in terms of the proportion of total interactions involving teacher criticism and indeed, as noted above, significantly more of their interactions with the teacher involved praise. A number of other studies have shown that teachers praise boys more than girls (Delefes and Jackson, 1972; Evertson, Brophy and Good, 1972, 1973;

Felsenthal, 1970; Meyer and Thompson, 1956) but this is usually in conjunction with more criticism as well.

On two measures of the positive and negative aspects of teacher-pupil interaction, gender and expectation group interacted to produce a significant effect. The first of these was the percentage of warning and criticism in behavioural contacts, $F(2,60) = 4.52, p < .02$. The expectation by gender effect can be clearly seen in Figure 6. Surprisingly, boys in the low expectation group received proportionately less warning or criticism than boys in either the high or middle groups (who received about the same amount). The opposite was the case for girls. Whereas girls in the high and middle expectation groups received about the same proportion of warnings plus criticisms in behavioural contacts as low expectation group boys, this proportion was much higher for girls in the low expectation group. Thus it was boys in the high and middle expectation groups and girls in the low expectation group who were warned and criticised most for classroom behaviour. These findings differ from those of other studies which show most teacher criticism going to boys for whom the teacher has low expectations and/or who are low achievers (Brophy and Good, 1970a; Good, Sikes and Brophy, 1973).

The second significant gender by expectation interaction was on the percentage of praise in private contacts (work plus procedure plus behaviour), $F(2,60) = 4.36, p < .02$, and may be seen in Figure 7. Girls in the high and middle groups received a slightly greater proportion of praise in private contacts than boys. In the low expectation group it was the boys who received the highest percentage of private contacts involving praise. The low expectation group boys stand out from the other groups as being praised most in relation to the number of private contacts experienced. Once again this is in contrast to other studies in which most praise went to high achieving boys (see Brophy and Good, 1974).

FIGURE 6: % Warning and Criticism in Behavioural Contacts by Expectation Group and Gender

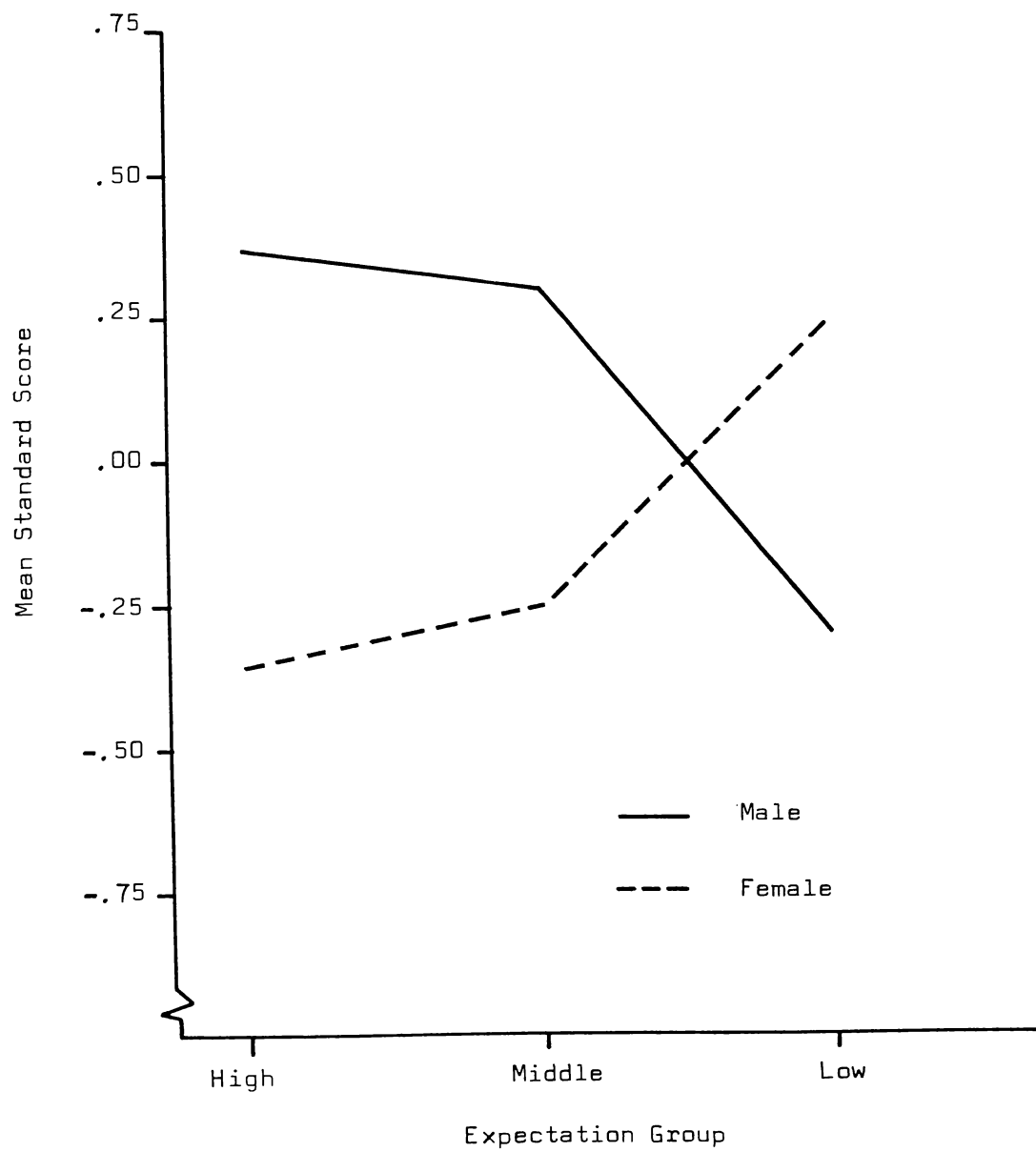
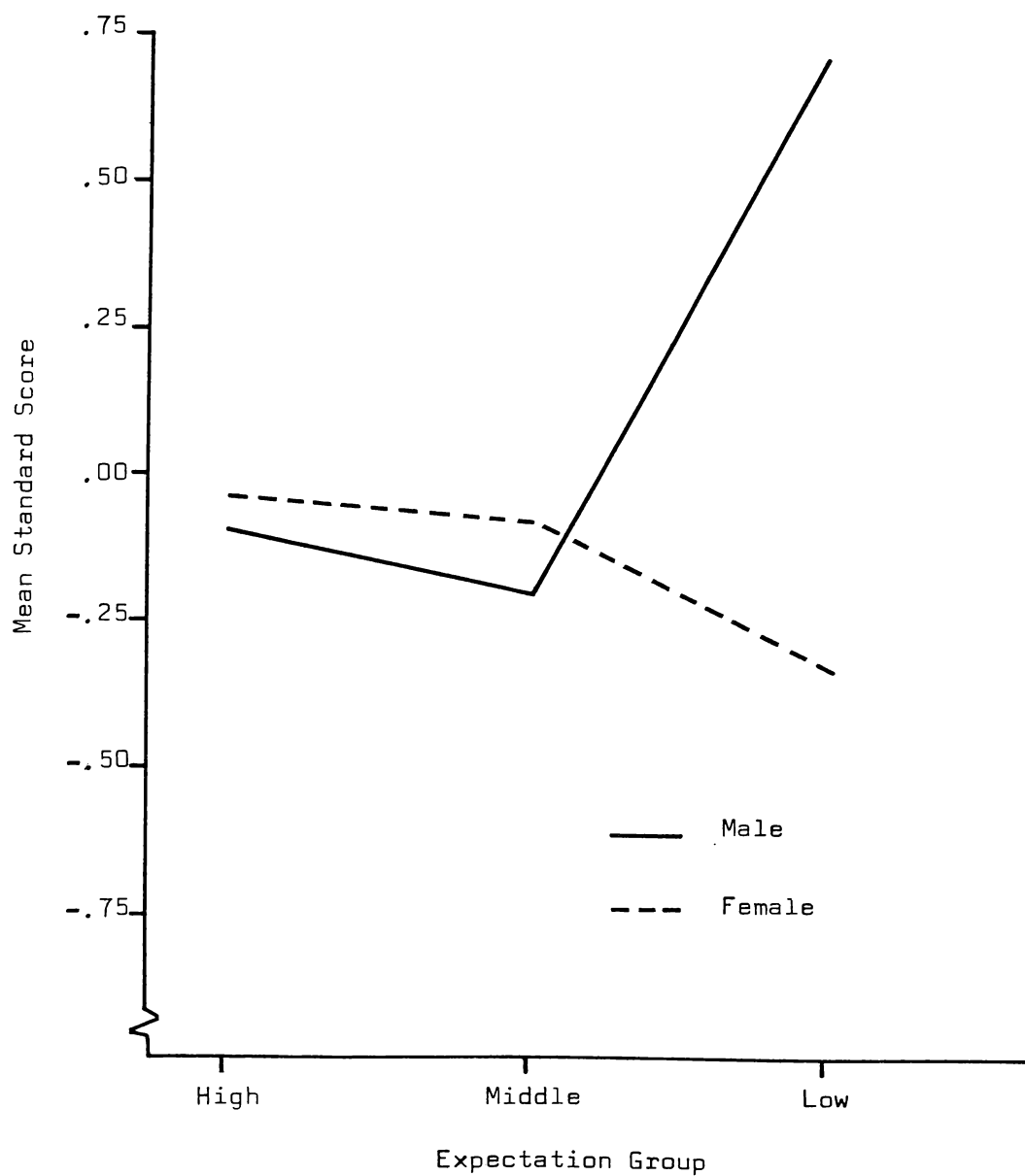


FIGURE 7: % Praise in Private Contacts by
Expectation Group and Gender



(c) Interaction Patterns Across Teachers

In order to ascertain whether or not interaction patterns related to teacher expectations and pupil gender varied in the different classrooms, a separate factor for teacher was included in the analyses of variance carried out on the classroom interaction measures. The interactive effects of teacher with expectations and pupil gender will now be examined. In order to provide the reader with a clear picture of the pattern of significant interaction effects, as well as the main effects already detailed, these are presented in Table 17 for the 30 standardized classroom interaction measures.

There were five significant interactions of teacher and expectation group, four of which concerned public response opportunities. The four measures concerned were the number of public response opportunities per hour, $F(8,60) = 2.90, p < .01$; open questions per hour, $F(8,60) = 3.66, p < .002$; academic questions per hour, $F(8,60) = 3.03, p < .01$; and the number of correct responses per hour, $F(8,60) = 3.82, p < .001$. As the pattern of results was very similar on all these measures they will be presented graphically only for the number of public response opportunities per hour. The joint effect of teacher and expectation group on this measure may be seen in Figure 8. It is apparent from this figure that there is considerable variation among teachers on their pattern of interaction with children for whom they hold different expectations.

In the case of one teacher (T_2) there is a clear linear relationship between the level of expectation for general ability and the number of public response opportunities provided. Response opportunities increase as the teacher's expectations rise. Two teachers (T_3 and T_5) show complementary patterns of interaction where public response opportunities are concerned. While one teacher favours high expectation group children over those in the low expectation group and gives fewest response opportunities to those in the middle group, the reverse is the

TABLE 17: Distribution of Significant Main Effects and Interactions
for Expectation Group, Pupil Gender and Teacher on 30
Standardized Classroom Interaction Measures

Interaction Variable	E	G	ExG	ExT	GxT	ExGxT
public response opportunities/hr				**		
direct questions/hr						
open questions/hr				**		
academic questions/hr				**		
self reference questions/hr						
correct response/hr				***		
incorrect + part-correct response/hr						
no response/hr						
private contacts/hr						
% child initiated private contacts	*					
% teacher initiated private contacts	*					
child initiated private work contacts/hr					*	
child initiated private procedure contacts/hr						
teacher initiated private work contacts/hr		**				*
teacher initiated private procedure contacts/hr						
teacher initiated behavioural contacts/hr	*					
% warning + criticism in behavioural contacts			*	*		
warning + criticism/hr	*					
% teacher praise in private contacts			*			
% teacher criticism in private contacts	***					
total interactions/hr						
% total interactions involving praise		**				
% total interactions involving criticism	**					
% direct/direct + open ⁺	**				**	*
% process/academic questions ⁺	*		*			
% product/academic questions ⁺	**		*			
% correct response ⁺					*	**
% part-correct + incorrect response ⁺						
% no response ⁺						
% pupil response followed by no feedback ⁺					*	*

(* $p < .05$, ** $p < .01$, *** $p < .001$)

⁺ The analyses of variance on these interaction variables were conducted on the data from four classes (T_2 to T_5 , $N = 70$) due to the low rate of public response opportunities in one class (T_1).

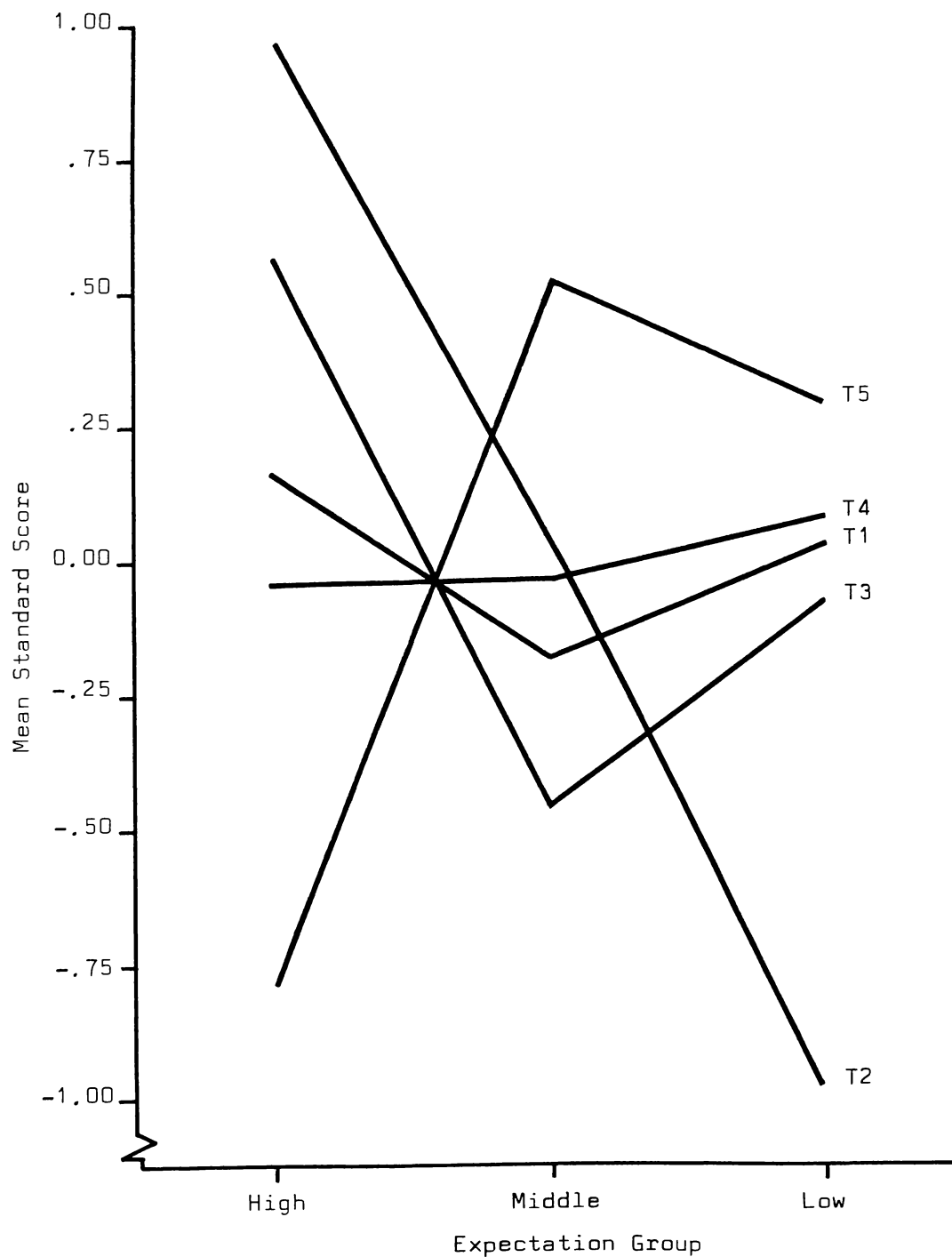
case for the other teacher. Finally, two teachers showed no strong pattern of group differences (T_1 and T_4).

Graphs showing mean standard scores by expectation group and teacher for the number of open questions, academic questions and correct responses look very much the same as that presented in Figure 8 for the number of public response opportunities. There was some variation in the pattern of interaction with different expectation groups for teachers T_1 and T_4 but the group differences were not great on any of these measures. A contributing factor to the highly similar results on the four measures is that public response opportunities tended to be open academic questions which were answered correctly.

The only other significant expectation group by teacher effect was on the percentage of warnings plus criticisms in behavioural contacts, $F(8,60) = 2.14, p < .05$. Here two teachers directed the greatest proportion of warnings and criticism about classroom behaviour to children in the middle expectation group with the high and low expectation groups getting a similar lower proportion. Another two teachers showed almost the opposite pattern, with the middle expectation group getting the lowest proportion of negative behavioural contacts. The remaining teacher directed most of the warnings and criticisms in relation to the total number of behavioural contacts towards the high expectation group and the proportion declined as the level of expectation declined.

Teacher as a factor also interacted with pupil gender to produce a significant effect on four classroom interaction measures, as can be seen in Table 17. These were the number of child initiated private work contacts, $F(4,60) = 3.28, p < .02$; the percentage of direct questions, $F(3,46) = 4.17, p < .01$; the percentage of academic public response opportunities answered correctly, $F(3,46) = 2.74, p < .05$; and the percentage of pupil responses which were followed by no teacher feedback, $F(3,46) = 2.99, p < .05$. However, apart from being able to say that in

FIGURE 8: Mean Standard Scores on the Number of Public Response Opportunities per hour by Expectation Group and Teacher



some classes boys scored higher on these measures and in some classes girls did, there was no consistent pattern for teachers across these measures. While formal statistical analysis was unwarranted, an inspection of the data was carried out to see if the pupil gender by teacher interaction effects might be related to teacher gender. However, inspection of the relevant means revealed no consistent pattern across measures related to teacher gender. This finding is consistent with other classroom observation studies (see Brophy and Good, 1974).

Four significant three-way interactions among expectation group, pupil gender and teacher were found (see Table 17). Three of these were qualitative measures relating to public response opportunities and one was a quantitative measure of teacher initiated private work contacts. These findings were not clearly interpretable and appeared on measures where there were significant main effects and/or pupil gender by teacher interactions. Suffice it to say that this adds emphasis to the assertion that expectation effects are not necessarily the same for both boys and girls or for all teachers.

(d) Teachers' Feedback Reactions

Thus far, no findings have been presented concerning the teachers' reactions to pupils' attempts to answer public academic questions. It was noted earlier in this chapter that problems of missing data arose with these interaction measures and that scores for teacher feedback reactions could not be standardized within classes. A less formal presentation of the data will now follow, giving each teacher's two most frequent feedback reactions when pupils responded correctly, incorrectly or did not respond at all. No data are presented for Teacher 1 due to the low rate of academic questions asked.

Tables 18 to 20 show teachers' two most frequent feedback reactions

by expectation group. The percentages appearing after each feedback reaction refer to the percentage of pupil responses followed by that teacher reaction. More than one teacher reaction could follow a particular pupil response.

Inspection of Table 18 shows that when an academic question was answered correctly the most frequent reaction of teachers was to affirm it as being right. This is so whatever the teacher expectation group. The second most frequent reaction was praise for three of the teachers, with the fourth using process feedback. Again no marked differences between expectation groups were evident.

When pupils responded incorrectly the most frequent (and often the first) reaction by teachers for all expectation groups was to 'negate wrong', i.e. to tell the pupil that the response was incorrect (see Table 19). The next most frequent response showed quite a lot of variation both across teachers and across expectation groups. Only one teacher used criticism to any extent (T_4) and this was with the high and low groups. Pupils in the high expectation groups got different feedback reactions depending on their teacher. For the middle group the second most common teacher feedback reaction was either to ask another child the question or to give some feedback (process or product). Three of the four teachers frequently asked another child the question after pupils in the low expectation group gave an incorrect response.

Inspection of Table 20 shows that asking another child the same question was a common teacher reaction when pupils did not respond at all to a question. 'Ask other' figured in the two most frequent reactions for all teachers and all levels of teacher expectation. The other thing that stands out from Table 20 is that both teacher criticism and sustaining feedback are more common reactions for all teachers than when the pupil response was incorrect. Again criticism is used particularly by T_4 . The middle expectation group appeared to get more process or product feedback than the other groups, while the low expectation group tended to get a

TABLE 18: Teachers' Two Most Frequent Feedback Reactions to Correct Responses by Pupils in High, Middle and Low Expectation Groups

Expectation Group	T ₂	T ₃	T ₄	T ₅
High	affirm right 89% process feedback 15% (n = 6)	affirm right 83% praise 36% (n = 6)	affirm right 91% praise 25% (n = 6)	affirm right 78% praise 16% (n = 6)
Middle	affirm right 68% process feedback 17% (n = 6)	affirm right 86% praise 50% (n = 6)	affirm right 80% new question 23% (n = 5)	affirm right 72% praise 23% (n = 6)
Low	affirm right 89% process feedback 33% (n = 3)	affirm right 88% praise 44% (n = 6)	affirm right 100% praise 33% (n = 3)	affirm right 68% praise 34% (n = 6)

Note: Percentages given are the percent of correct responses followed by a particular feedback reaction.

TABLE 19: Teachers' Two Most Frequent Feedback Reactions to Incorrect Responses by Pupils in High, Middle and Low Expectation Groups

Expectation Group	T ₂	T ₃	T ₄	T ₅
High	negate wrong 81% process feedback 29% (n = 4)	negate wrong 81% sustaining feedback 10% (n = 6)	negate wrong 83% criticism 25% (n = 5)	ask other 87% negate wrong 80% (n = 5)
Middle	negate wrong 95% ask other 38% (n = 2)	negate wrong 67% ask other 24% (n = 5)	negate wrong 95% process feedback 20% (n = 5)	product feedback 45% negate wrong 40% (n = 5)
Low	negate wrong 100% ask other 50% (n = 2)	negate wrong 69% ask other 40% (n = 6)	negate wrong 83% criticism 33% (n = 3)	negate wrong 100% ask other 38% (n = 6)

Note: Percentages given are the percent of incorrect responses followed by a particular feedback reaction.

TABLE 20: Teachers' Two Most Frequent Feedback Reactions to No Response by Pupils in High, Middle and Low Expectation Groups

Expectation Group	T ₂	T ₃	T ₄	T ₅
High	ask other 100% criticism 10% (n = 5)	product feedback ask other sustaining feedback (n = 3)	criticism 67% ask other 50% (n = 3)	ask other 88% criticism 13% (n = 4)
Middle	ask other 83% criticism process feedback (n = 4)	sustaining feedback 38% ask other product feedback (n = 4)	ask other 100% (n = 2)	ask other 88% process feedback 6% (n = 5)
Low	ask other 88% sustaining feedback 13% (n = 2)	sustaining feedback ask other criticism (n = 2)	ask other 75% criticism 33% (n = 4)	ask other 77% sustaining feedback 15% (n = 6)

Note: Percentages given are the percent of cases where no response is followed by a particular feedback reaction.

greater percentage of sustaining feedback than the high or middle groups.

Tables 21 to 23 show the two most frequently occurring teacher feedback reactions to boys and girls. There appear to be no general and marked differences in the way teachers reacted to responses given by boys and girls and similar patterns across teachers were found as before. A correct response tended to be followed by the teacher affirming that it was right and either giving praise or process feedback. Boys tended to get more praise than girls. Incorrect responses were followed most frequently by 'negate wrong' and the teacher asking the question of another child. One teacher tended to use criticism. Finally, when boys and girls gave no response to a question, 'ask other' and criticism were common teacher reactions.

It seems that teachers have characteristic ways of reacting to pupil responses to public academic questions. These reactions are often similar across teachers and appear to depend more on the quality of the response rather than the expectations held for the pupil's ability or pupil gender.

Does pupil ethnic group have a significant effect on teacher-pupil interaction?

In the analyses involving ethnic group as an independent variable pupil gender was not taken into account as this would have involved extremely small numbers in some cells. Analysis of variance was not an appropriate method of data analysis due to unequal and disproportionate cell frequencies in the factorial design. A series of multiple regressions of ethnic group, expectation group and an ethnicity by expectation factor were therefore conducted on the 23 standardized measures of classroom interaction for which there were data available on all 90 subjects. A priori ordering was employed in the regressions using a stepwise solution (Kerlinger and Pedhazur, 1973, pp. 193-197).

TABLE 21: Teachers' Two Most Frequent Feedback Reactions to Correct Responses
by Boys and Girls

Pupil Gender	T ₂	T ₃	T ₄	T ₅
Male	affirm right 68% process feedback 16% (n = 7)	affirm right 84% praise 54% (n = 9)	affirm right 81% praise 33% (n = 8)	affirm right 74% praise 30% (n = 9)
Female	affirm right 91% process feedback 23% (n = 8)	affirm right 84% praise 33% (n = 9)	affirm right 100% process feedback 6% (n = 6)	affirm right 71% praise 19% (n = 9)

Note: The percentages given refer to the percent of correct responses followed by a particular feedback reaction.

TABLE 22: Teachers' Two Most Frequent Feedback Reactions to Incorrect Responses by Boys and Girls

Pupil Gender	T ₂	T ₃	T ₄	T ₅
Male	negate wrong 96% ask other 45% (n = 5)	negate wrong 69% ask other 21% (n = 8)	negate wrong 83% criticism 21% (n = 8)	negate wrong 62% ask other 42% (n = 8)
Female	negate wrong 85% ask other } 13% sustaining feedback } (n = 5)	negate wrong 76% ask other 22% (n = 9)	negate wrong 95% criticism } 10% process feedback } (n = 5)	negate wrong 87% ask other 47% (n = 8)

Note: Percentages given refer to the percent of incorrect responses followed by a particular feedback reaction.

TABLE 23: Teachers' Two Most Frequent Feedback Reactions to No Response
by Boys and Girls

Pupil Gender	T ₂	T ₃	T ₄	T ₅
Male	ask other 87% criticism 5% process feedback (n = 7)	sustaining feedback 58% ask other 33% (n = 4)	ask other 62% criticism 33% (n = 4)	ask other 91% sustaining feedback 5% (n = 9)
Female	ask other 100% criticism 13% (n = 4)	product feedback } 20% ask other } sustaining feedback 10% (n = 5)	ask other 80% criticism 40% (n = 5)	ask other 71% criticism 17% (n = 6)

Note: Percentages given refer to the percent of cases where no response was followed by a particular feedback reaction.

An inspection of the analyses revealed only three dependent variables for which the F test for the overall regression was significant ($p < .05$). Examination of these analyses revealed no case in which pupil ethnic group made a significant independent contribution to criterion variance after the effects of teacher expectation and any ethnicity \times expectation interaction had been semi-partialled out. However, teacher expectation group did make a significant independent contribution to explaining variance on a number of measures of teacher-pupil interaction in a way which supports the analyses presented above. An inspection of the zero-order correlation matrix used in the regression analyses showed that none of the correlations between pupil ethnic group and scores on the interaction measures were significant. These correlations are contained in Appendix F.

Thus, as far as the patterns of dyadic teacher-pupil interaction in the five classrooms studied are concerned, the ethnic group of the pupils (Pakeha or Polynesian) appears to have little effect. The lack of ethnic group differences in dyadic teacher-pupil behaviour runs counter to many assumptions regarding differential teacher treatment of minority group children in New Zealand schools. In addition, McKessor and Thomas (1977) suggest on the basis of a series of small studies in an urban intermediate school that Maori children are less likely than Pakeha children to engage in direct and verbal help seeking behaviour. In the present study ethnic group did not account for a significant proportion of variance in the total number of contacts initiated by children or in the percentage of pupil initiated contacts related to work or classroom procedure.

It must be admitted that the findings presented here with regard to pupil ethnic group and classroom interaction should be viewed with some caution as the numbers, particularly of Polynesian pupils are not large. Nevertheless, they do receive support from a recent study by

Sutton and Nicholls (1977), employing larger samples of Standard 2 and 4 pupils, which revealed no significant differences in the classroom behaviour of Maori and Pakeha children.

How are measures of teacher-pupil interaction related to teacher-rated school achievement?

Initially, standard scores on the twenty three interaction measures for which data were available on all 90 pupils in the study were correlated with end-of-year composite school achievement ratings. These Pearson r correlation coefficients are contained in Appendix F. A summary of the significant correlations between interaction measures and achievement ratings is provided in Table 24.

In public response opportunities higher achievers answered a greater number of open questions and answered more questions correctly than lower achievers. There were fewer instances when a high achiever did not respond at all to a question posed by the teacher. Higher achievement was also associated with pupils creating a greater percentage of private teacher-pupil interactions for themselves, whereas teachers initiated relatively more private interactions with lower achievers. Similar findings were evident for private work-related contacts. While high achieving pupils themselves initiated more private interactions concerning academic work, low achieving pupils received more private work-related interactions initiated by the teacher. Finally, the amount of teacher criticism was shown to be related to the end-of-year school achievement rating. Higher achievement was associated with a lower proportion of both private interactions and total interactions of all kinds which involved teacher criticism. Each of these measures include both criticism concerning academic work and criticism of classroom behaviour.

There is a difficulty which arises when relationships are being

TABLE 24: Summary of Significant Correlations Between Standardized Interaction Measures and End-of-Year School Achievement Rating (N = 90)

Interaction Measure	Higher achievement associated with	r
open questions/hr	more	-.26 *
correct response/hr	more	-.33 **
no response/hr	less	.25 *
% child initiated private contacts	more	-.39 **
% teacher initiated private contacts	less	.37 **
child initiated private work contacts/hr	more	-.35 **
teacher initiated private work contacts/hr	less	.23 *
% teacher criticism in private contacts	less	.23 *
% total interactions involving criticism	less	.27 **

(* $p < .05$, ** $p < .01$, two-tailed test)

examined between each of a large number of interaction measures and a dependent variable such as school achievement. That is, a number of the independent variables (interaction measures) may themselves be inter-correlated. This was the case in the present study (see the matrix contained in Appendix F) and consequently stepwise multiple regressions of teacher-pupil interaction were undertaken on the end-of-year composite achievement rating.

The twenty three classroom interaction measures for which there were no missing data were entered into the regression analysis. In the stepwise solution employed the independent variable which explained the greatest amount of variance in the dependent variable was entered first. Thereafter, at each step the independent variable that explained the greatest amount of variance unexplained by the variables already in the equation was entered into the regression equation. The results are summarized in Table 25 which details the best six predictors and the cumulative multiple correlations. Beyond this point, the addition of a further interaction measure led to only a very small increase in the achievement variance accounted for (less than 1 percent).

Inspection of Table 25 shows that the stepwise regression of classroom interaction measures on end-of-year achievement as rated by the teacher produced a multiple correlation of .68 for the first six predictors. The importance of pupil behaviour is apparent when the predictors are examined. The degree to which private dyadic interactions were initiated by the child as opposed to the teacher accounted for the greatest amount of variance in school achievement ratings. The number of occasions when a pupil gave no response to a public question and the number of times such a question was answered correctly also figured predominantly in the regression equation. The meaning of this can be more clearly understood by reference to Table 24. Inspection of the table

TABLE 25: Summary of Stepwise Multiple Regression of Classroom Interaction Measures on End-of-Year School Achievement Rating.

Best predictors	Cumulative R
% child initiated private contacts	.39
No response per hour	.46
Correct response per hour	.56
Behavioural contacts per hour	.59
Child initiated private work contacts/hr	.65
Direct questions per hour	.68

shows higher achievement to be associated with a greater rate of correct responses and a lower rate of not responding at all to public questions posed by the teacher. Behavioural evaluations, child initiated private contacts concerning academic work and the number of direct questions asked by the teacher further increased the regression coefficient. Together, these six interaction measures were able to account for 47% of the variance in end-of-year school achievement ratings.

There appears to be little evidence from this analysis that achievement (at least as rated by the teacher) is dependent on the kinds of dyadic interactions solely under the influence of the teacher. Only in the case of one measure, the number of direct questions asked by the teacher, could it be argued that the nature of the dyadic interaction was determined primarily by the teacher. Even here though, findings were presented earlier which suggested that teachers were attempting to use direct questions to compensate for low expectation group pupils' unwillingness to answer open questions. In other words, it is difficult to imagine a situation where use of direct questions might have a causal influence on achievement.

Are there any expectation group differences in pupils' perceptions of teacher behaviour?

In order to investigate this question pupils were required to make judgments about their teacher's behaviour toward them in comparison to pupils of the same gender for whom the teacher held different expectations regarding ability. The data obtained were then analysed using a two-way analysis of variance with expectation group and teacher as fixed factors.

Means and standard deviations for pupil perception of teacher contact are presented in Table 26 for expectation groups and Table 27 for expectation groups by teacher. Summaries of the analyses of variance appear in Tables 28 to 30. Gender was not included as a factor in these

TABLE 26: Means and Standard Deviations for Pupil Perceptions of Teacher Contact

Pupil Perception	Expectation Group					
	High (n=30)		Middle (n=30)		Low (n=30)	
	Mean	SD	Mean	SD	Mean	SD
Quantity of Contact	3.30	1.39	3.47	1.36	2.97	1.03
Positive Contact	4.30	1.24	3.87	1.31	3.70	1.32
Negative Contact	3.27	1.34	3.20	1.22	3.87	1.28

TABLE 27: Means and Standard Deviations for Pupil Perceptions of Teacher Contact: Expectation Group by Teacher

Pupil Perception	Teacher	Expectation Group					
		High (n=30)		Middle (n=30)		Low (n=30)	
		Mean	SD	Mean	SD	Mean	SD
Quantity of Contact	1	3.67	1.36	3.00	0.89	3.33	1.03
	2	2.67	1.21	3.50	1.23	2.17	0.41
	3	3.50	1.22	2.83	1.33	3.33	1.03
	4	2.67	1.03	3.67	1.97	3.33	1.21
	5	4.00	1.90	4.33	1.03	2.67	1.03
Positive Contact	1	4.17	0.98	3.83	0.98	3.67	1.51
	2	4.83	1.17	4.50	0.84	3.00	0.89
	3	4.33	1.03	2.83	0.98	4.17	1.60
	4	5.17	0.98	3.17	1.60	3.67	1.37
	5	3.00	1.10	5.00	0.89	4.00	1.27
Negative Contact	1	3.50	0.84	3.00	1.10	3.33	1.21
	2	3.50	1.52	2.33	0.82	4.67	1.63
	3	2.67	1.03	3.83	1.33	3.50	1.52
	4	2.17	0.41	3.50	1.76	4.17	0.98
	5	4.50	1.52	3.33	0.52	3.67	0.82

TABLE 28: Summary of Analysis of Variance of Pupil Perceptions of Quantity of Teacher Contact

Source	SS	df	MS	F
Expectation Group (E)	3.89	2	1.94	1.25
Teacher (T)	7.29	4	1.82	1.17
ET	16.78	8	2.10	1.35
Within cell (error)	116.67	75	1.56	
Total	144.62	89		

TABLE 29: Summary of Analysis of Variance of Pupil Perceptions of Positive Teacher Contact

Source	SS	df	MS	F
Expectation Group (E)	5.76	2	2.88	2.09
Teacher (T)	1.16	4	0.29	0.21
ET	39.58	8	4.95	3.59 ***
Within cell (error)	103.33	75	1.38	
Total	149.82	89		

(*** $p < .001$)

TABLE 30: Summary of Analysis of Variance of Pupil Perceptions of Negative Teacher Contact

Source	SS	df	MS	F
Expectation Group (E)	8.09	2	4.04	2.81
Teacher (T)	4.00	4	1.00	0.69
ET	30.13	8	3.77	2.62 **
Within cell (error)	108.00	75	1.44	
Total	150.22	89		

(** $p < .01$)

analyses as all comparison judgments were made between pupils of the same gender.

Inspection of Tables 28 to 30 shows that there were no significant main effects for either expectation group or teacher on any of the three pupil perception measures. However, significant expectation group by teacher interactions were found for perception of positive contact, $F(8,75) = 3.59, p < .001$, and for perception of negative contact, $F(8,75) = 2.62, p < .01$. Thus, though children for whom the teacher holds differential expectations do have varying perceptions of the amounts of positive and negative contact they have with their teacher, the pattern of expectation group variation is not the same for all teachers.

The absence of any clearcut differences in the perceptions of pupils in different expectation groups regarding interactions with the teacher may be due to the relatively crude nature of the perception measures. Alternatively, it may be that teachers generally do not behave differently toward the different expectation groups insofar as the amount of total, positive and negative contact is concerned and that the perceptions of pupils are relatively accurate. The analyses for standardized interaction measures reported earlier showed no significant expectation group effects for the number of total interactions or the percent of interactions involving praise, though there was a significant main effect for expectation group on the percent of interactions involving criticism (see Table 16). It was on the measure of pupil perception of negative contact that the expectation group effect approached significance, $F(2,75) = 2.81, p < .07$. However, the pattern of expectation group means for pupil perception of negative contact does not follow that for observed dyadic interactions.

In order to further assess whether or not pupils' perceptions did reflect observed behaviour in the classroom, correlational analyses were undertaken and are reported below.

How are pupil perceptions of teacher behaviour related to teacher behaviour as observed?

Pearson product-moment correlation coefficients between pupil perceptions and observed dyadic interactions are presented in Table 31 for the total sample and separately for expectation groups.

For the total sample, a significant relationship was evident only between pupil perceptions of the total amount of teacher contact and observations of the total number of teacher-pupil interactions per hour ($r = .31$). Moderate positive correlations also appeared between these measures for the high and middle expectation groups. It is interesting to note the absence of a significant correlation between the perceptions of the low expectation group and the observed rate of interaction. From Table 26 it was apparent that the pupils in the low expectation group see themselves as having less contact with the teacher than pupils in the other groups. However, analyses of observed classroom interaction measures reported earlier in this chapter showed no significant expectation group effect on the total number of interactions pupils had with their teachers. It may be speculated that this could be associated with lower self concepts of ability and achievement and/or generally more negative perceptions of school and class activities. Such explanations receive some support from the finding that the low expectation group also saw themselves as having the least positive contact and the most negative contact with their teachers (Table 26), even though these perceptions are not an accurate reflection of teacher-pupil interactions as observed (see Table 31).

With one exception, there is an absence of significant relationships between pupil perceptions and teacher-pupil interactions involving positive and negative affect. Once again, it is possible that this is because of the simple perception measures used. The one instance of a significant relationship appearing is for the high expectation group, between perception of positive teacher contact and the percent of total interactions involving praise. Surprisingly, this was a moderate

TABLE 31: Pearson Product-Moment Correlation Coefficients
Between Pupil Perceptions of Teacher Contact and
Observed Teacher-Pupil Dyadic Interaction

Relationship	Expectation Group			
	High (N=30)	Middle (N=30)	Low (N=30)	Total (N=90)
Perception of quantity of teacher contact with total teacher-pupil interactions per hour	.35 *	.40 *	.11	.31 **
Perception of positive teacher contact with % total interactions involving praise	-.48 **	.00	.17	-.07
Perception of negative teacher contact with % total interactions involving criticism	-.25	.12	.14	.04

(* $p < .05$, ** $p < .01$)

negative correlation ($r = -.48$). The reason for this is not clear, though it may involve a social desirability response pattern (e.g. not wanting to appear to be boasting or to be a "goody-goody").

In general, it is the quantity of teacher-pupil interactions that figures in the significant correlations rather than perception-behaviour relationships involving positive or negative affect.

Summary

In this chapter the findings have been presented which relate to teacher-pupil dyadic interaction. Patterns of interaction associated with teacher expectations and also pupil gender and ethnicity were examined. The relationships of interaction measures to school achievement were investigated. Finally, pupil perceptions of their interactions with the teacher on three dimensions were considered and compared with observed teacher-pupil interactions.

A series of analyses of variance of standardized interaction measures showed that pupils for whom the teacher held different levels of expectation regarding their general ability did experience different kinds of dyadic interactions with the teacher. Many of these differences appear to be attributable to differences in the behaviour of the children rather than the teacher.

Pupils in the high expectation group initiated more private contacts with the teacher for themselves, and were criticised less often regarding work or behaviour. In public response opportunities they were asked fewer direct questions, mainly because they answered more open questions. There was a tendency to answer more questions correctly. Pupils in the middle expectation group received the most criticism from teachers. This occurred across a number of measures involving both behaviour and academic work, public and private interactions. Apart from this the middle expectation group tended to fall between the high and

low groups. The low expectation group had a greater percentage of private contacts which were initiated by the teacher and in public response opportunities were asked the greatest proportion of direct questions. The low expectation group were asked product academic questions rather than process questions and there was a tendency for them to give fewer correct answers.

When the classroom interactions of boys and girls were compared, significant differences were found on only two measures. Boys received more teacher initiated contacts concerning academic work and also had a greater percentage of interactions involving praise. There was some indication in line with other studies that boys tended to have more warnings and criticisms for classroom behaviour but this was not significant.

Interaction effects involving expectation group, pupil gender and teacher were found on a number of measures. Expectation group differences in teacher-pupil dyadic interactions were not always the same for boys and girls, or for all teachers.

The ethnic group of pupils seems to have had little effect on teacher-pupil behaviour. On no interaction measure did the fact that a pupil was Pakeha or Polynesian make a significant contribution to interaction variance when covariation with expectation group had been controlled for.

A number of teacher-pupil interaction measures were associated with school achievement as rated by the teacher at the end of the school year. A stepwise multiple regression analysis showed that the best six predictors produced a multiple correlation coefficient of .68 with the school achievement rating.

When pupil perceptions of teacher contact along three dimensions were examined, no significant expectation group differences were found. However, significant expectation group by teacher effects were found for pupil perceptions of positive and negative contact. Correlations of

pupil perceptions with observed dyadic interactions showed a significant relationship only between pupil perceptions of the amount of teacher contact and the number of teacher-pupil dyadic interactions observed per hour,

CHAPTER SEVEN

GENERAL DISCUSSION AND CONCLUSIONS

In the preceding two chapters the results have been presented in relation to the research questions posed concerning teachers' perceptions and expectations, classroom interactions and school achievement. While some brief discussion has accompanied the detailing of results, this chapter will provide a more general discussion of the findings. Both theoretical and practical implications of the research will be commented upon.

In Chapter 5 the findings were presented relating to teachers' perceptions of and expectations for their pupils. It is apparent that the teachers sampled perceived pupils in terms of a number of dimensions or constructs reflecting academic work skills, home background and personal and social attributes. It is clear from the correlational analyses relating teacher perceptions of pupil attributes to expectations for pupil general ability that the teachers have a fairly clear stereotype of the 'good' or 'ideal' pupil. The factor analytic data also support this interpretation. The finding that teachers have a conception of a cluster of characteristics that distinguish good from poor pupils is corroborated by a variety of studies (e.g. Becker, 1952; Garner and Bing, 1973a; Rist, 1970; Stebbins, 1975). Though there is some variation among the studies, an ideal pupil is generally seen as one who possesses academic work skills and an eagerness to learn which makes it easier for the teacher to feel some success at teaching. This type of pupil is also likely to be seen as behaving well in class and having a 'good' home background. Thus the categorizations tend to reflect an assumed relationship between social class/home background factors and educability.

Having a conception of the ideal pupil means that teachers

evaluate pupils in terms of the ideal during the process of impression formation. The consequence of this is that some pupils will be classified as less than ideal, and often less acceptable. While the evidence for a general stereotype of the characteristics of a good or ideal pupil is clear, teachers' evaluations will also be influenced by personal stereotypes and implicit personality theories. Within a generally accepted cluster of pupil attributes which form the ideal pupil, individual teachers would be likely to show some variation in the stress placed on particular attributes or elements of pupil behaviour. The notion that some attributes or traits are more central than others in implicit personality theories was discussed in Chapter 1. Teachers' views about the importance of a child's background and what constitutes disruptive behaviour, for example, may vary and have implications for judgments concerning the extent to which a pupil approximates the ideal. Teachers' views of their own role and educational aims may also result in some variation in their concept of the ideal pupil.

However, whatever the educational ideology of the teacher it is unlikely that categorization of pupils will be completely absent. Sharp and Green (1975) in their study of a 'progressive', 'child-centered' primary school in Britain, found some differences between ideology and practice. While the teachers claimed that they wanted "to get to know their pupils in their idiosyncrasy and uniqueness" (Sharp and Green, 1975, p. 115) and were aware of the dangers of premature labelling, their goal of open-mindedness only applied to some pupils in practice. Others were categorized in stable and rigid ways and labelled as 'thick' or 'peculiar', for example. Sharp and Green suggest that within the context of the classroom teachers need to differentiate between pupils in some hierarchical fashion in order to solve confronting problems of management and control and to legitimate the allocation of time and energies.

It was argued in Chapter 1 that perceptions and associated expectations concerning others have functional relevance in terms of acting as a guide to the structuring of interaction. Expectations for the general ability of a pupil will have functional relevance for a teacher by providing some idea of how the child is likely to behave in certain classroom situations and guiding the teacher's behaviour toward the child (e.g. the level at which material is presented, the type of assignments set, the nature of academic performances required, the feedback and reinforcement given). It is also apparent, both from the present study and other research cited earlier that teacher perceptions of other pupil attributes are likely to be highly relevant for teachers. This is both in terms of providing information which may form a basis for inference (e.g. about general ability) and in terms of placing children in categories which are seen as having implications for normative and social control in the classroom (e.g. disruptive, low task concentration).

If teachers' expectations for pupil general ability are functionally relevant in the manner described above, then they are likely to be more useful as guides for effective teaching if they are inferred from appropriate cues. The findings reported in this study show that the expectations of teachers were related to perceptions of a number of pupil attributes that would appear to be highly relevant to school achievement. It will be recalled that the teachers viewed the criterion 'general ability' as meaning general ability to do well in school. Everyday contact in the classroom provides a potential wealth of information concerning the academic performances of pupils. It appears that teachers do make use of this data in evaluating their pupils' general ability as a large number of the dimensions used by teachers to describe pupils concerned academic skills and work habits. The teachers were also able to give examples of classroom behaviour reflecting these dimensions.

No definite conclusions may be drawn from the correlational data concerning perceptions and expectations as to the direction of any possible causal influences. In terms of the theory and research on person perception discussed in Chapter 1 it seems more likely that teachers' perceptions of pupil attributes lead to expectations for general ability and likely success at school, rather than ability expectations influencing perception of other pupil attributes. While the pupil attribute rating data were collected subsequently to the ranking of pupils or general ability, research on the stability of teacher expectations supports the notion that these ratings would have been very similar if they had been collected earlier in the year (see Chapter 2). However, in saying that the perception of various pupil attributes leads to the formation of general ability expectations, the possibility that those expectations may influence subsequent interpretation and classification of information about pupils cannot be overlooked.

Two pieces of information about a pupil which it was hypothesized would be related to differences in teacher perception of pupil attributes and expectations for ability were pupil gender and ethnic group. Here both girls and Pakeha pupils were seen as being closer to the ideal pupil stereotype on a number of dimensions than boys or Polynesian pupils.

While girls were seen as persevering and concentrating on their work more, having slightly better reading and oral English skills, and needing less teacher guidance, they were not viewed as having more interest or reacting better to new work than boys. In addition, while boys were seen as being more disruptive and untidy, pupil gender was not related to teachers' perception of external variables such as parent attitudes and home environment. This general picture of girls and boys is consistent with the prevailing stereotypes at this age level. The implications for teachers' expectations of general ability and likely success in school do not seem as marked, however, where pupil gender is

concerned as with pupil ethnic group. While there was a slight tendency for girls to be ranked higher than boys on general ability to do well in school, both girls and boys were spread throughout the teachers' ranking lists and no difficulty was experienced in selecting equal numbers of girls and boys in each expectation group.

When the pattern of findings is examined for teachers' perceptions and expectations of Polynesian and Pakeha pupils the picture is somewhat different. Pupil ethnic group had the strongest associations with teachers' perceptions of parent attitudes, home environment, use of English and interest. Perception of a number of other academic work skills was also significantly related to pupil ethnic group, though the correlation coefficients were rather low. Polynesian pupils were perceived less favourably on these dimensions and also tended to be perceived as having lower general ability to do well in school (i.e. they were over-represented in the low expectation group).

This stereotype of Polynesian pupils as being of lower general ability than Pakeha pupils is not congruent with the available empirical data. A thorough review of the literature on Maori and Pakeha general intellectual ability has shown that there is no evidence of a consistent and marked trend for Maori children to perform at a lower level on measures of general ability (R. St.George, 1977). Recent studies at varying age levels support the view that there are few important differences in the level of performance on general ability measures and the assertion that Maori children are of lower ability than Pakeha children is unwarranted (Brooks, 1975; Klippel, 1975; A. St.George, 1974; R. St.George, 1977).

In an attributional analysis of the formation of teacher expectations, Bar-Tal (1977) argues that teachers infer potential factors for future success or failure on the basis of information about the pupil. Further, teachers classify potential factors for success and for failure

on a stability dimension. Success or failure factors which are viewed as being stable are seen as having a particularly important role in determining the direction of teacher expectations. In a study in Israel, Bar-Tal (1977) found that teachers' perceptions of pupil attributes were affected by the ethnic origin of pupils. Teachers perceived pupils of western origin to have more interest and better conditions at home as well as expecting them to be of higher ability and to achieve better at school than pupils of eastern origin. Interestingly, it was only on these stable factors that teacher perceptions and expectations varied with pupil ethnic group. Judgments of unstable factors (e.g. discipline, effort, social integration) showed no differences.

Bar-Tal's (1977) study involved fictitious pupils, and he did not take into account any information about pupils which teachers would normally have access to through direct observation in their own classrooms. Nevertheless, his findings regarding teacher perceptions, expectations and pupil ethnic group are very similar to those of the present study. It seems quite reasonable to postulate that in the present study teachers inferred that Polynesian pupils came from a more restricted home environment, had parents with poor attitudes to school and education and had a low level of interest on the basis of their ethnic group membership. As noted in Chapter 5, in many cases the teachers had no direct evidence for their judgments of parent attitudes or home environment as they had not met the parents or visited the homes. Reading and use of English in conversation were also associated with ethnic group and as they were also correlated with home environment (.55 and .57 respectively) it appears that teachers perceive reading and verbal skills as relatively stable.

Thus, it is suggested that the teachers in this study associated a number of stable factors with the ethnic group of their pupils. These factors or attributes played an important role in influencing expectations for ability and likely success or failure at school. It could be argued that observation of pupils' academic skills and work habits may have a

moderating effect on this process. A possible danger arises if in the past the observed classroom behaviour of a group of pupils has frequently supported initial judgments, and expectations have been confirmed. Under such circumstances the process of expectation formation may be short circuited through stereotyped judgments and little attention being paid to how children are actually behaving. Another set of problems may arise if through their repeated association with such stable attributes as ethnic group and perceived home environment, the nature of academic skills and work habits come to be seen by teachers as being caused by, or always associated with, those factors. For when poor reading skills, for example, can be 'explained' by reference to the fact that a pupil is Polynesian there is little room for any belief on the part of the teacher that he or she can have any positive effect on the pupil's reading skills as a result of teaching efforts and activities. The causal factors are seen as being beyond the teacher's control.

It is not being claimed here that all teachers form expectations in such a stereotyped fashion or discount all they see before them in the classroom. What has been done is to point up some of the implications for person perception and expectation formation - as well as teaching practice - of a) inferring stable factors on the basis of ethnic group which are b) then used in forming expectations about ability and achievement. This is particularly the case when the inferred factors are not supported by information from other sources of more direct knowledge such as observation.

The findings which concern the relationships between teacher expectations and pupil achievement (both as measured by standardized achievement tests and teacher ratings) will now be considered.

Moderate to high positive correlations were found between teacher expectations and scores on the Progressive Achievement Tests. This means that teacher expectations for pupil general ability (to do well at school) tend to be borne out by standardized achievement test results.

Since the most important pupil attribute in determining expectations is reading skill as perceived by the teacher, and the PAT tests employed measured reading and also listening skills, it would appear that the teachers' expectations are fairly accurate. A related explanation may be that teachers' criteria for success and the assumptions underlying the PAT tests have the same base. Teachers are taught to evaluate their pupils primarily on the sorts of skills tapped by standardized achievement tests which is not surprising since these criteria for assessment are concrete and quantifiable. There may be little or no consensual basis for the assessment of other aspects and levels of pupil functioning. Two other possibilities should not be overlooked however.

The first is that objective and standardized achievement tests may be inaccurate measures of academic accomplishments if the perceptions of pupils are different from those of the adult test constructor. Cicourel et al. (1974) have demonstrated with a number of reading and vocabulary tests how pupils could get wrong answers despite demonstrating appropriate patterns of logical reasoning. The principal reason lay in the different meanings attributed to words and pictures by the pupils than by the test constructor. This may be even more of a problem when pupils are from a different ethnic and cultural background.

The second possibility relates to test scores being affected by the testing situation itself. A study of motivational factors in the performance of Maori and Pakeha children on the Peabody Picture Vocabulary Test (Nicholls and Barrett, 1977, pp. 1-11) suggests that Maori children may be more wary than Pakeha children in a formal testing situation. Under a 'cool' testing condition Maori children performed at a significantly lower level than Pakeha children, while the difference disappeared when the test was administered under supportive conditions. This raises the possibility that the standard administration procedures used with Progressive Achievement Tests may have put the Polynesian children at a greater disadvantage

than Pakeha children and depressed PAT scores. If this were the case then it would be difficult to tell whether the correlation between teacher expectation and pupil achievement implied accuracy of expectations or, where some children are concerned, merely an association between two under estimates.

When end-of-year composite achievement ratings were examined it was found that teachers rated pupils' achievement lower as their expectations for pupil general ability declined. In addition, the achievement of Polynesian pupils was rated lower than that of Pakeha pupils. When the relative effects of teacher expectation and pupil ethnicity on teacher rated school achievement were investigated it was found that teacher expectations accounted for a large proportion of achievement variance but that ethnic group also made a small but significant contribution.

Examining the effects of teacher expectation and ethnic group on standardized achievement test results, a similar pattern of results is evident on the PAT Reading Vocabulary and Listening Comprehension Tests, with teacher expectation accounting for much of the variance but ethnic group still making a small significant contribution to achievement variance. However, the apparent correlation between pupil ethnic group and achievement on the PAT Reading Comprehension Test appears to be largely an artifact of the covariation with teacher expectation. These findings are congruent with those of Sutton and Nicholls (1977) who found that Maori and Pakeha children at the Standard 2 and 4 level did not differ in reading comprehension, but Maoris scored lower than Pakehas in reading vocabulary.

The possibility of formal testing conditions disadvantaging Polynesian pupils in regard to the Progressive Achievement Tests has already been mentioned, though why the tests should be affected differentially is not clear. A possible explanation is that the lower teacher expectations for Polynesian pupils influence the scoring of the achievement

tests. However, once again it is not clear why any possible teacher bias would affect the scoring of some tests more than others. Finally, Polynesian children may in fact have relatively poorer vocabulary skills than Pakeha children and also be less skilled at comprehending extended passages of orally-presented material. Further investigation would be required to ascertain the cause of differences in performance on the Progressive Achievement Tests, but the variation across tests must cast some doubt on the suggestion of a general teacher bias in scoring.

Such a suggestion cannot be ruled out quite so easily in regard to ethnic group differences in teacher rated end-of-year school achievement. While the covariation of ethnic group with teacher expectation does account for a major portion of the effect of ethnic group on achievement ratings, a part of the ethnic group effect is independent of teacher expectation. It has already been seen that teachers' expectations for pupil general ability vary with pupil ethnic group. It appears likely that this occurs through a process in which pupil ethnic group influences teacher perceptions of a number of child characteristics which are seen as having implications for likely success or failure at school. However, even after teacher expectation effects are removed there still remains a statistically significant amount of teacher-rated achievement variance attributable to ethnic group. This may be because teachers adjusted their achievement ratings in ways which further disadvantaged Polynesian pupils in line with Progressive Achievement Test results. Another alternative is that the independent ethnic group effect is attributable to some dimension of behaviour which has been tapped by the Polynesian-Pakeha dichotomy used in this study but which was not reflected in the teacher expectation measure.

The dimension(s) concerned may arise from socialization differences between Polynesian and Pakeha families (Ritchie, 1963: Ritchie and Ritchie, 1970), particularly the greater use of non-verbal communication

among Polynesians (Thomas, 1975a). That this might have consequences for classroom behaviour is suggested by a series of small studies in an urban intermediate school where it was found that Maori children were less likely to engage in direct and verbal help seeking behaviour than Pakeha children (McKessar and Thomas, 1977). However, in the present study ethnic group did not account for a significant proportion of variance in the total number of contacts with the teacher which were initiated by pupils or in the percentage of either work-related or procedural contacts initiated by pupils.

Other ethnic group differences in socialization practices together with general differences in school and community experiences might have implications for such things as self-concept, expectations, causal attributions for success and failure, and achievement motivation as well as preference for different kinds of learning environments. These factors were included as part of the model presented in Chapter 3 but the data of this study do not bear upon them. While a study by Nicholls and Barrett (1977, pp. 27-30) suggests that Maori children do not have more negative attitudes toward academic achievement than Pakeha children, there is some evidence that children's ethnic stereotypes and causal attributions may be less likely to maintain achievement-related behaviour in Maori than in Pakeha children (Nicholls, 1976b; Nicholls and Barrett, 1977, pp. 12-26). Motivational differences may therefore be important, though suggestions that these may be mediated via ethnic difference in self concept would not be clearly supported. Nicholls and Barrett (1977, pp. 31-38) found that Maori and Pakeha children of similar attainment levels do not differ appreciably in self perception for academic performance. However, they do note that self-protective strategies may influence self-evaluations presented to others.

Differences in preferred learning environments between Pakeha and Polynesian children may also affect achievement. An unsupportive class-

room climate, like an unsupportive testing situation, may be more disadvantageous to Polynesian pupils. However, there is no direct evidence that New Zealand primary schools are characterized by cool unsupportive classrooms, or that Polynesian children receive less supportive treatment from teachers than Pakeha children. Nicholls (1976b) found no differences in children's perceptions of teacher reactions to the filmed behaviour of Maori and Pakeha pupils. Further, the findings from the present study provide no evidence for differential treatment of Polynesian and Pakeha pupils. Nonetheless, the way in which classrooms are organized may not provide for the more inclusive, cooperative modes of learning which Graves (1974) argues result in improved academic performance in Polynesian children. The more individual and competitive learning situation found in many classrooms may favour Pakeha children. Even here though, the situation is not clear cut. Thomas (1975b) found that the social behaviour of urban Maori children was similar to Pakeha children in competition as opposed to cooperation and was significantly more competitive than rural Maori children.

The contribution to achievement variance of ethnic group differences in factors just discussed would merit further investigation. It is clear, however, that the proportion of variance in end-of-year teacher rated school achievement which is attributable to an independent ethnic group effect is fairly small in practical terms. Most of the effect of ethnic group on achievement is the result of covariation with teacher expectations. When the indirect effect of ethnic group on achievement through covariation with teacher expectations is removed, the amount of variance attributable to teacher expectations declines markedly. However, teacher expectations still independently account for more than a third of teacher rated achievement variance. This means that a large part of the variance in achievement is related to aspects of teacher expectations not associated with pupil ethnic group. The earlier findings on teacher

perceptions and expectations would suggest that these are likely to be pupils' work-related behaviours in the classroom.

Thus far, it has been seen that the findings of this study suggest that teachers' perceptions of their pupils are related to their expectations for them and that these expectations are themselves related to school achievement - both as measured by end-of-year achievement rated by the teacher and by the Progressive Achievement Tests. Perception of a pupil as Polynesian is associated with low teacher expectations and is related to more negative teacher perceptions of a number of other pupil characteristics.

It is appropriate now to look at the most direct path in the model presented in Chapter 3 (p. 94). That is, that teacher expectations will have an effect on teacher and pupil behaviour and that this will influence pupil achievement. The effects of pupil gender and ethnicity on behaviour and achievement were also considered in the analyses presented in Chapter 6.

First of all, is there any evidence from the present study which suggests that teachers' expectations influence the way in which they behave towards their pupils? Or alternatively, does pupil behaviour play a more important role as a source of influence on teacher behaviour? In a sense, both these questions are interrelated for it has already been pointed out that teachers' perceptions of pupils' academic and general classroom behaviours influence their expectations regarding general ability to do well at school. The complex interpenetration of perceptions and interactions discussed in Chapter 1 is certainly apparent in the classroom situation.

In general, the relationships between teacher expectations and teacher-pupil interaction appear to be both a function of responding to differences in pupil behaviour and attempts to compensate for inequalities in the amount of teacher-pupil contact which would result if teachers

merely reacted to pupil behaviour. Thus in Brophy and Good's (1974) terms, these teachers as a group showed both reactive and proactive tendencies. For example, while children in the high expectation group answered more open questions in the public response situation, teachers asked more direct questions of children in the low expectation group. In this way, any expectation group differences in the total number of public response opportunities which may have arisen through differences in knowledge and willingness to answer public questions were largely counteracted by directing questions specifically to individuals in the low expectation group. A similar situation pertains to private teacher-pupil dyadic interactions. Here pupils in the high expectation group initiated interactions with the teacher to a far greater degree than did pupils in the low expectation group. However, greater teacher initiation of private contacts with low expectation group pupils suggests an attempt to reduce any inequalities in amount of teacher-pupil interaction. These findings are consistent with those of Brophy, Evertson and Good (1972) at the first grade level.

The teacher behaviour just described can be further understood by reference to the findings discussed earlier concerning teachers' perception of pupil attributes. It will be recalled that pupils expected to have less general ability to do well in school were perceived by the teacher to be less confident and to participate less in class or group activities. Greater teacher initiation of interaction with low expectation group children in public response situations may represent an active attempt to get them to participate and to compensate for their lack of confidence. Greater teacher initiation of private contacts with low expectation group children is in line with the perception of these children as lacking in perseverance and task concentration, reacting poorly to new work, and needing teacher guidance.

As a group, teachers did criticize the middle and low expectation

groups a lot more than the high expectation group, both for academic work and for general classroom behaviour. Thus, high expectation pupils experienced a more positive and supportive classroom environment, though this is likely to be due in part to a higher standard of academic performance and fewer misdemeanours on the part of high expectation pupils. While negative feedback for academic performances may provide differentiated feedback which may be helpful, Rosenthal (1974) suggests that the informative value of criticism may be offset by the lower perceived warmth of the teacher, particularly if positive reinforcement by the teacher is lacking.

For pupils in the low expectation group, boys experienced a more positive classroom climate than girls, receiving both more praise and less criticism. While this finding is contrary to most other studies, especially regarding criticism, at least one possible explanation can be proposed. This has to do with sex-role expectations and the notion of the ideal pupil. In general the sex-role expectations for girls tend to be closer to those of the 'ideal' pupil than those for boys. It may be that girls who do not live up to the standard of ideal pupil come in for particular censure by teachers. Boys as a group, on the other hand, tend to be perceived as being more disruptive and having less concentration and perseverance. The present findings are congruent with those of Dweck, Davidson and Nelson (1976) who found that primary school teachers were more likely to attribute failure to lack of motivation in boys than in girls. Thus when low expectation group boys do not attend to their work this is likely to be more in line with teacher expectations and as such receives less criticism. It may also be that teachers put more effort into providing a more supportive climate for low expectation boys rather than girls on the grounds that boys are more likely to show an improvement at a later stage. As one teacher in this study put it, "Well, you know some boys do take quite a while to settle down to school work. Some don't 'take off' until they're almost finished primary school."

The greater number of private work-related interactions initiated by teachers with boys is consistent with perceptions of boys as having less perseverance and concentration in academic work and needing more teacher guidance. Teachers may also be using private interactions with boys regarding academic work as a means of preventing likely disruptive behaviour. Such behaviour may arise more often when boys are not getting on with their school work. The requirement of academic performance from boys at a time when pupils are working at their desks either individually or in groups would therefore play a dual role in a) providing the requisite teacher guidance in view of their perceived attributes and b) averting likely disorderly behaviour which may occur if they are not fully occupied (see Stebbins, 1975).

Data limitations mean that findings concerning teachers' reactions to pupils' public academic responses must be merely suggestive. Of note is the lack of any clear cut indication of different teacher reactions to academic responses of pupils for whom they hold different levels of expectation. While there were some differences among teachers, certain characteristic reaction patterns emerged relating to the quality of pupil response. With the exception of one teacher who tended to give process feedback after affirming that a response was correct, the typical reaction was affirm right followed by praise. The low expectation group appeared to receive as much praise in relation to the number of correct responses they gave as other expectation groups. This is contrary to findings elsewhere (Brophy and Good, 1970, 1974).

Different patterns of teacher feedback reaction tended to be evoked depending on whether pupils responded incorrectly to a public question or whether they made no response at all, although asking another pupil the same question was a common teacher reaction in both instances. All teachers criticised pupils to a greater degree when they did not attempt to give an answer than when they gave an answer which was wrong. This may reflect differences in teachers' causal attributions in the two situations.

While both no response and an incorrect response are examples of academic failures, failure plus lack of effort in the no response situation (i.e. the pupil did not even attempt to give an answer) may be viewed as more reprehensible by teachers and therefore receive more criticism. Nicholls (1976b) found that Maori and Pakeha ten-year-olds perceived teacher reactions to be more negative under conditions of pupil failure with low effort than when failure was accompanied by high effort.

While this may be a possible explanation for teachers' behaviour, frequent criticism for not responding does not seem likely to encourage pupils to respond in the future unless feedback concerning strategies for reaching solutions are suggested and encouragement given. Process feedback does not figure highly in these teachers' typical reactions to no response, although there is some suggestion that teachers do not always give up on pupils in the low expectation group when they do not respond. Further New Zealand research with increased sample sizes and designed to examine teacher evaluation in achievement situations is needed if some of the features hinted at by the informal analysis presented in this study are to be more fully understood. While there is no clear indication of differences in teacher reaction to boys and girls in this study, this too would be worthwhile investigating as pupil gender differences in the contingencies of evaluative feedback in the classroom have been found elsewhere and appear likely to have implications for achievement-related behaviour (Dweck, Davidson and Nelson, 1976).

It has been seen that there are differences in the perceptions and expectations which teachers hold for Polynesian and Pakeha pupils in New Zealand. Differences between the two groups were also evident on achievement measures. However, there was no evidence of ethnic group differences in the kinds of dyadic interactions between teacher and pupil in the classroom. It appears that while there is evidence of racial discrimination in New Zealand society (R. St. George, 1972), this study does not suggest that overt discrimination against Polynesian pupils occurs in New

Zealand schools, or that Pakeha and Polynesian pupils at the Standard 3 level exhibit significantly different behaviours in the classroom. While these findings are in contrast to much popular comment, they do find some support from several other recent New Zealand studies which in turn suggest that ethnic group differences in behaviour and motivation may decrease with school experience, at least during primary school (Nicholls, 1976b; Podmore, 1978; Sutton and Nicholls, 1977).

The lack of ethnic group differences in teacher-pupil interactions may appear heartening if it is assumed that the same treatment is likely to enhance the likelihood of the same levels of school achievement and that this is important. Nevertheless, similarity in pupil behaviour between ethnic groups at this level may mean that by the time Polynesian children reach Standard 3 they have accepted the Pakeha-oriented definition of the classroom situation and have adjusted their behaviour in line with this. The absence of significant differences in teacher and pupil behaviour related to pupil ethnic group does not find a corresponding absence of differences in achievement. The myth of the 'one best way' seems to be operating in New Zealand classrooms. It would be a pity if in the effort to be fair and give equal treatment to all pupils, teachers were unable to draw upon and react to positive aspects of ethnic differences which may result in greater similarity in level of interest and attempts to learn among all children.

The findings regarding the relationships between teacher-pupil interaction and school achievement as rated by the teacher did indicate a number of behaviour-achievement relationships. The best predictors of school achievement were primarily behaviours related to differences in pupils. While it is possible that teachers' behaviour may affect pupil differences (e.g. in the willingness to initiate private contacts with the teacher or the quality of public academic performances) any suggestion of causal linkages from teacher behaviour to pupil behaviour to achievement

would at most be indirect. It is not possible to draw conclusions about causality from this study but the data certainly seem to suggest that the direction of influence between teacher and pupil behaviour is bi-directional as has been suggested elsewhere (e.g. Fiedler, 1975). Behaviours that are primarily under the influence of pupils themselves, and interactions between teacher and pupil behaviour were the best predictors of academic achievement.

One aspect of the teacher expectations model assumes that children perceive differential teacher expectations via differences in teacher behaviour. In this study, however, children in different expectation groups did not perceive their teachers as behaving significantly differently toward them as compared with children in other expectation groups. The pattern of expectation group differences in pupil perception of positive and negative contact varied across teachers.

The absence of clear cut expectation group differences in the perception of teacher behaviour may have been a reflection of similar teacher behaviour toward all children in terms of the quantity and quality (positive or negative) of teacher contacts. However, correlations of pupil perceptions with relevant teacher behaviours do not suggest that pupil perceptions are particularly strongly related to observations of behaviour. While there was a significant perception-interaction relationship concerning the quantity of teacher-pupil contact, no such relationships were found regarding the positive or negative quality of interactions.

In view of the simple nature of the perception measures used, it would be worthwhile to further investigate pupils' perceptions of the teachers and the relationship between these and both teacher perceptions of pupils and teacher-pupil interactions. This may throw some light on the way in which person perception and interpersonal behaviour interpenetrate when both teacher and pupil are perceivers and perceived. It may be more appropriate to get pupils to compare teacher behaviour

toward them in comparison to the rest of the class rather than to one child out of each of the other expectation groups. The children interviewed in this study were able to verbalize their perceptions of teacher behaviour - especially about whether or not the teacher talked to them much during the day. When asked about this aspect of teacher behaviour a number of pupils made comments about having to go to the teacher themselves, either by going up to the teacher to initiate a private contact, putting their hand up or calling out. It would be interesting to see whether the recognition of the need to initiate interactions with the teacher if teacher contact is desired was reflected in pupil behaviour. Presumably this might vary depending on whether the pupil viewed the teacher as a significant other.

This study has been essentially exploratory in nature. As such, it was appropriate that it should be naturalistic rather than experimental, despite the compromises in terms of rigour that had to be made and the consequence of being unable to make any definite causal inferences. In the absence of any other information on the nature of teacher expectations in New Zealand ethnically mixed classrooms and the relationships between teacher expectations and interaction with pupils in such classrooms, this study provides some important data. Some of the ways in which primary teachers' expectations are related to perceptions of other pupil attributes including ethnic group have been indicated and implications discussed. Teacher-pupil interactions do vary with teacher expectations for a pupil but in some cases the expectation effect is not the same for boys and girls, or for all teachers. There was quite marked variation among teachers in their patterns of interaction with pupils in different expectation groups in public academic response situations.

While some findings regarding differences in interaction patterns have replicated overseas findings, in other instances divergent findings were evident and have been noted. The absence of ethnic group differences

in dyadic teacher-pupil interaction deserves further exploration, particularly in view of differences in teacher perceptions and expectations for Pakeha and Polynesian pupils, together with ethnic group differences in school achievement. It may also be useful to supplement the objective coding of classroom behaviour with a more ethnographic approach in order that the perceptions of teachers and pupils could be more fully explored.

It is encouraging to find no evidence in this study that teachers in New Zealand multi-ethnic primary classrooms treat children for whom they have low expectations in a generally negative way. There was also no strong support for the notion that differences in patterns of teacher-pupil interaction are such that they are likely to perpetuate negative teacher expectations. It is also heartening to note that despite the more negative and stereotyped perceptions of Polynesian pupils by teachers the evidence does suggest that teachers are trying to treat Pakeha and Polynesian pupils equally in the classroom. While the question of whether the same treatment for all results in equal opportunity is highly debatable, it is to be hoped that a public ethos of equitable and fair treatment of all pupils may provide a climate within which teachers may be able to construct the kinds of educational environments which will foster interest, learning and positive self-regard in all children.

APPENDIX A

Examples of terms tapping similar
constructs for each of the fifteen
dimensions used in the pupil attribute
rating scales.

1. Perseverance

perseveres
 perseveres till finished
 keeps at it until personally satisfied
 gives up easily in academic work
 lacks perseverance

2. Independence - Need for Teacher Guidance

works at his level with minimal teacher guidance
 tackles tasks or problems without help
 independent
 follows directions with minimum teacher guidance
 does not continually ask for teacher guidance
 dependent in all classroom behaviours
 dependent
 needs attention and coaxing
 needs constant teacher guidance
 doesn't think independently - needs teacher guidance

3. Reaction to New Work

attempts all tasks
 starts new work enthusiastically
 adapts to new situations or work
 keen to pursue new work
 will not attempt new tasks
 diffident about new work
 has to be encouraged to start new work

4. Interest in the World Around

eager to ask questions
 curious
 interested in everything
 wide interests
 interested in all work and activities
 brings information and materials to school without prompting
 does what is asked but no more
 doesn't venture beyond basics
 curiosity stops beyond a certain point
 not very interested in the world around

5. Task Concentration

concentrates
 focuses well on the task in hand
 lacks concentration
 inattentive
 poor concentration
 limited attention span
 easily distracted
 sits and stares rather than concentrates and studies

6. Participation in Class or Group Activities

works well in a group
takes active part in discussions
participates
good participant in group activities
contributes to all lessons
works well with others
doesn't join in much
works as an individual not as a group member
difficulty in group discussions

7. Confidence

confident
relaxed
lacks confidence
unsure of himself/herself
timid
shy

8. Reading

reads well
advanced reader
poor reader

9. Use of English in Conversation

advanced vocabulary
speaks well
good oral language
limited vocabulary
poor in discussion
poor speech and conversation
poor use of spoken English

10. Parent Attitudes Toward School and Education

parents interested in schooling
gets a lot of help and support from home in school activities
not much home support for education
parents aren't interested - they see school as a child minder
parents couldn't care less about their child's education

11. Home Environment

has travelled widely with family
plenty of educational opportunities in the home
poor background
limited experience
doesn't get much stimulation from home
not much experience with books at home
disadvantaged home environment

12. Frequency of Disruptive Behaviour

quiet orderly behaviour
never needs a reprimand
never creates a scene
well behaved
always disturbing the class
expert at underhand activities
often a nuisance
disrupts class activities
stops others working

13. Relations with Classmates

liked by others in class
popular
plenty of friends
mixes well with peer group
gets on well with classmates
irritates peers
poor peer relationships
not many friends
a loner
friendship mainly within family not class

14. Physical Attractiveness

good looking
attractive
pretty

15. Neatness of Appearance

tidy
pleasantly dressed
well groomed
neat appearance
poorly dressed
always looks untidy
poorly groomed

APPENDIX B

Example of Brophy and Good (1969)
coding sheet for general class activities.

APPENDIX C

Factor matrices for teacher
ratings of pupil attributes.

Principal Components Analysis for Teacher
Ratings of Pupil Attributes (N=90)

Attributes	Factors			Communality (h ²)
	1	2	3	
perseverance	.841			.799
independence	.864			.850
reaction to new work	.883			.825
interest	.813			.692
task concentration	.902			.886
participation	.812			.690
confidence	.706			.532
reading	.785	-.374		.756
use of English	.720			.558
parent attitudes	.652		-.605	.796
home environment	.820		-.321	.813
level of disruptiveness	.518		.629	.696
relations with classmates	.464	.603		.643
physical attractiveness	.512	.647		.691
neatness of appearance	.647	.442		.612

Total % of Variance	55.1	9.2	8.0	72.3
Eigenvalue	8.26	1.37	1.21	

(Loadings less than .30 not shown)

Principal Factor Matrix for Teacher Ratings
of Pupil Attributes (N=90)

Attributes	Factors			Communality (h ²)
	1	2	3	
perseverance	-.853			.765
independence	-.865	.324		.854
reaction to new work	-.880			.815
interest	-.793			.648
task concentration	-.907			.894
participation	-.792			.644
confidence	-.673			.464
reading	-.772			.709
use of English	-.688			.496
parent attitudes	-.648	-.440	.436	.804
home environment	-.818	-.383		.832
level of disruptiveness	-.490		-.385	.399
relations with classmates	-.439		-.436	.443
physical attractiveness	-.487	-.405	-.300	.491
neatness of appearance	-.620	-.305		.523
Total % of Variance	81.4	10.1	8.4	100.0
Eigenvalue	7.96	0.99	0.83	

(Loadings less than .30 not shown)

APPENDIX D

Summary statistics for teacher
ratings of pupil attributes by
expectation group, ethnic group
and gender

1. Perseverance

Expect- ation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.00	1.80	26	5.23	1.63	4	3.50	2.38	15	4.13	1.89	15	5.87	1.25
Middle	30	3.93	1.62	24	3.83	1.58	6	4.33	1.86	15	3.07	1.44	15	4.80	1.32
Low	30	2.47	1.55	17	2.59	1.54	13	2.30	1.60	15	2.13	1.30	15	2.80	1.74

2. Independence

Expect- ation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.13	1.78	26	5.39	1.44	4	3.50	3.00	15	4.20	1.97	15	6.07	0.88
Middle	30	3.93	1.57	24	3.79	1.50	6	4.50	1.87	15	3.47	1.51	15	4.40	1.55
Low	30	2.07	1.08	17	2.12	0.99	13	2.00	1.23	15	1.93	0.96	15	2.20	1.21

3. Reaction to New Work

Expect- ation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.67	1.47	26	5.89	1.34	4	4.25	1.71	15	5.20	1.57	15	6.13	1.25
Middle	30	3.97	1.35	24	3.88	1.30	6	4.33	1.63	15	3.47	1.19	15	4.47	1.36
Low	30	2.63	1.19	17	2.71	1.11	13	2.54	1.33	15	2.60	1.30	15	2.67	1.11

4. Interest in the World Around

Expect- ation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.47	1.46	26	5.65	1.38	4	4.25	1.50	15	5.40	1.18	15	5.53	1.73
Middle	30	4.47	1.57	24	4.63	1.61	6	3.83	1.33	15	4.13	1.69	15	4.80	1.42
Low	30	3.37	1.57	17	3.77	1.72	13	2.85	1.21	15	3.47	1.77	15	3.27	1.39

5. Task Concentration

Expect- ation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	4.83	1.82	26	5.12	1.58	4	3.00	2.45	15	4.07	1.91	15	5.60	1.40
Middle	30	3.87	1.72	24	3.83	1.74	6	4.00	1.79	15	2.80	1.32	15	4.93	1.39
Low	30	2.17	1.23	17	2.06	0.97	13	2.31	1.55	15	2.00	1.07	15	2.33	1.40

6. Participation

Expect- ation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	4.90	1.69	26	5.12	1.66	4	3.50	1.29	15	4.60	1.50	15	5.20	1.86
Middle	30	4.10	1.52	24	4.17	1.37	6	3.83	2.14	15	3.87	1.51	15	4.33	1.54
Low	30	2.87	1.55	17	3.06	1.64	13	2.62	1.45	15	2.80	1.57	15	2.93	1.58

7. Confidence

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	4.97	1.85	26	5.19	1.77	4	3.50	1.92	15	4.53	1.73	15	5.40	1.92
Middle	30	3.93	1.76	24	3.79	1.59	6	4.50	2.43	15	3.87	1.81	15	4.00	1.77
Low	30	2.93	1.51	17	2.82	1.24	13	3.08	1.85	15	3.13	1.64	15	2.73	1.39

8. Reading

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	6.23	1.17	26	6.39	0.90	4	5.25	2.22	15	5.80	1.42	15	6.67	0.62
Middle	30	3.97	1.61	24	4.08	1.67	6	3.50	1.38	15	3.47	2.84	15	4.47	1.41
Low	30	2.40	1.52	17	2.53	1.46	13	2.23	1.64	15	1.80	1.32	15	3.00	1.51

9. Use of English in Conversation

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.50	1.33	26	5.69	1.23	4	4.25	1.50	15	5.20	1.21	15	5.80	1.42
Middle	30	4.73	1.29	24	4.67	1.37	6	5.00	0.89	15	4.13	1.36	15	5.33	0.90
Low	30	3.43	1.36	17	3.89	1.11	13	2.85	1.46	15	2.87	1.25	15	4.00	1.25

10. Parent Attitudes to School and Education

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.67	1.45	26	5.65	1.50	4	5.75	1.26	15	5.80	1.08	15	5.53	1.77
Middle	30	4.73	1.44	24	5.17	1.05	6	3.00	1.55	15	4.87	0.99	15	4.60	1.81
Low	30	4.03	1.87	17	4.59	1.66	13	3.31	1.93	15	3.67	1.99	15	4.40	1.72

11. Home Environment

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.13	1.33	26	5.19	1.42	4	4.75	0.50	15	5.13	1.13	15	5.13	1.55
Middle	30	4.03	1.35	24	4.25	1.19	6	3.17	1.72	15	4.13	1.25	15	3.93	1.49
Low	30	2.93	1.44	17	3.18	1.38	13	2.62	1.50	15	2.60	1.40	15	3.27	1.44

12. Level of Disruptiveness

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.43	1.57	26	5.42	1.63	4	5.50	1.29	15	4.87	1.64	15	6.00	1.31
Middle	30	4.87	1.94	24	4.58	2.02	6	5.00	1.41	15	3.93	1.83	15	5.80	1.61
Low	30	4.27	1.89	17	3.88	1.83	13	4.77	1.92	15	3.73	1.79	15	4.80	1.90

13. Relations with Classmates

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	4.43	1.59	26	4.58	1.55	4	3.50	1.73	15	4.33	1.45	15	4.53	1.77
Middle	30	4.43	1.56	24	4.25	1.65	6	5.17	0.98	15	4.13	1.73	15	4.73	1.39
Low	30	3.93	1.66	17	3.41	1.84	13	4.62	1.12	15	4.20	1.47	15	3.67	1.84

14. Physical Attractiveness

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	4.93	1.46	26	4.96	1.43	4	4.75	1.89	15	4.93	1.49	15	4.93	1.49
Middle	30	4.90	1.16	24	4.79	1.18	6	5.33	1.03	15	4.93	1.16	15	4.87	1.18
Low	30	4.40	1.35	17	4.12	1.41	13	4.77	1.24	15	4.20	1.27	15	4.60	1.45

15. Neatness of Appearance

Expectation	Ethnic Group									Gender					
	Total			Pakeha			Polynesian			Male			Female		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
High	30	5.47	1.20	26	5.46	1.24	4	5.50	1.00	15	5.33	1.29	15	5.60	1.12
Middle	30	4.73	1.48	24	4.83	1.61	6	4.33	0.82	15	4.07	1.34	15	5.40	1.35
Low	30	4.20	1.79	17	4.24	1.64	13	4.15	2.04	15	3.73	1.87	15	4.67	1.63

APPENDIX E

Summary statistics for nonstandardized
classroom interaction measures by teacher.

Means and Standard Deviations for 3D Classroom Interaction
Measures by Teacher with Associated Significance Levels for
Teacher Main Effects

Interaction Measure	T ₁		T ₂		T ₃		T ₄		T ₅		P
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
public response opportunities/hr	.30	.40	1.11	.76	1.20	.82	.59	.42	2.15	1.01	***
direct questions/hr	.11	.20	.48	.31	.45	.40	.18	.19	.75	.48	***
open questions/hr	.14	.19	.62	.54	.74	.59	.29	.28	1.37	.65	***
academic questions/hr	.14	.20	1.07	.73	1.17	.79	.58	.42	1.68	.83	***
self reference questions/hr	.16	.24	.04	.09	.04	.06	.01	.04	.48	.23	***
correct response/hr	.10	.13	.72	.54	.56	.39	.29	.25	1.23	.65	***
incorrect and part-correct response/hr	.03	.08	.24	.32	.52	.49	.19	.17	.17	.13	***
no response/hr	.01	.04	.12	.13	.09	.10	.11	.16	.27	.26	***
private contacts/hr	3.37	2.37	2.10	1.43	3.17	1.78	3.00	1.42	2.18	1.03	
% child initiated private contacts	47.10	21.03	38.80	23.87	27.06	15.78	52.75	15.57	34.09	19.87	***
% teacher initiated private contacts	52.90	21.03	61.20	23.87	72.94	15.78	48.36	13.76	65.91	19.87	**
child initiated private work contacts/hr	1.68	1.96	0.75	0.76	0.61	0.57	1.25	0.69	0.62	0.52	**
child initiated private procedure contacts/hr	0.16	0.17	0.19	0.27	0.26	0.25	0.32	0.28	0.22	0.22	
teacher initiated private work contacts/hr	0.36	0.19	0.52	0.30	0.41	0.17	0.47	0.33	0.57	0.22	*
teacher initiated private procedure contacts/hr	0.37	0.36	0.20	0.24	0.58	0.37	0.30	0.22	0.59	0.32	***

(* p < .05, ** p < .01, *** p < .001)

TABLE contd.

Interaction Variable	T ₁		T ₂		T ₃		T ₄		T ₅		P
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
teacher initiated behavioural contacts/hr	0.82	0.70	0.45	0.36	1.27	0.97	0.67	0.51	0.21	0.21	***
% warning + criticism in behavioural contacts	81.22	38.18	92.86	23.63	91.12	11.74	88.89	32.34	43.32	44.28	***
warning + criticism/hr	0.80	0.68	0.43	0.35	1.15	0.99	0.67	0.51	0.16	0.19	***
% teacher praise in private contacts	3.65	3.83	2.88	4.50	4.69	6.51	1.15	3.15	6.04	4.78	**
% teacher criticism in private contacts	30.52	16.74	25.67	15.61	37.43	15.46	37.43	14.17	7.99	7.18	***
total interactions/hr	3.69	2.77	3.23	1.76	4.33	1.97	3.61	1.54	4.36	1.62	
% total interactions involving praise	4.14	4.12	3.92	3.97	8.57	5.21	1.90	3.21	11.48	7.35	***
% total interactions involving criticism	30.08	16.73	16.21	11.32	27.70	14.65	34.44	13.01	5.18	4.45	***
% direct/direct + open ⁺			45.66	26.72	45.55	31.47	39.73	35.04	35.54	15.09	
% process/academic questions ⁺			20.86	24.50	32.86	22.50	3.16	8.44	13.17	14.19	***
% product/academic questions ⁺			76.69	23.80	65.78	21.64	96.84	8.44	86.59	14.38	***
% correct response ⁺			68.28	27.58	50.53	18.64	41.36	30.01	73.02	14.80	***
% part-correct + incorrect response ⁺			17.43	17.70	43.73	21.49	36.29	32.35	11.18	9.19	***
% no response ⁺			14.29	23.98	8.52	10.84	22.34	33.40	15.78	12.63	
% pupil response followed by no feedback ⁺			20.88	20.33	8.47	9.80	16.13	34.34	24.88	13.90	

(* $p < .05$, ** $p < .01$, *** $p < .001$)

⁺ The analyses of variance on these interaction variables were conducted on the data from four classes (T₂ to T₅, N = 72) due to the low rate of public response opportunities in one class (T₁).

APPENDIX F

Intercorrelation analysis among expectation
group, ethnic group, standardized classroom
interaction measures and composite achievement
rating.

Zero Order Correlation Coefficients Among Expectation Group,
Ethnic Group, Standardized Classroom Interaction Measures and
End of Year Composite School Achievement Rating (N=90)

1. Expectation Group														
2. Ethnic Group	28													
3. INTACT (Expectation x Ethnicity)	43	94												
4. public response opportunities/hr	-13	-09	-10											
5. direct questions/hr	09	04	04	76										
6. open questions/hr	-20	-17	-18	87	40									
7. academic questions/hr	-10	-09	-10	97	73	88								
8. self reference questions/hr	-06	06	06	58	50	43	45							
9. correct response/hr	-21	-12	-14	86	58	81	87	43						
10. incorrect + part-correct response/hr	-00	01	00	65	45	62	70	21	37					
11. no response/hr	14	-01	02	49	63	33	52	23	25	31				
12. private contacts/hr	08	01	02	33	13	29	29	18	22	30	06			
13. % child initiated private contacts	-28	-18	-22	28	14	25	23	40	21	26	-00	30		
14. % teacher initiated private contacts	27	16	20	29	-16	-25	-25	-41	-22	-27	-01	-30	-99	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Decimal points omitted

Coefficients .21 and above are significant ($p < .05$, two-tailed test)

TABLE contd.

15. child initiated private work contacts/hr	-17	-13	-16	40	15	35	35	31	32	34	01	85	64	-63
16. child initiated private procedure contacts/hr	-01	09	09	10	-08	14	09	12	01	22	-03	53	47	-47
17. teacher initiated private work contacts/hr	16	08	10	-01	09	-07	01	-11	-05	-01	20	32	-24	24
18. teacher initiated private procedure contacts/hr	25	18	25	17	09	17	17	-06	10	21	08	42	-21	21
19. behavioural contacts/hr	23	10	11	16	-02	20	15	-00	13	15	-01	78	-08	08
20. % warning + criticism in behavioural contacts	-02	-11	-15	02	-09	08	03	-21	09	04	-05	31	-11	12
21. warning + criticism/hr	19	09	08	08	-08	13	08	-07	08	10	-06	77	-04	05
22. % teacher praise in private contacts	11	19	22	00	07	-00	01	-01	-11	09	14	-02	-13	15
23. % teacher criticism in private contacts	21	10	08	-18	-14	-15	-14	-25	-10	-16	-06	12	-48	49
24. total interactions/hr	01	-02	-02	66	40	58	62	37	-53	51	21	90	31	-31
25. % total interactions involving praise	-03	19	16	06	09	05	06	14	08	-07	11	-13	-06	08
26. % total interactions involving criticism	27	13	10	-32	-25	-28	-30	-24	-27	-23	-18	18	-41	42
27. School Achievement Rating	76	43	49	-19	08	-26	-15	-13	-33	-03	25	-08	-39	37
	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Decimal points omitted

Coefficients .21 and above are significant ($p < .05$, two-tailed test)

TABLE contd.

15. child initiated private work contacts/hr													
16. child initiated private procedure contacts/hr	47												
17. teacher initiated private work contacts	04	01											
18. teacher initiated private procedure conts./hr	15	25	-02										
19. behavioural contacts	50	28	27	34									
20. % warning + criticism in behavioural contacts	16	15	09	18	41								
21. warning + criticism/hr	52	30	23	31	97	48							
22. % teacher praise in private contacts	-18	01	33	01	08	-15	-03						
23. % teacher criticism in private contacts	-11	-06	06	05	46	35	50	-16					
24. total interactions/hr	81	47	25	38	70	26	66	05	04				
25. % total interactions involving praise	-19	-05	26	-14	-03	-02	-09	71	-14	-02			
26. % total interactions involving criticism	-04	-01	03	09	49	40	54	-10	81	03	-11		
27. School Achievement Rating	-35	-13	23	14	16	-06	12	19	23	-15	13	27	
	15	16	17	18	19	20	21	22	23	24	25	26	27

Decimal points omitted

Coefficients .21 and above are significant ($p < .05$, two-tailed test)

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