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The effects of teachers' social distance scores on teacher-student interactions in relation to the gender and ethnic background of students

Melnyk, Mary Felicia, Ed.D.

University of Hawaii, 1990

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**THE EFFECTS OF TEACHERS' SOCIAL DISTANCE SCORES
ON TEACHER-STUDENT INTERACTIONS IN RELATION TO THE
GENDER AND ETHNIC BACKGROUND OF STUDENTS**

**A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF**

DOCTOR OF EDUCATION

IN EDUCATIONAL ADMINISTRATION

AUGUST 1990

BY

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ABSTRACT

The researcher was interested in the relationship between teachers' attitudes towards ethnic minorities and their interactions with students in the classroom. Because studies have shown that gender, perceived academic ability and ability to speak English may influence teacher-student interactions, these variables were considered in the analysis of the data, as was multicultural training of teachers.

This study was conducted in two stages. In the first stage a random sample of sixteen schools was drawn from fifty-four elementary schools. The 251 classroom teachers in the schools chosen were asked to complete the Bogardus Social Distance Scale (BSDS) and 151 usable BSDS questionnaires were returned. The responses were coded by a research assistant, who then selected ten teachers from the pool of forty-eight top scores of 420 on the BSDS, and ten teachers from the lowest fifteen scores which ranged from 206 to 298.

The observation stage of the study consisted of structured observations of the interactions between the twenty teachers and their students using the Brophy-Good Dyadic Interaction System. The categories within the Brophy-Good System were collapsed into four variables, three content variables of praise, criticism and procedure, and the variable of frequency.

Analysis of variance was used to analyze the ten hypotheses. Discriminate function analysis was applied to attempt to determine whether there were any variables which significantly discriminated between high BSDS scorers and low BSDS scorers.

It was found that native Canadians receive less criticism and fewer procedural contacts than do Japanese, Vietnamese, East Indians and Caucasians. Native Canadians were also found to receive fewer interactions overall. Males receive more criticism than females and Caucasian males receive more praise, procedural

contacts and more interactions overall. Caucasians receive more praise than other ethnic groups. Teachers who have had multicultural training give more praise, more procedural contacts and interact more frequently with all students than do teachers who have not had multicultural training. High BSDS scorers were found to give more praise than low BSDS scorers. Low BSDS scorers were found to give more criticism to students rated as high academic whereas high BSDS scorers give more criticism to students rated as middle academic.

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CHAPTER I

INTRODUCTION

Overview of the Chapter

Information about the concern of educators in regard to educational inequity for minorities is discussed in this chapter. It is examined in relation to the implications for teacher-student interactions, and how the nature of these interactions may contribute to unequal treatment for some students. The statement of the problem, conceptual framework, and research questions to be answered are presented. The hypotheses, definitions, and assumptions conclude the chapter.

Context of the Problem

Educational inequality for minority groups has been of concern to many authorities (Rose, 1944, Lewis, 1979, Kallen, 1982, Palmer, 1982, Friesen, 1985, Vizkelety, 1987). It may be overt, such as was found in studies of segregation (Rose, 1944, Knowles & Prewitt, 1969, Ogbu, 1978, Kallen, 1982). Frequently, differences in the nature of the communications between teachers and students may result in unequal treatment for many students (Rist, 1970, Hanushek, 1972, Brophy & Good, 1974, Simpson & Erickson, 1983, Brophy, 1983, Irvine, 1985). Teacher communications with students have been found to be influenced by the expectations which teachers have for students (Rosenthal, 1968, Brophy & Good, 1974, Carew & Lightfoot, 1979, Brophy & Evertson, 1981, Cooper & Good, 1983). Research into effective schools has found that high teacher expectations is one of the significant components of an effective school (Edmonds, 1979,

reactions to success or failure (feelings of pride or shame) and changes in perceived probability of success for future outcomes. He also suggested that these reactions determine the magnitude, direction, and persistence of achievement-related behaviour (cited in Frieze & Bar-Tal, 1979). Turner & Giles (1981) discuss social cooperation as an effect of group formation. Individuals tend to perceive themselves as having similar or identical goals as members of their own group and believe that these are different from members of other groups. Stereotyping is a process of categorizing individuals by attributing certain characteristics on the basis of their group membership (Turner & Giles, 1981). Cooper & Good (1983) believe that predictions made by expectation theory and attribution theory will differ on the relationship of teacher causal judgements and evaluative feedback. Attribution theory would predict that successes caused by strong student effort would be praised by the teacher, while failures perceived to be caused by lack of effort would be criticized. The Expectation Communication Model would lead one to conclude that "effort is only one contingency for reinforcement in the classroom, and may even be a secondary one" (Cooper & Good, 1983: 149).

In a survey of studies of teacher communication patterns in relation to the gender and race of students, Irvine (1985) found that there were a limited number of studies, and that even fewer had considered the interactive effects of race and gender.

Jackson (1968) observed that teachers may engage in as many as 1000 exchanges with students per day. However, Jackson and Lahaderne (1967) noted that the nature of the teacher-student interactions differed both quantitatively and qualitatively, with some students receiving as many as 120, and some as few as five contacts per day. Irvine reports that "the quality of the interactions is affected by factors such as the socio-economic status (SES) of the

students, personality characteristics, physical attractiveness, achievement, language, seating location, and even writing neatness" (1985: 338). The gender and race of students also appear to have significant effects on the quality and quantity of student interactions (Brophy & Good, 1970, Brophy & Evertson, 1981, Simpson & Erickson, 1983).

Cooper & Good (1983) discuss two types of studies conducted on teacher expectancies. Experiments wherein the researcher manipulates teachers' expectations about student performance are described as experimental research. Naturalistic studies rely on the pre-conceived expectancies of teachers. Mendels & Flanders (1973), Brophy & Good (1974), and Brophy (1983) believe that naturalistic studies are valid because they are the result of naturally formed teacher expectations, and are therefore more generalizable and have greater external validity. In studies which attempted to examine the stability of teacher effectiveness, Brophy (1973) concluded that teacher effectiveness shows great individual differences, but moderate stability over time.

Darley & Fazio's model of expectancy confirmation processes arising in the social interaction sequence helps to explain how biasing factors such as prejudicial attitudes on the part of the teacher may distort the interaction process (Crano & Mellon, 1978, Darley & Fazio, 1980). The model involves:

- a) the perceiver's formation of an expectancy about a target person
 - b) his/her behaviour congruent with the expectancy
 - c) the target's interpretation of the behaviour
 - d) the target's response
 - e) the perceiver's interpretation of the response
 - f) the target's interpretation of his/her own response.
- (Darley & Fazio, 1980: 867-881)

If the perceiver's expectancy of the target person is distorted by a bias about the person's group, i.e. a false stereotype, one can conjecture how all of the stages in the foregoing sequence may be influenced.

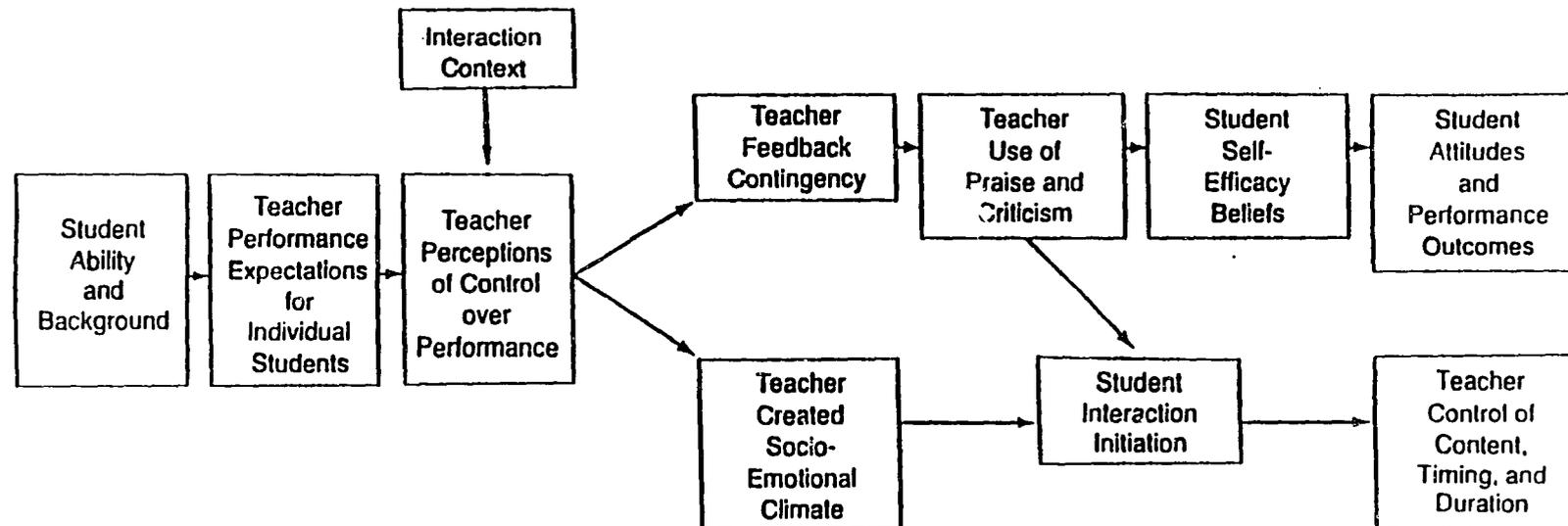
Statement of the Problem

Numerous studies have concluded that attitudes influence behaviour (Johnson, Scales & Smith, 1974, Rosenthal, 1982, Cooper & Good, 1983). The problem to be examined in this study is whether differences in teachers' attitudes because of the gender and/or ethnic background of the student may influence teacher-student interactions in such a way as to affect student educational opportunities. Considerable amounts of money are being allocated to programs which are intended to enhance educational opportunities for minority students. Kehoe says that "often teachers are able to demonstrate knowledge of appropriate behaviour in a multicultural environment but they may not have the ability or the desire to act in a manner consistent with that knowledge" (1984: 33). Thiessen states, "the problem of racial ... intolerance is increasingly being brought to our attention today" (1987: 71). Moore claims that "many educators are unaware of how problems of racism are perpetuated, and are intimidated when the issues are raised" (1984: 43).

Purpose of the Study

The purpose of this study is to examine the attitudes towards ethnic minorities on the part of teachers as measured by social distance scores on a modified version of the Bogardus Social Distance Scale, (BSDS), and to determine whether or not there is any correlation between differences in attitudes towards members of different ethnic minorities and differences in teacher-student interactions in the classroom as observed using the Brophy-Good Dyadic Interaction System. Because studies have shown that the gender of the student may also influence teacher-student interactions (Irvine, 1985, Cooper & Good, 1983, Simpson & Erickson, 1983, Achilles & French, 1977), this variable will also be examined.

FIGURE 1.1 A Model for Expectation Communication and Behavior Influence



Conceptual Framework

Teachers' expectations and attributions contribute to different sets of cognitions which fit together in the teacher's cognitive world (Cooper & Good, 1983, Woolfolk & Brooks, 1983). Cooper and Good (1983) developed what they describe as a "social-psychological" model for expectation communication which is intended to illustrate not only how the communication process involves the component of teacher expectation, but also demonstrates the reciprocal causality which contributes to the complexity of the communication process between teachers and students in the classroom. The model, shown in Figure 1.1, is an attempt to conceptualize the communication process in terms of observable behaviours. One might infer that the classroom communication process is both sequential and reciprocal. The importance of the concept of personal control as one explanation for differences in human behaviour becomes apparent. Teachers can effectively use feedback and classroom climate in order to maintain control over student performance outcomes (Rist, 1970, Rosenthal, 1974, Edmonds, 1979, Cooper & Good, 1983, Good & Brophy, 1987). If some students are perceived as less able or unable to perform at a high level of achievement, then as Cooper & Good hypothesize, "as performance expectations for students decrease, the use of climate and feedback to control future contexts reduces its contingency on expended student effort" (1983: 19).

The Expectation Communication Model relies on the theory that praise as a method of reinforcement will be used to control student behaviour until the teacher believes that the student's behaviour can be controlled without it (Cooper & Good, 1983). Therefore, students for whom teachers have high expectations will be praised more for excellent performance, whereas low expectation students will receive praise in order for the teacher to try to exert control over

future behaviour. Indeed, for low expectation students, it is believed that praise will not be effective in bringing about high performance, even if it inspires greater student effort, and praise is not so likely to be given to inspire greater student effort when it is perceived that there will be no gain in student achievement. The issue of what contributes to the expectations of teachers about students thus becomes one of great significance for student performance.

This study utilized as its underlying framework a conceptualization of the Expectancy Communication Model (1983) integrated with the Darley and Fazio (1980) model of expectancy confirmation processes, incorporating attribution theory into the synthesis. The researcher can thus speculate on how the attitudes of teachers about ethnic minorities might impinge on their interactions with students. It also becomes possible to comprehend why there is no linear connection between attitudes and subsequent behaviour as societal norms might shape behaviour even in ways which seem incongruent with teachers' attitudes. It is believed that teacher attributions about students may influence teacher expectations which in turn may bear upon teacher-student interactions, thus having a significant effect on subsequent student self-concept and student performance.

Research Questions

The specific research questions are:

1. Are there differences in teacher-student interactions in the classroom which may be related to a student's gender and ethnic background?
2. Does multicultural training influence the content and frequency of teacher-student interactions?

3. Does the presence in the classroom of students who do not speak English, identified as those who require English as a Second Language (ESL) training, influence the content and frequency of teacher-student interactions?
4. Do teachers' ratings of students' academic ability have an influence on teacher-student interactions regardless of the other attributes of the student?
5. Is there a relationship between differences in the frequency and content of teacher-student interactions as measured by the Brophy-Good Dyadic Interaction System and the attitudes of teachers towards ethnic minorities as measured by their scores on the Bogardus Social Distance Scale (BSDS)?

Hypotheses

1. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups.
2. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and student gender.
3. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and perceived academic potential groups.
4. There will be no significant differences in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups between teachers who have had multicultural training and teachers who have not had multicultural training.

5. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and students requiring ESL training.
6. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups.
7. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and student gender.
8. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and perceived academic potential groups.
9. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and students requiring ESL training.
10. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups between teachers who have had or have not had multicultural training.

Definitions

Minorities is defined according to Wirth, cited by Friesen (1985) as

a group of people who, because of their physical or cultural characteristics, are singled out from the others in the society in which they live for differential and unequal treatment, and who regard themselves as objects of collective discrimination. (Friesen, 1985: 21)

Ethnic minorities are defined as those groups in Calgary who fit the preceding definition by virtue of their ethnic or racial background.

Social distance is defined as the degree of social acceptance that exists between given persons and certain social groups (Miller, 1977) as measured by a modified Bogardus Social Distance Scale (BSDS). Oppenheim (1966) suggests that the BSDS is measuring the attitude towards the groups identified in the scale. The social groups utilized in the instrument were selected on the basis of the twenty largest ethnic groups in Calgary according to Statistics Canada. Twenty teachers will be selected for observation from the pool of respondents scoring either high or low on the BSDS. The method of selection is described in Chapter 3.

Teacher expectations is defined as inferences that teachers make about the future academic achievement of students (Good & Brophy, 1983).

Teacher-student interactions are defined in this study as the verbal behaviours which occur between the teacher and individual students. Brophy and Good (1987) have identified 30 teacher-behaviour variables which are coded in the Brophy-Good Dyadic Interaction System (see Appendix B). The Brophy-Good System identifies three types of teacher-student contacts: procedural contacts, work-related contacts, and disciplinary contacts, and indicates whether the interaction is teacher or student initiated. The frequency and content of the interactions are tabulated utilizing the aforementioned information. Three levels of content: praise, criticism, and procedural; and frequency were calculated for the analysis.

Multicultural training is defined as courses or seminars of at least 30 hours in length which have as their major objective the expansion of knowledge about different cultures and which focus on creating an awareness of intercultural similarities and the roots of cultural diversity (Friesen, 1985: 12). Orioux

describes six objectives for multicultural education which will be used as the basis for the questionnaire to teachers in determining whether they have had multicultural training which meets the necessary criteria. These are:

1. To build an awareness of an individual's cultural heritage which provides a basis for personal identity.
2. To increase tolerance and acceptance of different values, attitudes and behaviours.
3. To foster the affirmation of all cultures.
4. To provide individuals with opportunities for experiencing other cultures and recognizing them as a source of learning and growth.
5. To acquire the skills, attitudes and knowledge necessary for increasing an individual's ability to function effectively within a multicultural environment.
6. To develop the ability for seeking information about the economic, political and social factors of various cultures.

(Orieux, 1988: 60)

Assumptions

The following are assumptions being made in this study:

1. The Bogardus Social Distance Scale (BSDS) provides a measure of social distance as a function of one's attitude towards the groups identified in the scale. Campbell, cited in Oppenheim states that "an individual's social attitude is a syndrome of response consistency with regards to social objects" (Oppenheim, 1966: 5). Oppenheim discusses attitude measurement as an assessment of an individual's responses to a set of situations and describes the BSDS as having shown "highly consistent results" in its measurement of attitudes towards minority and dominant groups (Oppenheim, 1966).
2. The Brophy-Good Dyadic Interaction System is an objective method for analyzing observed verbal teacher-student interactions in the classroom. Interrater agreements about observed interactions following adequate

practise in using the techniques have been found to be in the 60 to 90 per cent range (Good & Brophy, 1987: 69). Intraobserver agreement can be computed by comparing the results of coding of the same videotapes viewed twice with an interval of two weeks between each viewing.

3. Teacher attitudes which are influenced by the ethnic background of the students may cause differing teacher behaviour which in turn may affect student behaviour in teacher-student interactions, but other factors may also exert an influence on teacher and on student behaviour.

Limitations

There are several limitations to the study which impact on the generalizability of the results.

1. Although the schools selected for inclusion in the study are to be selected randomly, it is likely that there will be varying numbers of teachers on each school staff who will be willing to complete the BSDS. This will introduce a significant element of volunteerism into the study.
2. It may be speculated that the teachers who are willing to complete the BSDS are more likely to provide responses which are "socially acceptable" responses to the categories.
3. The range of scores from which the sample of twenty teachers to be observed will be drawn is unlikely to represent the extreme low end of possible scores on the BSDS.

The school sample is drawn from elementary schools only, as permission was not granted to include secondary schools in the study.

4. There are actually 55 elementary schools in the NorthEast and SouthEast areas of the Calgary school district but as one had suffered a serious fire

at the time the study was being considered, it was agreed that it would be excluded when the sample was being drawn.

5. Special classes such as resource rooms, classes for disabled students, etc. which are located within the elementary schools were excluded from the study as it is believed that the very small numbers and unique types of student problems being dealt with would introduce other factors into the observations which might bias the results.
6. Because it is intended that the information obtained from the Brophy-Good System will be summarized into four categories, three under content, and frequency, much subtle information about differences in the quality of the teacher-student interactions will be ignored.
7. It is acknowledged that there are other factors which may influence teacher-student interactions not being considered in this study such as:
 - a) student behaviour (or misbehaviour)
 - b) ethnicity/gender of the teacher
 - c) relationship between the ethnicity/gender of the teacher and the ethnicity/gender of the student
 - d) socioeconomic background of the student and/or teacher
 - e) perceived attractiveness or unattractiveness of the student
 - f) student and/or teacher social effectiveness i.e. facility for getting along with people.

Summary of Methodology

This study was conducted in two stages. Initially, a random sample of sixteen schools was drawn from 54 elementary schools in the NorthEast and SouthEast areas of the Calgary public school system. The teachers in these

schools were asked to complete the Bogardus Social Distance Scale (BSDS). These questionnaires were scored by a research assistant who did not reveal the results to the researcher. The distribution of scores from the BSDS returns were utilized to select twenty teachers for observation, ten from each end of the distribution of scores. The researcher did not know how any of those selected scored on the BSDS. Using the Brophy-Good Dyadic Interaction System, the researcher observed each of the twenty teachers and their classes for three forty minute sessions, coding the teacher-student interactions according to the coding sheets suggested by the Brophy-Good System.

CHAPTER 2

REVIEW OF THE LITERATURE

Overview of the Chapter

This chapter discusses the implications of teacher attitudes in the context of equal treatment of students in the classroom. It will examine the literature on self-concept, attribution theory, teacher expectations in relation to teacher-student interactions and the communication process between teachers and students. The impact of this on school effectiveness will be a peripheral consideration. Concerns about the validity of some studies will also be reviewed.

Attitudes of Teachers

The attitudes of teachers towards students are thought by many authorities to have a significant effect on the educational progress of students (Rosenthal & Jacobson, 1968, Rosenthal, 1974, Katz, 1976, Achilles & French, 1977, Good & Brophy, 1982). Despite this, little research has been done into the problem of intolerant attitudes on the part of teachers (Knowles & Prewitt, 1969, Ogbu, 1978) and even less has been done to determine to what extent or in what manner teacher attitudes towards ethnic minorities may influence teacher behaviour towards students (Katz, 1976, Irvine, 1985). Smith reports that "young children have a relatively unstable self-concept, ... [because] the young child is reflecting a reaction to the immediate situation rather than a real attitude toward himself" (1988: 78). Winne, Woodlands and Wong are quoted by Smith (1988) as concluding that pressures which influence school-age children are academic achievement and teacher expectations. Teachers do communicate different

performance expectations to different children through their behaviours within the teacher-student interaction context (Brophy & Evertson, 1981).

Concern for Equal Treatment for Students

Rossell (1980) points out that equal educational opportunity is highly valued, but no one is certain what that means. In the United States, a majority of the court cases which have dealt with educational issues in the last twenty years have alleged violations of equal educational opportunity, and racial segregation has been one of the two major categories (Rossell, 1980). (For example, note the impact of the decision in *Brown v Board of Education*, 1954). Teachers are in a critical position to ensure that students are treated equitably in the classroom (Etzioni, 1972, Klassen & Gollnick, 1977, Kallen, 1982).

Ogbu (1978) found that programs which are established to help minority children usually aim at correcting deficits which are perceived to be in the children. Frequently they are placed in tracking programs which substantially diminish their opportunities for receiving a quality education (Kimball, 1974, Ogbu, 1978, Kallen 1982). Studies which have been done on the question of whether differential treatment of students is helpful individualization or detrimental bias are inconclusive, particularly on the issue of whether or not preconceived attitudes of the teacher toward the student shapes the educational process (Carew & Lightfoot, 1986). Buchignani (1982) believes that maintaining high social distance from minority individuals is one of the most insidious forms of discrimination. This type of behaviour could be particularly damaging to students' opportunities for educational equality if it is perpetuated in the classroom (Buchignani, 1982, Laferriere, 1983).

Teacher Expectations and Self-Concept

The way a student sees him or her self is both a product of how others see him or her and is a force in his or her academic success (Rogers, 1961, Purkey, 1970, Shavelson, 1981, Covington, 1984). The self-concept governs the responses that a student makes to the environment, and shapes the perceptions that a student forms about his or her world (Rogers, 1961, Purkey, 1970). "Significant others", i.e. the persons in a student's life whose regard and affection are of supreme importance to the student, are critical in their impact on the self-concept of a student (Rogers, 1961, Shavelson, 1981, Smith, 1988). It may be posited that teachers are "significant others" in a student's life. Research on the relationship between self-concept and academic achievement is not clear on causality, but it appears that there is a relationship (Wylie, 1974, Shavelson, 1981). Studies would suggest that the relationship is probably reciprocal (Purkey, 1970, Smith, 1988). Positive self-concept is both a cause as well as a result of academic success (Wylie, 1974, Shavelson, 1981).

The valence attached to a student's self-concept is closely connected to how the student perceives that the significant others perceive him or her (Rogers, 1961, Wylie, 1974, Shavelson, 1981). It is this aspect of self-concept which has intrigued researchers who have attempted to examine the relationship between teacher expectations, self-concept, academic achievement, and school effectiveness (Purkey, 1970, Wylie, 1970, Shavelson, 1981, Burns, 1982, Woolfolk & Brooks, 1983).

Teacher expectations have been identified by numerous studies as an integral factor in school effectiveness (Brophy & Good, 1974, Edmonds, 1982, Woolfolk & Brooks, 1983, Hallinger & Murphy, 1986). What has not been so clear is how teachers have communicated their expectations to students. Even

less is known about the effect of teacher attitudes on teacher expectations (Darley & Fazio, 1980). It has been determined that teacher expectancy impacts on the student's self-concept, and that it is communicated to the student in both verbal and non-verbal ways (Achilles & French, 1970, Burns, 1982, Woolfolk & Brooks, 1983, Cooper & Good, 1983).

Teacher expectations are not only based on the teacher's perception of a student's potential academic ability (Cooper & Good, 1983). Teachers have frequently formed a set of expectations about a student before having even met the student (Rolison & Medway, 1988). Information acquired from previous grades, anecdotal records, performance pattern information or the label attached to the child on the basis of previous achievement, along with perceptions formed on the basis of other information known about the child i.e. gender, socioeconomic status (SES), religion, and race or ethnic background, all contribute to the teacher's initial expectations about the student and his or her probable performance in the classroom. Merton (1954) coined the term "self-fulfilling prophecy" to describe what occurs when a belief about a situation, even when based on false information, evokes behaviour on the part of the perceiver which makes the belief come true (Merton, 1954, Rosenthal & Jacobson, 1968). Once an expectation is held, an individual tends to act in accord with that belief thus bringing about the reality (Crano & Mellon, 1978, Cooper & Good, 1983). There is evidence that practises which are predicated on the belief that certain groups are inferior because of their race or ethnic background frequently result in inferior opportunities, thus fulfilling the prophecy that certain groups are inferior (Knowles & Prewitt, 1969, Kimball, 1974, Kallen, 1982, Buchignani, 1982). Travers (1981) reviewed a number of correlational studies on teacher behaviour and student achievement and concluded that teacher input into the teacher-student relationship has an influence on student learning. Teacher behaviour,

sustained over time, can shape a student's self-perception, thus resulting in a change of behaviour on the part of the student in the direction of the teacher expectancy.

Attribution studies may also contribute to these studies by identifying certain causal categories and underlying dimensions used to explain behaviour (Cooper & Good, 1983). Lalljee and Abelson (1979) summarize Kelley's theory of attributions which they consider is central to any study of the concept. Central features of Kelley's theory are: " detection of covariation between events, and the dimensions along which covariation is sought, i.e. across people (consensus), time (consistency), and entities (distinctiveness)" (Lalljee & Abelson, 1983: 70). Kelley believes that people combine multiple sources of information in a naive analysis of variance with distinctiveness representing the between-conditions variance and consistency and consensus representing the within-condition variance (cited in Frieze & Bar-Tal, 1979: 12). Kelley outlined three basic principles: the covariation principle, in which effects covary over time with their causes, the discounting principle, wherein the role of a given cause in producing a given effect is discounted if other plausible causes are also present, and the augmentation principle, which says that if for a given effect both a plausible inhibiting cause and a plausible facilitating cause are present, the role of the facilitating cause in producing the effect will be greater than if it alone were present as a plausible cause for the effect (Kelley, 1972, Frieze & Bar-Tal, 1979). Weiner, (1986) cited by Frieze and Bar-Tal, (1979) and Cooper & Good (1983), believes that causal ascriptions may influence subsequent behaviour, but that the attribution behaviour is both subtle and complex. The sensitivity and accuracy of our cognitive measurements will determine the upper limits of relations involving that measurement (Cooper & Good, 1983). One might speculate that teacher attributions regarding the degree of control which they perceive that they have

over the student and the classroom environment will be another determinant of teacher behaviour towards students. Certainly the stereotypes which teachers hold about race, gender, and ethnicity may lead teachers to ascribe characteristics and behaviours to students which colour teacher-student interactions in a significant way. Recent studies into teacher-student communication patterns show how the process may operate (Brophy & Good, 1974, Woolfolk & Brooks, 1983, Cooper & Good, 1983, Good & Brophy, 1987).

Teacher Expectations and the Teacher-Student Communication Process

Studies of the content and frequency of teacher-student interactions are beginning to reveal considerable information about how teacher expectations may exert an influence on the nature of the communications between teachers and students (Brophy & Good, 1974, Darley & Fazio, 1980, Burns, 1982, Cooper & Good, 1983, Woolfolk & Brooks, 1983, Good & Brophy, 1987). More recently, teacher-student interactions are being examined to determine if communications with certain students are different for reasons other than the particular intellectual or academic abilities of the students (Rist, 1970, Darley & Fazio, 1980, Brophy & Evertson, 1981, Irvine, 1985, et al).

Irvine (1985) found in her survey of studies of teacher communication patterns that few studies had examined the effects of the race of the student on teacher-student interactions. Differences in teacher behaviour have been found which were attributed to the race and socio-economic status (SES) of students (Rist, 1970), although it is not clear whether it is the race or the SES which is the significant factor. Rist observed, for example, that teachers early in the year seated children according to their race and SES, and labelled them on their ability to learn on the basis of these groupings (Rist, 1970).

Burns (1982) reports a study which compared the expectations held by two different headmasters for low SES students, and discovered that in the school in which the expectations were high, much greater encouragement was given to all students to strive. The headmaster who saw the low SES students as unlikely to have high academic aspirations or ability also believed that these students would not be favourably disposed towards the school. In both schools, the students performed as expected.

How the Expectancy Effect is Communicated

Studies have examined teacher verbal behaviours (Cooper & Good, 1983, Irvine, 1985, Good & Brophy, 1987) and non-verbal behaviours (Achilles & French, 1977, Woolfolk & Brook, 1983) in order to determine what it is that teachers do that influences student self-concept and performance, and therefore contributes to school effectiveness. High expectations for students are exemplified by classroom management strategies such as consistent discipline practises, instruction that focuses on skill mastery, and effective instruction techniques (Hallinger & Murphy, 1986). It appears that success for students is based on a much more complex communication process than these strategies might infer.

Cooper & Good's (1983) studies of the concept of teacher control may be illuminative. Two aspects of teacher control are described: teacher-student interactions, wherein the teacher exerts control over the frequency, timing, and content of the interaction, and the internal state of the teacher which in turn was dependent on the ability of the teacher to regulate these personal efforts, successes, etc.. They found that there are often discrepancies between the amount of interaction control which teachers reported themselves as having and

the observed classroom exchange. What did appear to be consistent was the finding that when teachers felt that they were involved in a student's success, that student received more frequent and freer praise than was noticed when teachers felt responsible for failures, whereupon the student received more criticism.

Teacher behaviours which have been identified as influencing student behaviour, and subsequent student performance if sustained over time, include: the use of structured comments and multileveled questions, enthusiasm and criticism, (Travers, 1981), facial expression, (Cooper, 1979), head nodding and leaning towards or away from the student, (Woolfolk & Brooks, 1983), and frowning or smiling, (Woolfolk & Brooks, 1983).

Studies summarized by Achilles and French (1977) found that teacher communications to students appeared to vary for a number of reasons which depended on the teacher's perception of the students. There were differences among teachers which seemed to be related to teacher attitudes. For example, some teachers offered many more positive gestures to low ability vs high ability students, where for other teachers it was the reverse. (Achilles & French, 1977)

Many of the studies found evidence to suggest that while teacher expectations are significant in the way that they influence initial teacher communications towards students, students' responses to these initial communications in turn have an impact on subsequent teacher responses (Woolfolk & Brooks, 1983, Cooper & Good, 1983, Brophy & Good, 1987). These findings would appear to substantiate the belief that teacher-student interactions are both sequential and reciprocal in nature. This conclusion is also consistent with the concept of the self-fulfilling prophecy. The initial communication from a teacher towards a student, which has already been influenced by the teacher's initial perceptions about the student, triggers a certain type of response from the

student which in turn influences the teacher's ongoing perceptions about the student, thus influencing the ongoing responses to the student, which affect the student's ongoing communications to the teacher.

It has been noted that where differences have been found in teacher-student interactions with some students, the differences may be both in content (Achilles & French, 1977, Woolfolk & Brook, 1983, Cooper & Good, 1983) and in frequency (Jackson & Lahaderne, 1967). Irvine's (1985) study of communication patterns as related to the race and gender of students found that black and female students received the fewest and the least positive number of feedback statements.

The problem is that there is still a lack of information about the relationship between teacher attitudes and subsequent teacher behaviour in the teacher-student interaction, or the impact of repeated communication patterns which stem from differences relative to the race or ethnic background of students. It would be deemed necessary in conducting any such research to consider the effects of gender and perceived academic ability of the student on the teacher-student interactions.

Concerns About the Validity of Some Studies

A methodological concern has arisen which has led to some controversy about which type of study yields more valid information in terms of generalizability and replicability (Brophy & Good, 1974, Brophy, 1983, Irvine, 1985). Many studies were experimental i.e. the experimenter manipulated the expectancies which teachers formed about students by providing contrived information about the students and then observed the teacher to assess how the teacher interacted with students on the basis of the manipulated information (Rosenthal & Jacobson, 1968, Feldman & Donahoe, 1978, et al.). A number of

researchers believe that studies which utilize the teachers' existing beliefs about students in their classrooms, i.e. naturalistic studies, are more valid because they are more generalizable and more readily replicated (Brophy & Good, 1974, Brophy, 1983, Irvine, 1985). Chafel and Bahr quote Patton that "different methods are appropriate for different questions" (1988: 51). They cite as a definition of naturalistic research "the investigation of phenomena within and in relation to their naturally occurring contexts" (1988: 51).

Patton claims that qualitative studies which emphasize naturalistic inquiry enables the researcher to

focus on capturing program processes, documenting variations, and exploring important individual differences between various participants' experiences and outcomes. ... A naturalistic inquiry strategy is selected to describe naturally unfolding program processes and impacts. (1987: 14)

Patton believes that

The qualitative perspective in no way suggests that the researcher lacks the ability to be scientific while collecting the data ... it merely specifies that it is crucial for validity - and consequently for reliability - to try to picture the empirical world as it actually exists to *those under investigation*, rather than as the researcher imagines it to be. (1987: 20)

Patton also discusses the "credibility of small purposeful samples" (1987: 58). Credibility can be enhanced if randomness is the basis of selection even of a small sample.

Tatsuoka and Silver describe a 1970 study by Lucietto which made use of outliers in making the selection of subjects. Lucietto administered the Leader Behaviour Description Questionnaire (LBDQ) to all the teachers in 37 schools, asking them to rate their principals. The twenty principals receiving the highest and lowest ratings, (presumably ten from each end, this is not clear in the article) were then selected for followup study.

Tatsuoka and Silver make the point that studies of this sort should utilize ANOVA, MANOVA and discriminate analysis techniques much more frequently than is presently the case. They believe that

in the absence of a substantive theory, the stepwise method serves as a useful exploratory technique to investigate which variables might potentially be considered in a substantive theory or model subsequently to be developed. (Tatsuoka & Silver, 1988: 688)

CHAPTER 3

METHODOLOGY

Overview of the Chapter

In this chapter, information is provided on the sample, population and operational definitions along with a description of the instruments used and the methods followed in conducting the research. A discussion of the research design, possible threats, and the statistical techniques applied to analyze the data will conclude the chapter.

Population and Sample

The population from which the survey sample was drawn which constituted the first stage of the study consisted of 1037 regular elementary classroom teachers teaching in two of the four geographic areas which make up the Calgary public school system. The Calgary Board of Education is the largest public school system in Alberta, and is the largest school system in the four western provinces of Canada.

Two populations of teachers were defined for the second stage of the study, the group of teachers who scored high on the BSDS survey and the group of teachers who scored low on the BSDS.

TABLE 1

Frequency Distribution Of BSDS Scores

420	48	368	1	256	1
416	2	366	6	240	1
414	4	364	2	212	1
412	1	362	1	210	1
410	4	360	1	206	1
408	1	358	2		
406	3	354	2		
405	1	350	1		
402	2	348	1		
398	2	338	2		
396	5	333	2		
394	2	332	1		
393	3	330	1		
392	1	324	1		
390	5	320	1		
388	5	318	1		
386	3	312	1		
384	3	298	3		
383	1	290	1		
378	4	288	1		
376	3	278	1		
373	3	268	1		
372	2	267	1		
371	1	260	2		
				N = 151	
				$\bar{X} = 383$	
				Md = 393	
				Mode = 420	

It had been intended to use the responses which fell below standard deviations ± 2 as the source of a random selection of subjects for the second stage of the study, ten from each tail. However, as can be determined from Table 1, the distribution of scores on the BSDS was so skewed in the direction of the positive scores, that it was decided to draw 10 from the pool of 48 top scores of 420, and to draw 10 from the lowest 15 scores.

Confidence limits for the population of low BSDS scorers were calculated using the formula:

$$U \geq \frac{(n + 1)}{2} + \frac{1 - \alpha/2}{2} z\sqrt{n}$$

$$L = n - U + 1$$

(Glass & Hopkins, 1984: 216)

At .95 CI, the population of low BSDS scorers includes those who scored up to 318 on the BSDS.

It is the pool of extreme responses found at each end of the distribution of scores which it is believed provides what Patton (1987: 58) calls "information rich" data. It is acknowledged that generalizability of results is highly speculative in this type of selection. As Patton states, the "theory emerges from the data; it is not imposed on the data" (1987: 58).

The selection of teachers for the survey which was administered in the first stage was done by randomly selecting 16 schools from 54 elementary schools found in the North East and South East areas within the Calgary public system. Two schools declined to participate, which resulted in an additional 2 schools being selected from the remaining 38 in the two areas. All regular classroom teachers on the staffs of the selected schools were requested to complete the BSDS.

The North East and South East areas were chosen for the study because the number of children who are from various ethnic minorities is larger in those two areas. School district authorities were unwilling to permit the selection to focus on only one area, as they did not want what was perceived might be too much attention directed to results which might make it possible to identify participants.

The population of regular classroom teachers in the spring of 1989, when the survey sample was drawn in the two areas, was 1037. The sample, i.e. the total number of classroom teachers in the 16 schools drawn in the sample, was 251. While there were 154 questionnaires returned, 151 were used, as 2 were too late for inclusion in the selection of subjects for the second stage of the study, and 1 was incomplete.

Twenty-two subjects were actually selected for the second stage of the study, as 2 who had been among the initial selection were unable to participate, one due to an unexpected and lengthy illness, the other due to a mid-year transfer into a different teaching assignment in another school. Twenty teachers were observed using the Brophy-Good Dyadic Interaction System.

Administrators, special class teachers, and other professional staff who had no regular teaching assignments such as counselors, psychologists etc., were excluded from the study.

Schools rather than individual teachers were used as the basis for selection in the first stage of the study for several reasons. It was believed that it would be much easier to initiate contact with schools than it would have been to try to communicate with individual teachers regarding the study. Meetings were arranged with staffs in order to discuss the study and to distribute and collect the questionnaires. This procedure met the requirements of the Calgary Board of Education's Ethics Committee which permitted the study so long as teachers and school administrators were informed about it and agreed to participate. The threat to the representativeness of the survey results if school staffs refused to participate was noted, and in fact two schools did refuse to participate when contacted.

Sample size formulae for random selection as reported by Hale (1985) citing Asher (1976) and Leedy (1980) were used as follows:

$$n_0 = \frac{z^2 (1 - \pi)}{e_2}$$

n_0 = sample size for an infinite population

$z = 1.96$ = score for a 0.95 confidence level

$\pi = 0.5$ = incidence or percentage of sample assumed to have a favourable response to survey items

These results were then adjusted using a finite population correction factor:

$$n = \frac{n_0}{1 + \frac{n_0}{N}}$$

$n_0 = 160$

$N = 1037$ i.e. size of population of interest

n = sample size for finite population = 139

An alternative formula for estimating sample size which permits the researcher to establish a confidence level of 0.90 and an error of 0.05 was also applied. The formula is:

$$n^{-1} = N^{-1} + \epsilon^2 [Z^2 \pi(1 - \pi)]^{-1}$$

(personal communication, Dr. John A. Thompson, 1990)

π is assumed to be 0.05.

On a population of 1000, a sample size of 213 is suggested, still less than the actual sample selected which was 251.

Neale and Liebert stress that "confidence in social science research should depend solely on levels of statistical significance and not on sample size"

(1986: 96). Very large samples may lead to rejection of the null hypothesis based on quite small differences because with a sufficiently large number of subjects virtually any difference will appear to be statistically significant (Neale & Liebert, 1986). Obviously a sample which is too small increases the risk of a Type II error, i.e. failing to reject the null hypothesis when it is false.

Overview of Design and Measurement of Variables

Operational Definitions

This section defines operationally the variables measured in the study:

Social Distance is the degree of social acceptance which the respondent demonstrates towards given ethnic groups, as obtained from the responses to the BSDS. The BSDS provides a score which is computed based on the most intimate relationship which the respondent would allow each group identified on the questionnaire. High and low scoring groups are two of the independent variables in the study.

Teacher-Student Interactions are as defined in the Brophy-Good Dyadic Interaction System under the categories as shown in Appendix B. For the purposes of this study, the information was tabulated and transformed into four variables: content: praise, criticism, and procedural contacts (procedure) and frequency.

Ethnic Background is as categorized in the BSDS, eg. Chinese, or Ukrainian, etc. This information was obtained about students from the teachers who were selected for observation. The ethnic categories used in the BSDS are those which were identified by Statistics Canada in the 1986 census as the twenty largest in size for the city of Calgary (Appendix A).

Observers

One observer was used to observe all twenty teachers and to collect data about teacher-student interactions. The consistency and reliability of the observer's ratings was checked by using the method which is described by Achilles & French (1977). After learning and practising the Brophy-Good Dyadic Interaction System through the use of videotapes of classroom interactions, and practise in classrooms not in the Calgary schools, a Scott reliability coefficient was calculated on the observations of three one-hour videotapes of elementary classrooms obtained from the Alberta Educational Communications Authority, ACCESS. The tapes were observed twice, one day apart. Scott coefficients were calculated using the formula

$$p_i = \frac{p_o - p_e}{1.00 - p_e}$$

p_o is observed agreement, and p_e is expected percent agreement (See Table 2 for the results and Appendix C for the calculations)

A Scott coefficient of 0.80, according to Achilles & French (1977: 77), is considered a reasonable level of performance. The videotapes were viewed again by the observer two weeks later, and a second computation was calculated to determine the consistency, or as Achilles & French (1977: 81) describe it, the stability coefficient of the two observations.

Achilles & French cite Herbert & Attridge who state that

reliability ... is a property of measures obtained through the application of a system, not a property of an instrument, nor of a system, nor of a record, nor of observer, though qualities of each of these constrain the reliability of measures. ... yet researchers in observation still consider interobserver agreement the most common form of reliability ... despite the fact that in the measurement sense it is not. (1977: 81)

Stanford and Roarke (1974) believe that systems for describing interactions make it possible to reduce personal bias because a well-trained observer using these instruments obtains virtually the same data as any other well-trained observer using the same instrument. The description which the observer produces is a fairly exact record of what occurred in the classroom. Evaluations and judgments can be made later based on whatever value system one wishes to apply (Stanford and Roarke, 1974: 258).

TABLE 2**Scott Pi Method****PI'S Of Observations Of Videotapes One Day Apart**

Categories	Tapes			\bar{X}
	1	2	3	
Praise	.726	.750	.915	.80
Criticism	.0	.318	.829	.382
Procedure	.93	.829	.952	.903
Frequency	.965	.982	.938	.962

Stability Coefficients:**PI'S Of Observations Of Videotapes Viewed Two Weeks Apart**

Categories	Tapes			\bar{X}
	1	2	3	
Praise	.805	.686	.864	.785
Criticism	1.0	.231	.584	.605
Procedure	.953	.681	.956	.863
Frequency	.982	.926	.943	.952

All observations were taped using a battery operated Sony cassette recorder with a built-in microphone. This enabled the researcher to move the recorder around in the classrooms as the activities of the teachers with students necessitated. With one exception, neither teachers nor students appeared to be disturbed by the presence of the recorder. A student in one of the classes was so overtly bothered by the presence of the recorder that it was finally agreed not to use it in that class. Observations were checked immediately following each session with the aid of the tapes.

Teachers were given the option of receiving a copy of the tapes made in their classrooms but none requested them. The Brophy-Good System focuses on verbal interactions so that the tapes were useful as a check on the perceptions of the observe.

Schedule of Observations

In the study, observations were generally done in half the classrooms in each group in the morning, and half in the afternoon, thereby reducing the chances of differences in the nature of the interactions due to the time of day. Changes were made to this pattern if the teacher so requested.

Instrumentation

Two major instruments were used in the two stages of this study.

Bogardus Social Distance Scale

A modified version of the Bogardus Social Distance Scale (BSDS) was administered to the initial sample of teachers (see Appendix A). The modification

is not deemed to affect the basic integrity of the instrument, as it is a substitution of ethnic groups identified in the questionnaire. The groups used were the twenty groups which the 1986 census indicates are the most numerous in Calgary. The instrument has typically been administered by researchers with this modification.

The BSDS was originally developed and used in 1926. Campbell not only described it as the most used of all such instruments, but described it as “a perfect illustration of the hierarchical unidimensional set of items that scale analysis requires” (1970: 564-565). The extensive use which has been made of the BSDS substantiates its validity and reliability (Murphy, Gardner, & Likert, 1938, Hartley, 1946, cited by Campbell, 1970, Ames, 1969, Owen, et al. 1981, Rapp, 1982). The BSDS has a split-half reliability, corrected, in the range of .94 to .97 (Murphy & Likert, 1938, cited by Campbell, 1970, Miller, 1977). Campbell (1970) reports a correlation score of .80 on comparisons with the composite social distance score based on 32 actual ethnic and racial groups.

Campbell (1970), believes that Bogardus' original conclusion that there is a hierarchy of preferences for nationality and ethnic groups which is even shared by minority groups has been reinforced in subsequent studies which made use of the instrument (eg. Hayes, Marie Therese, Ed. D. Dissertation, Boston University School of Education, 1969, Ames & Sakuma, 1969, Owen, et.al. 1981, Rapp, 1982). The social distance scores provide an estimate of the attitude of the respondent towards the groups named in the instrument. Campbell claims that

“scores of different magnitudes are likely to have the same kind of behavioural significance i.e. the distinction between individuals is on the basis of degree rather than kind” (1970: 562).

The BSDS measures the social distance or social acceptance that exists between subjects and specified social groups. While different versions of the

BSDS may be applied to measure the distance between groups on various criteria, it is social distance because of ethnic membership which is being measured in this study.

The Brophy-Good Dyadic System

The Brophy-Good Dyadic System was used to collect data from the observations of teacher-student interactions. It was developed to determine whether or not teachers provide equal opportunity to all students (Good & Brophy, 1987). The instrument is intended to assist teachers in collecting data about the nature of teacher-student interactions in a systematic and objective way. Cooper & Good (1983) believe that the instrument relies little on inferences, but rather codes behaviours in operational terms. Information is acquired about the affective, cognitive, and procedure or routine dimensions of classroom interactions (Simon & Boyer, 1974). Behaviours are coded within these broad categories according to sub-categories.

There are seven feedback categories which can be coded according to whether they are teacher or student initiated, and which may be divided into procedural contacts, work-related contacts, and behavioural or disciplinary contacts. For the purposes of this study, the observations were collapsed into four categories of praise, criticism, procedural contacts (procedure) and frequency (the total number of interactions between the teacher and each student).

Good & Brophy (1987) discuss the problems of observation, and in interpreting the data so acquired. The past experiences of the observer may bias the interpretation of the data (Posner, 1985, Good & Brophy, 1987). Good & Brophy (1987) provide advice and exercises to help observers to identify their

own biases in order to interpret data more objectively. Chapter 3 in Looking in Classrooms (Good & Brophy, 1985: 55-73) was studied carefully by the observer before beginning the practise sessions.

Flanders (1970) emphasizes that observers can only assign small bits of interactions into a limited number of categories. He believes that an observer can acquire optimum skill in observing and coding with from four to twelve hours of practise (Flanders, 1970: 28). His suggestions for practise were also used by the observer for this study.

Although no information could be found on the Brophy-Good instrument's reliability or validity, the instrument was selected for use in this study because, as Irvine suggests, "its categories yield both quantitative and qualitative data and because it has been widely used in ... research studies" (Irvine, 1985: 340). A copy of the definitions of variables coded in the system, and an example of the coding sheet may be found in Appendix B of this paper.

The system for transforming the raw data into scores based on the group's representation within each classroom was adapted from that utilized by Hillman & Davenport (1978), Simpson & Erickson (1983) and Irvine, (1985).

The formula suggested is:

$$\frac{\text{Total number of interactions for variables in a given student/gender/ethnic category}}{\text{Total number of students in classroom}} \times \frac{\text{Total number of students in gender/ethnic category}}{\text{Total number of interactions for a variable}}$$

(Irvine, 1985: 341)

Information was obtained from teachers about multicultural training in accord with the criteria described in Chapter I (see Appendix D for a copy of the response data requested of the subjects). Teachers were also asked to provide information about the ethnic background of students, perceived academic ability as rated on a five-point Likert scale, and whether or not students were receiving ESL training (see Appendix D).

Design

This design could be characterized as causal-comparative (Moore, 1983) as it examined the attitudes of teachers towards ethnic groups as measured by the BSDS in relation to their interactions with students, i.e. frequency and content variables, on the basis of the gender and ethnic background of the students. Moore's (1983) caution that this type of study may only suggest possible relationships, not predict causality, is noted.

Patton's description of criterion sampling explains the sampling technique adopted for this study. He states that "the logic of criterion sampling is to review and study ... cases that meet some criterion of importance" (1987: 56). In this study, the criterion is determined by the responses to the BSDS. The highest and lowest scorers are the source of the sample. Patton notes that "criterion sampling can be applied to identify cases from qualitative questionnaires ... for followup" (1987: 56).

Discriminate analysis in a study of this type allows the researcher to measure the characteristics on which the groups of teachers identified by their scores on the BSDS might differ according to the discriminating variables. It is used to predict membership in naturally occurring groups, not experimentally manipulated groups (Tabachnick & Fidell, 1983). The BSDS is a method being

used by the researcher to identify members of groups which are characterized by their attitudes towards ethnic minorities.

Nie, et. al. describes the method by which the variables may be analyzed in terms of the discriminant power which each possesses (Nie, et. al. 1975 ed).

Threats

Differences in the students because of multicultural training, and differences due to the inability of some students to speak English, as well as differences in the attitudes of teachers towards students because of their perceptions about the academic abilities of students were considered in the analysis. Differences which are related to the ethnic background, age, or gender of the teacher were not accounted for. No teacher variables were examined other than those of attitudes towards ethnic minorities as measured by the BSDS, multicultural training, and perceptions about the academic ability of students.

The major threat seen to the validity of this design is the possibility of what Campbell & Stanley (1963) refers to as a reactive effect. It is possible that the responses on the BSDS were influenced by the knowledge that the respondents might be selected for subsequent observation. It is believed that this was partially controlled by using a relatively large sample for the BSDS, so that the likelihood of being selected for subsequent observation was limited. In fact, in order to obtain permission to do the study, Board of Education officials objected to a proposed change to the study which would have limited the population from which schools were selected for the BSDS survey to only one quadrant within the school district. They did give permission to draw from two quadrants rather than from all four of the areas as had originally been discussed. There was concern about drawing too heavily from one area, especially when dealing with material of

such a sensitive nature. Board officials did not want attention focussed on any one district, preferring that subjects selected for the classroom observation stage of the study be dispersed over a relatively wide region.

Another potential threat to the design arose if the return rate on the questionnaire was not high. Unreturned questionnaires may represent an element within the population that would not be reflected in the known responses, thus introducing an element of bias. One might speculate that extremely negative positions in relation to the questions on the BSDS might account for some unreturned questionnaires. If, as researchers have believed (Lewin, 1935, Oppenheim, 1966) behaviour is a function of personality and environment, or to use Lewin's (1935) formula, $B=f(P,E)$, it is likely, as Oppenheim suggests, that some respondents would realize that their actual views would not conform to what they believe society expects, so they would choose not to chance revealing them (Oppenheim, 1966). By administering the BSDS to all the teachers on a school staff, two advantages were perceived:

- 1) It would likely be easier to ensure the cooperation of the principal and staff, and
- 2) The BSDS questionnaires were distributed and collected personally, thus enhancing the chances of a higher return rate. The element of volunteerism could not be eliminated, and does pose an acknowledged threat.

In fact, some teachers did not complete the questionnaire immediately, and two were mailed in late. One other was not usable because it was incomplete. As noted, the number of usable returns was 151 out of a possible 251. The percentage of returns used was 60.16%.

The instrument being used to structure the observations minimizes bias on the part of the observer, as discussed previously. This feature is one of the reasons for its selection. In addition, the observer utilized the assistance of a

research assistant so that the observer did not know the categories of BSDS responses from which the teachers being observed were drawn. Although the subjects for observation were drawn from the extreme tails of the BSDS scores, it is recognized that the relationships between the results of the BSDS and the other variables may differ for less extreme scorers.

Another threat that should be mentioned is the finding that teachers tend to become more responsive to students when they know that they are being observed (Flanders, 1970: 386).

A threat to the accuracy of the observations could arise if the observer were to have difficulty distinguishing among students during classroom activities. It is thought that this threat was diminished by requesting that teachers provide name tags for all students. The researcher also arranged for pre-observations of each class in order to become familiar with the routines and the students.

Analysis

A computer program for statistical analysis, *The Statistical Package for the Social Sciences*, (SPSS), was used to analyze the data obtained. SPSS also provides descriptive statistics, which are reported at the beginning of the next chapter.

One-way, two-way, and three-way analyses of variance were calculated to examine the differences between variables, with student ethnic group, student gender, ESL, multicultural training of teachers, and perceived academic ability being the criterion or independent variables to the categories identified by the Brophy-Good Dyadic Interaction System i.e. content (three variables: praise, criticism and procedural contacts) and frequency of teacher-student interactions which are the dependent variables.

Discriminate function analysis was used to examine the variables in order to analyze the discriminate power which each possessed (Nie, et al. 1975 ed). Tabachnick & Fidell point out that “the primary goal of [discriminate function analysis is] to find the dimension or dimensions along which groups are maximally different and to predict group membership on the basis of those predictor variables” (1983: 294).

The purpose for discriminant function analysis in this study was to determine whether any of the independent variables i.e. multicultural training of teachers, need for ESL training for students, perceived academic ability of students, or gender or ethnic background of students appeared to predict which group of BSDS scorers, high or low, that teachers were likely to be in.

CHAPTER 4

RESULTS

Overview of the Chapter

Descriptive statistics are presented in this chapter, followed by a discussion of hypothesized findings with the relevant tables and figures which help to explain the data. As noted previously, one-way, two-way, and three-way analysis of variance and discriminate function analysis was used to examine the data.

The order in which data is presented by SPSS enables the researcher to determine the basic distributional characteristics of the variables before considering the results of subsequent statistical analyses. Statistical analyses applied will be described for each hypothesis.

The hypotheses which were tested are as follows:

Hypotheses

1. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups.
2. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and student gender.
3. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and perceived academic potential groups.

4. There will be no significant differences in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups between teachers who have had multicultural training and teachers who have not had multicultural training.
5. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and students requiring ESL training.
6. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups.
7. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and student gender.
8. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and perceived academic potential groups.
9. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and students requiring ESL training.
10. There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups between teachers who have had or have not had multicultural training.

Descriptive Statistics

Glass and Hopkins suggest that “descriptive statistics serves as a tool to describe or summarize or reduce to manageable form the properties of an otherwise unwieldy mass of data” (1984: 2). The descriptive statistics reported in the following section are intended to assist the reader in understanding the properties of the variables about which data was collected.

The BSDS was distributed to a total of 251 teachers. The total number of returns was 154, three of which were unusable, thus providing 151 BSDS responses from which to select the teachers whose classes were to be used for the observations of teacher-student interactions. As reported in Chapter III, twenty teachers were chosen for observation, ten from the 48 who received the maximum score on the BSDS, and ten from the 15 lowest scorers on the BSDS. The total number of students involved in the observation stage of the study was 475 i.e. 475 students were found in the 20 classrooms observed.

Distribution of Students Between High BSDS Scorers and Low BSDS Scorers

Students were evenly distributed between the two groups of teachers observed, with a total of 237 students found in the group of high BSDS scorers and 238 students in the low scoring group (Table 3).

No efforts were made to select teachers for the purpose of having an even distribution of students between high and low BSDS scorers. The almost equal distribution of students between the two groups is coincidental.

Of the twenty teachers observed, 14 had not received multicultural training. There were 156 students in the classes of the 6 teachers who had received multicultural training, and 319 students in the classes of the 14 teachers

who had not had multicultural training. Table 3 shows the distribution of students between high and low BSDS scorers categorized on the variable of whether or not the teachers had multicultural training.

It can also be seen in Table 3 that the distribution of students between classes according to whether or not teachers had received multicultural training suggests that this variable was evenly split between high and low BSDS scorers, i.e. high BSDS scorers did not seem more likely to have had multicultural training than did low BSDS scorers.

Students were quite evenly divided by gender, with a total of 230 males and 245 females distributed among the twenty classrooms observed, shown in Table 3 with the breakdown between high scorers and low scorers on the BSDS.

High BSDS scorers had an equal distribution of boys and girls, whereas low BSDS scorers had a slightly higher number of girls.

In the twenty classrooms observed, 64 students were receiving ESL training, and 411 students were not. The distribution of these students between high and low BSDS scorers is shown in Table 3.

Nearly 20 percent of the students in the classrooms of high BSDS scorers were receiving ESL training, whereas slightly more than 7 percent of the students in the classrooms of low BSDS scorers were receiving ESL training. High BSDS scorers had a much higher number of students receiving ESL training in their classrooms than did low BSDS scorers.

TABLE 3

Total Distribution of Students Between High BSDS Scorers and Low BSDS Scorers on the Variables of Multicultural Training of Teachers, Gender of Students and ESL Training Received by Students

	High BSDS Scorers		Low BSDS Scorers	
	freq.	per cent	freq.	percent
Multicult Training:				
yes	79	33.2	77	32.1
no	160	67.5	159	66.8
Total	237	49.7	238	50.3
Gender:				
male	119	50.0	111	46.8
female	119	50.0	126	53.2
Total	237	49.7	238	50.3
ESL:				
yes	47	19.7	17	7.2
no	191	80.3	220	92.8
Total	237	49.7	238	50.3

N = 475

**Distribution of Students By Ethnic Category
Between High and Low BSDS Scorers**

The distribution of students by ethnic category in the classrooms of high scorers and low scorers on the BSDS within the 20 classrooms is shown in Table 4.

It should be noted that the ethnic categories which were found in the 20 classrooms observed do not correspond exactly to the 20 ethnic groups which were identified on the BSDS questionnaire. As will be seen in Appendix E, teachers were asked to identify the ethnic background of each student prior to the commencement of the observation schedule. Teachers ascertained ethnic background by soliciting this information from students and/or their families. The information was forthcoming except in one case.

Some of the categories of ethnic group which were originally identified on the teachers' response forms were reclassified before beginning the observations. As the study is intended to consider the question of whether or not ethnic minorities (as defined in Chapter 1) receive different treatment from other students, a decision was made to classify all ethnic groups which were European and/or "white" as Caucasian.

The 12 ethnic groups reported in Table 4 were classified as follows.

"Lebanese" refers to those students who were identified as Lebanese on the forms.

"Black" refers to those students identified as African, Jamaican, or Caribbean on the forms.

"East Indian" is the term which is commonly used in Calgary for the people whose origins are any part of the countries of India or Pakistan. This term was therefore used for people who identified ethnic group from any of these regions.

“South American” was used for students whose origins were any country located in Central or South America, unless they had otherwise identified themselves (one student identified himself as “African” although his family had emigrated from El Salvador).

“Vietnamese”, “Iranian”, “Chinese”, “Japanese”, “Filipino” and “Arab” were the terms used by each of the students in identifying their ethnic categories to their teachers. Chinese who had emigrated to Canada from Viet Nam and Cambodia and described themselves as “ethnic Chinese” were categorized as “Chinese”.

“Native Canadian” is the term used for aboriginal people of Canada, although some identified themselves by tribal origin, for example “Stony”. People identified as “Metis”, a term traditionally used for people of mixed aboriginal and other (originally “French”) were also included under “native Canadian”.

“Caucasian” was described above.

It will be seen that in some categories the numbers of students is very small, making it necessary to collapse categories in order to perform several of the analyses. This will be noted and explained as appropriate.

One student was not identified by ethnic group, consequently the total number of students (N) in this category is one less than in the other tables.

TABLE 4

**Distribution of Students by Ethnic Category
Between High and Low BSDS Scorers**

BSDS	<u>Frequency</u>		<u>Percent</u>	
	high	low	high	low
Lebanese	5	2	2.1	.8
Black	3	8	1.3	3.4
East Indian	17	15	7.1	6.3
South American	4	3	1.7	1.3
Vietnamese	9	3	3.8	1.3
Iranian	0	1	0.0	.4
Caucasian	160	175	67.2	73.8
Chinese	26	23	10.9	9.7
Japanese	4	2	1.7	.8
Native Canadian	4	5	1.7	2.1
Arab	4	0	1.7	0.0
Filipino	1	0	.4	0.0
Total	237*	237	99.6*	100

N = 474* one student was not classified

Distribution of Students According to the Teachers' Ratings of Student Academic Ability Between High and Low BSDS Scorers

The academic ability of students was rated by teachers on a five point Likert scale with "5" representing low ability, and "1" being high ability. The categories on the scale were rated in this manner at the suggestion of teachers because the reporting system used by teachers in identifying student achievement and work habits rates "1" as "satisfactory" with "2" being "needs improvement" and "3" as "poor". Teachers felt that there would be less chance of confusion if the scale used in this study was perceived to be consistent with their reporting system. The distribution of students on this variable, divided between high scorers and low scorers on the BSDS is shown in Table 5.

It can be seen that there is little difference between high and low BSDS scorers in how academic potential of students is rated.

TABLE 5

**Distribution of Students by Academic Ability
Between High and Low BSDS Scorers**

<u>Level</u>	<u>Frequency</u>		<u>Percent</u>	
	high	low	high	low
high ability				
1	51	46	21.4	19.4
2	70	80	29.4	33.8
3	88	78	37.0	32.9
4	22	25	9.2	10.5
5	7	8	2.9	3.4
low ability				
Total	238	237	100	100

N = 475

**Comparison of High and Low BSDS Scorers on Variables of Praise,
Criticism, Procedure and Frequency**

The teacher-student interaction scores of high and low BSDS scorers are compared on the content variables of praise, criticism and procedural contacts (procedure) and frequency in Table 6.

The table depicts the means, standard deviations and variance (s^2) scores for each of the two groups of BSDS scorers.

It should be noted that the variance scores for procedure (procedural contacts) are relatively large for both high and low BSDS scorers, indicating that there is wide dispersion within each group on this measure.

TABLE 6

**Comparison of High BSDS Scorers and Low BSDS Scorers on
the Variables of Praise, Criticism and Procedural Contacts
(Procedure) and Frequency**

	<u>low scorers</u>			<u>high scorers</u>		
	\bar{X}	SD	s^2	\bar{X}	SD	s^2
praise	2.228	2.226	5.134	2.761	2.388	5.702
criticism	1.084	1.811	3.281	1.336	2.275	5.178
procedure	8.004	7.463	55.691	7.824	5.495	30.197
frequency	11.316	9.688	.463	11.920	8.151	.463

Pearson product moment correlations between the variables of praise, criticism and procedure are shown in Table 7.

TABLE 7

**Correlation Table for the Variables Praise,
Criticism and Procedure**

	praise	criticism	procedure
praise	1.0	.2126	.5582*
criticism	.2126	1.0	.3095
procedure	.5582*	.3095	1.0

* $p = <.001$

The correlation is very low for praise and criticism and between procedure and criticism. There is a moderate positive relationship between praise and procedure. The variable of frequency was not calculated as it is a total of all teacher-student interactions, i.e. praise + criticism + procedural contacts (procedure).

Testing of Hypotheses

Inspection of the data obtained about the variable of ethnicity revealed that cell sizes were very small for some categories. Two methods may be used to increase cell size: categories may be collapsed, or categories may be statistically removed. Both of these methods were utilized and will be noted wherever applied. The problem of small cell size became especially evident

when attempting to analyze variables such as the ethnicity of students in relation to ESL training of students and multicultural training of teachers. Data for the gender of students in relation to ethnicity of students was similarly affected, as were the five categories of perceived academic potential.

Hypothesis 1

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups.

One-way ANOVAS were calculated on: praise by ethnic groups, criticism by ethnic groups, procedure by ethnic groups, and frequency by ethnic groups. The summaries of the ANOVAS are shown in Table 8.

TABLE 8

Summaries of One-Way ANOVAS for the Variables Praise, Criticism, Procedure and Frequency by Ethnic Groups

	Mean Square Between Groups#	Mean Square Within Groups##	F Ratio
Praise	5.9015	5.4666	1.0795
Criticism	5.3027	4.2208	1.2563
Procedure	34.6053	43.0140	.8045
Frequency	79.428	80.167	.991

#df = 11

##df = 462

A conventional Bartlett's test yielded chi-squares of 1.659, ($p < .093$), 9.422, ($p < .001$), and 6.877, ($p < .001$), indicating that there was homogeneity among variances.

Fisher's LSD post hoc tests were applied to determine whether it is likely that differences in the pairs of means are the result of chance or because there are significant differences, and to determine where the differences lie. The LSD test was selected because of the unequal sizes of the groups being compared. All were tested at the .05 level. The summaries of these tests are shown in Table 9.

No significant differences were found between any of the groups on the variable of praise or frequency. Significant differences were found on the two variables of criticism and procedural contacts for native Canadians when compared to Japanese, Blacks, East Indians, Vietnamese, Caucasians and Chinese, i.e. native Canadians receive significantly less criticism and significantly fewer procedural contacts.

TABLE 9**Summaries of Means of F-Ratios of the ANOVAS and Fisher's LSDs**

<u>Group</u>	<u>Mean</u>		
	Praise	Criticism	Procedure
Lebanese	3.8571	1.2857	7.0000
Black	3.3636	1.9091*	7.0000*
East Indian	2.4063	.9688*	6.8750*
South American	3.2857	2.1429	10.0000
Vietnamese	2.7500	.5000*	7.5833*
Iranian	2.0000	.0000	8.0000
Caucasian	2.3552	1.2179*	7.9433*
Chinese	2.7143	1.1224*	7.5918*
Japanese	1.8333	.1667*	6.3333*
Filipino	3.0000	.0000	6.0000
Native Canadian	3.5556	2.8889*	13.4444*
Arab	4.5000	.2500	7.7500

Ranges set at 2.78 for .05 level

Value compared with mean:	1.6533	1.4527	4.6376
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* groups with significant differences at the .05 level

Hypothesis 2

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and student gender.

This hypothesis was to be examined using analysis of variance to determine whether there were any significant differences in the content or frequency of teacher-student interactions across student ethnic groups and student gender. However, it was necessary to collapse the variable of ethnic group into two categories, Caucasian and non-Caucasian, as there were many

cells within ethnic group by gender with insufficient information to permit statistical analysis. As a result, two-way ANOVAS were calculated on praise, criticism, procedure and frequency by ethnic group (ethnic) by gender. The summaries of the ANOVAS are shown in Table 10. The format for the summary table is as illustrated in Huck, Cormier & Bounds (1974: 84).

There was a significant main effects between criticism and gender ($F = 23.787$, $df = 1/471$, $p = <.01$), revealing that males receive more criticism than females. There were no significant differences on the other variables.

TABLE 10**Summaries of F - Ratios of Praise, Criticism, Procedure and Frequency on Ethnic Group by Gender**

	Ethnic e#	Gender g#	Interaction e by g#	within##
Praise				
MS	20.732	4.401	2.519	5.452
F	3.803	.807	.462	
Criticism				
MS	.815	96.504	1.495	4.057
F	.201	23.787*	.369	
Procedure				
MS	1.689	20.811	.598	43.060
F	.039	.483	.014	
Frequency				
MS	5.526	271.698	1.294	79.947
F	.069	3.398	.016	

#df = 1
##df = 471

*p = <.001

Hypothesis 3

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and perceived academic potential groups.

The teacher-student interactions of praise, criticism, procedural contacts and frequency were analyzed in relation to student ethnic groups and academic

potential as rated by the teachers. Because some cells were empty when the data was organized according to the original twelve ethnic categories, these were collapsed into five categories: Caucasian, Oriental, East Indian, Black, and native Canadian.

Two-way ANOVAS were calculated on: procedure by ethnic group by academic ability; criticism by ethnic group by academic ability; praise by ethnic group by academic ability; and frequency by ethnic group by academic ability. The summaries of the two-way ANOVAS are shown in Table 11.

No significant differences were found on the variable of praise. A significant main effect was found on frequency by ethnic group ($F = 2.388$, $df = 4/468$, $p = <.05$) and a significant interaction was found for frequency between ethnic group and academic ability ($F = 22.722$, $df = 14/468$, $p = <.001$) revealing that native Canadians receive significantly fewer interactions overall, and that native Canadians rated academically as "4" ("5" is low) receive significantly fewer interactions.

Significant interactions were also found between ethnic group and academic ability on procedural contacts ($F = 3.343$, $df = 14/468$, $p = <.001$) and between ethnic group and academic ability on criticism ($F = 1.711$, $df = 14/468$, $p = <.05$) revealing that native Canadians rated academically as "4" (low academic ability) receive fewer procedural contacts and less criticism.

TABLE 11

**Summaries of F-Ratios of Praise, Criticism, Procedure and Frequency
on Ethnic Group by Academic Ability**

	Ethnic e#	Acad Ability a##	Interaction e by a###	within###
Praise				
MS	10.029	7.493	8.085	5.299
F	1.893	1.414	1.526	
Criticism				
MS	8.516	2.686	7.108	4.155
F	2.050	.646	1.711*	
Procedure				
MS	81.244	52.115	133.043	39.796
F	2.042	1.310	3.343**	
Frequency				
MS	180.553	87.071	205.812	75.609
F	2.388*	1.152	2.722**	

#df = 4

##df = 14

###df = 446

*p = <.05

**p = <.001

Hypothesis 4

There will be no significant differences in the content (praise, criticism, procedure) or frequency of teacher-student interactions between teachers who have had multicultural training and teachers who have not had multicultural training.

Empty cells necessitated collapsing ethnic groups into two categories, Caucasian and non-Caucasian. The two levels of multicultural training are teachers who had such training and teachers who had not had training, resulting in the calculation of four 2 by 2 ANOVAS. The results are combined in a summary depicted in Table 12.

TABLE 12

**Summary of F-Ratios of Praise, Criticism,
Procedural Contacts and Frequency on Ethnic Group
and Multicultural Training**

	Ethnic e#	Training t#	Interaction e x t#	within##
Praise				
MS	21.619	200.724	2.692	4.951
F	4.367*	40.543**	.544	
Criticism				
MS	.054	1.685	9.564	4.250
F	.013	.396	2.250	
Procedure				
MS	2.040	1459.385	3.962	39.945
F	.051	36.535**	.099	
Frequency				
MS	8.933	2608.321	45.209	74.605
F	.120	34.962**	.606	
#df = 1	*p = <.05			
##df = 470	**p = <.01			

The data reveals a significant main effect for ethnic group with the variable of teachers who have had multicultural training on praise i.e. Caucasians receive more praise overall ($F= 4.637$, $df= 1/470$, $p= <.05$) and teachers who have had multicultural training give more praise ($F= 40.543$, $df= 1/470$, $p= <.01$), and more procedural contacts ($F= 36.535$, $df= 1/470$, $p= <.01$). Teachers who had multicultural training also demonstrated a significantly greater frequency of interactions with students ($F= 34.962$, $df= 1/470$, $p= <.01$).

Hypothesis 5

There will be no difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and ESL training.

This hypothesis considered the teacher-student interaction variables of praise, criticism, procedural contacts and frequency in relation to ethnic groups and ESL training. Again, the variable of ethnic group had to be collapsed into two categories, Caucasian and non-Caucasian because of empty cells. The summary of the 2 by 2 ANOVAS shown in Table 13 reveals no significant differences.

TABLE 13**Summary of F-Ratios of Praise, Criticism, Procedural Contacts and Frequency on Ethnic Group and ESL**

	Ethnic e#	ESL ESL#	Interaction e by ESL#	within##
Praise				
MS	9.855	2.232	5.916	5.449
F	1.809	.410	1.086	
Criticism				
MS	.008	.308	.099	4.264
F	.002	.072	.023	
Procedure				
MS	3.719	4.035	.672	43.095
F	.086	.094	.016	
Frequency				
MS	1.698	8.691	8.630	80.490
F	.021	.108	.107	
#df = 1				
##df = 471				

Hypothesis 6

There will be no significant difference in content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups.

The teacher-student interaction variables were to be examined in relation to the two categories of BSDS scorers (high and low) and ethnic groups. Ethnic group had to be collapsed into two categories, Caucasian and non-Caucasian, due to empty cells. Four 2 by 2 ANOVAS were calculated. The results are shown in Table 14.

High BSDS scorers were found to give more praise ($F = 5.555$, $df = 1/471$, $p = <.05$). No other significant differences were found.

TABLE 14**Summary of F-Ratios of Praise, Criticism, Procedure and Frequency on BSDS Scorers and Ethnic Group**

	Ethnic e#	BSDS BSDS#	Interaction e by BSDS#	within##
Praise				
MS	18.437	30.006	.359	5.402
F	3.413	5.555*	.066	
Criticism				
MS	.202	7.666	.408	4.248
F	.047	1.805	.096	
Procedure				
MS	.735	3.616	.004	43.097
F	.017	.084	.000	
Frequency				
MS	8.925	40.257	1.686	80.438
F	.111	.500	.021	

#df = 1
##df = 471

*p = <.05

Hypothesis 7

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and student gender.

Three-way ANOVAS were calculated to examine the relationships between each of the variables relative to teacher-student interactions and the independent variables of ethnic group, gender, and high and low BSDS scorers. Five categories of ethnicity were used: Caucasian, Oriental, East Indian, Black, and Native Canadian, because empty cells did not permit the analysis to be calculated on the original twelve ethnic groups. The results of the ANOVAS are shown in Tables 18 - 21 which are found in Appendix F.

Interactive effects were found for praise, procedure and frequency on ethnic group and gender ($F = 3.485$, $df = 4/468$, $p = <.05$) ($F = 3.338$, $df = 4/468$, $p = <.01$) ($F = 4.469$, $df = 4/468$, $p = <.001$) indicating that Caucasian males receive more praise, procedural contacts and more frequent interactions. Significant main effects were found for criticism on ethnic group ($F = 2.349$, $df = 4/468$, $p = <.05$) and on gender ($F = 22.683$, $df = 4/468$, $p = <.001$) revealing that Caucasians receive more criticism, and males receive more criticism.

Hypothesis 8

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and perceived academic groups.

Four 2 by 5 ANOVAS were calculated on the four teacher-student interaction variables by high and low BSDS scorers, by five categories of academic potential. It was decided to calculate crosstabulations (Chi - square) to determine whether there was a significant relationship between ethnic group and academic potential. This was done in order to increase cell size by removing variables which appeared to have no significance in the analysis. The crosstabulation analysis revealed no significant relationship between academic ability and ethnic group ($X^2 = 52.39$, $df = 48$, $p = .3076$). Ethnic group was therefore removed from the analysis.

No significance was found in the analyses of variance on the variables of praise, procedure or frequency. Table 19 depicts the results of the analysis of variance on criticism in relation to two levels of BSDS scorers and five levels of academic ability. The graph which follows illustrates the interactive effect which was found between the two groups of BSDS scorers and academic potential on criticism.

It was found that high BSDS scorers give more praise overall than low BSDS scorers ($F = 6.592$, $df = 1/465$, $p = <.01$). It was found that there was an interactive effect between the variables of BSDS scorers and academic potential which reveals that low BSDS scorers give more criticism to students rated as high academic, whereas high BSDS scorers give more criticism to students rated as middle academic.

TABLE 15

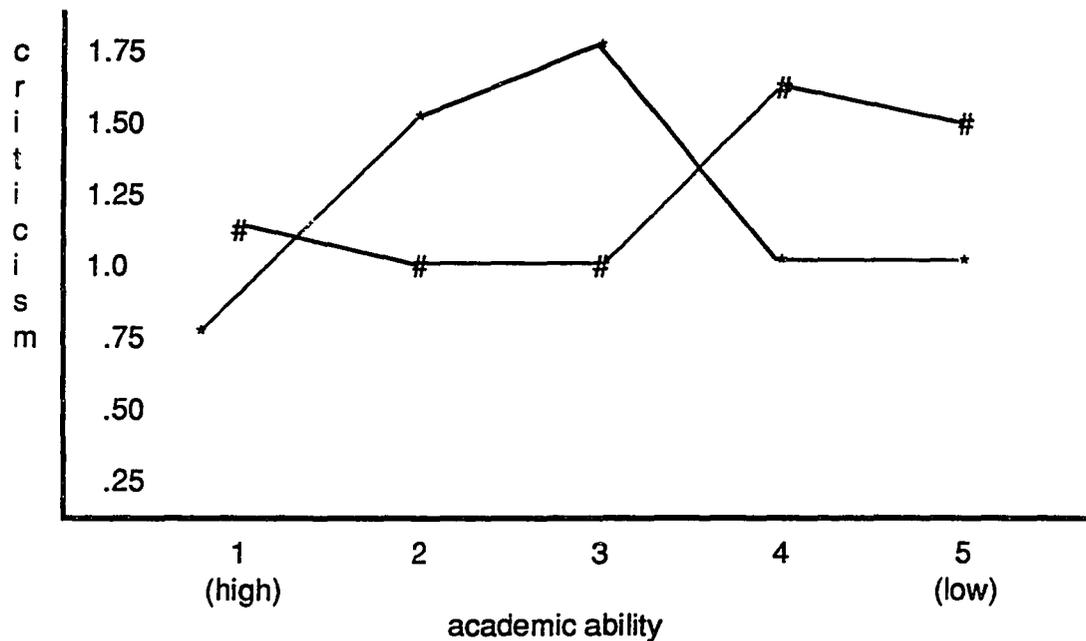
**Summary of F-Ratios and Graph Illustrating the
Interactive Effect Between the Levels of BSDS Scorers
and Academic Potential on Criticism**

Summary of F-Ratios

Source	df	Ms	F
BSDS Scorers	1	6.902	1.648
Academic abil	4	3.323	.794
BSDS x acad abil	4	10.249	2.448*
Within	465	4.187	
Total	474		

*p = <.05

**Graph Showing the Interaction of BSDS Scorers by
Academic Ability on Criticism**



* low BSDS Scorers
high BSDS Scorers

Hypothesis 9

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and students requiring ESL training.

Three-way ANOVAS were calculated to examine each of the teacher-student interaction variables in relation to the independent variables of high and low BSDS scorers, five ethnic groups (empty cells precluded calculating the analyses of variance on the original twelve categories) and two levels of ESL training. The ANOVA summaries are depicted in Tables 22 - 25) which are found in Appendix G.

A significant F score was obtained on criticism for ethnic group ($F = 2.346$, $df = 4/468$, $p = <.05$), indicating that native Canadians receive significantly less criticism. A significant effect was found on praise for BSDS scorers, ($F = 5.387$, $df = 1/468$, $p = <.05$) revealing that high BSDS scorers give more praise.

No significant differences were found on the other variables, nor were there any interactive effects.

Hypothesis 10

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups between teachers who have had or have not had multicultural training.

Three-way ANOVAS (5 by 2 by 2) were calculated on the four teacher-student interaction variables and the variables of ethnic group (five categories of ethnic group were used because insufficient cell size did not permit the analysis

to be calculated on the original twelve), high and low BSDS scorers, and multicultural training. Tables 26 - 29, found in Appendix H report the results of the analyses of variance.

The analyses revealed that there was a significant main effects for praise, procedure and frequency on training, ($F = 40.462$, $df = 1/467$, $p = <.001$) ($F = 34.406$, $df = 1/467$, $p = <.001$) ($F = 32.762$, $df = 1/467$, $p = <.001$) indicating that teachers who have received multicultural training give more praise, more procedural contacts and engage in more frequent interactions.

There was also a significant main effect for BSDS scorers on praise ($F = 36.403$, $df = 1/467$, $p = <.01$) revealing that high BSDS scorers give more praise, and a significant main effect for ethnic group on criticism, ($F = 2.461$, $df = 4/467$, $p = <.05$) revealing that native Canadians receive less criticism.

Results of the Discriminant Function Analysis

Tabachnick and Fidell state that when there are only two groups for which predictors are being tested, the coefficients of the significant discriminant function can be used to predict group membership (1983: 294). Discriminant function analysis attempts to find the dimensions along which groups are maximally different and to predict group membership on the basis of these predictor variables (Tabachnick & Fidell, 1983: 294). A case with a discriminant score above zero belongs in one group, while cases with scores below zero belong in the other group.

The degree of relationship between group membership and the set of predictor variables is determined by the percent of variance accounted for, answered through canonical correlation. The canonical correlation when squared indicates the proportion of variance shared between grouping variables and predictor variables (Tabachnick & Fidell, 1983: 297).

The researcher used stepwise discriminant function analysis. Wilks' lambda was used to control the stepwise selection, following a stepping procedure which minimizes Lambda. The stepping was modified by using a minimum F to enter ($F = 1.0$) and maximum F to remove ($F = 1.0$).

In this study, the two groups contained an equal number of teachers, distinguished on the basis of their responses to the BSDS. The number of students in each group was also almost equal, with 238 students in the group of high BSDS scorers, and 237 in the group of low BSDS scorers. The group centroids, (canonical discriminant functions evaluated at the group means) were: group 1 .25581, and group 2 -.25474 (table 17).

Variables were entered into the analysis to step 5, after which F-levels were insufficient for further computation. The summary table which follows reveals which variables were included in the analysis, and provides the final Wilks' lambda and canonical correlation scores. The high Wilks' lambda score (.9386) and low canonical correlation (.2478) reveal that the variables entered into the discriminant equation provide a low degree of separation. The standardized discriminant function coefficient summary reveals the relative contribution of each of the variables to the function.

The adequacy of the derived discriminant functions was tested by computing pooled within-groups correlations between the discriminating variables and canonical discriminant functions. These are ordered by the size of their correlation within the function, evaluated at the group means (group centroids). These are reported in table 17.

TABLE 16**Dicriminant Function Summary Table**

Step	Action Entered Removed	Variables		Wilks'	p=<
		In		Lambda	
1	ESL	1		.96609	.001
2	PRAISE	2		.95601	.001
3	PROCEDURE	3		.94858	.001
4	ETHNIC GROUP	4		.94297	.001
5	CRITICISM	5		.93858	.001

Eigen value	% of Variance	Cum %	Canonical Correlation	Wilks' lambda	Chi- square
.0654	100	100	.2478	.9386	29.825

df = 5
p = <.001

Standardized Discriminant Function Coefficients

PRAISE	-.66700
CRITICISM	-.29023
PROCEDURE	.55256
ETHNIC GROUP	-.32432
ESL	.77833

TABLE 17**Pooled Within-Groups Correlations**

	Function 1
ESL	.73235
PRAISE	-.44819
CRITICISM	-.23971
ETHNIC GROUP	-.09752
GENDER	.08263
MULTICULT TRAINING	-.06592
PROCEDURE	.05402
ACADEMIC ABILITY	.04066

Group Centroids

Group	Function 1
1	.25581
2	-.25474

It can be seen from table 17 that the variables of ESL, praise and criticism appear to possess some discriminant value, whereas the correlations for the remaining variables are too low for consideration. Tabachnick and Fidell report that the magnitude of discriminant function coefficients can be misleading because they do not take into account correlations among predictor variables (1983: 298). It may be recalled that correlations calculated for praise, criticism and procedure did reveal a moderate positive correlation between praise and procedure (.5582).

The discriminant function analysis revealed to this point a canonical correlation of .2478, an eigenvalue of .0654, and a Wilks' lambda of .9386. As noted, the Wilks' lambda and canonical correlation indicates low separation, and the low eigenvalue reveals that there is little shared variance between the predictor variables and the function. The discriminant function analysis was terminated at this point.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Overview of the Chapter

This chapter begins with a summary of the study, followed by a discussion of findings. Limitations are identified, followed by conclusions which are based on findings and limitations. The chapter concludes with recommendations arising out of the study.

Summary

The researcher was interested in the relationship between teachers' attitudes towards ethnic minorities and their interactions with students in the classroom. Because studies have shown that gender, perceived academic ability and ability to speak English may influence teacher-student interactions, these variables were considered in the analysis of the data, as was multicultural training of teachers.

The behaviour of teachers towards students appears to have considerable influence on how students perform (Jackson, 1968, Brophy & Good, 1974, Irvine, 1985). Teacher behaviour is thought to be influenced by attributions about students which are based on prior information about them, and on perceptions which may be the result of stereotypes about the student's ethnic group membership, gender, and perceived academic ability (Turner & Giles, 1981, Cooper & Good, 1983, Simpson & Erickson, 1983, Irvine, 1985).

Darley & Fazio (1980) help to explain how bias about a person because of ethnic background, gender, or expected academic potential may distort teachers' interactions with students by causing the teacher's behaviour to be influenced by the stereotypical belief, thus causing the teacher to ignore accurate information which would be available if the teacher's perceptions about the student were not being perverted.

Self-concept theory (Rosenthal & Jacobson, 1968) suggests that the teacher's behaviour towards the student has a strong influence on how students perceive themselves which in turn affects student performance. For example, studies into why girls tend to be less physically active than boys revealed that lack of self-confidence may be a major reason, and that this may be traced to the need for performance feedback, often missing for girls (Lenney, 1977).

This study was conducted in two stages. In the first stage a sample of elementary teachers was selected by randomly drawing a sample of sixteen schools from fifty-four elementary schools in the NorthEast and Southeast districts within the Calgary Board of Education school district. All the classroom teachers in the schools chosen were asked to complete the Bogardus Social Distance Scale (BSDS). Twenty ethnic minorities which represented the twenty largest in number according to the 1986 Statistics Canada census for Calgary comprised the ethnic categories identified on the BSDS.

The total teacher population from which the sample of teachers was drawn for the first stage of the was 1037. The total number of teachers in the selected schools was 251 and 151 usable BSDS questionnaires were returned. The responses were coded by a research assistant, who then selected ten teachers from the pool of forty-eight top scores on the BSDS, and ten teachers from the lowest fifteen scores. The distribution of scores was extremely skewed in the direction of the top scores, resulting in a mean score of 383 and a mode of 420.

The researcher intended that the group of twenty teachers selected for the second stage of the study be distinguished on the basis of their extreme responses to the BSDS. The ten teachers chosen from the pool of top scorers all received scores of 420 on the BSDS. The fifteen lowest scores ranged from 206 to 298. The researcher did not know how any of the teachers selected for the observational stage of the study actually scored.

The observation stage of the study consisted of structured observations of the interactions between the twenty teachers and their students using the Brophy-Good Dyadic Interaction System. The categories within the Brophy-Good System were collapsed into four variables, three content variables of praise, criticism and procedure, and the variable of frequency. Teacher-student interactions were observed over three forty minute periods in each classroom. Teachers were requested to provide information about the ethnic background, gender, perceived academic potential (based on the rating of the teacher) and information about the English speaking ability of the student as determined by whether or not the student required ESL training. Teachers were also asked to indicate whether or not they had multicultural training according to criteria established by the researcher.

Ten hypotheses were examined with analysis of variance and discriminate function analysis was applied to determine whether there were any variables which significantly discriminated between high BSDS scorers and low BSDS scorers.

It was found that native Canadians receive less praise and fewer procedural contacts than do Japanese, Vietnamese, East Indians and Caucasians. Native Canadians were also found to receive fewer interactions overall. Males receive more criticism than females, and Caucasian males were found to receive more praise, procedural contacts and more interactions overall.

Caucasians receive more praise than other ethnic groups. Teachers who have had multicultural training give more praise, more procedural contacts and interact more frequently with all students than do teachers who have not had multicultural training. The variable of ESL training for students did not appear to influence teacher-student interactions. High BSDS scorers were found to give more praise than low BSDS scorers. Low BSDS scorers were found to give more criticism to students rated as high academic whereas high BSDS scorers give more criticism to students rated as middle academic.

Specific Findings

The findings are discussed in relation to each hypothesis, and will be presented in that order. The ten hypotheses were stated in the null form. The results of the analyses reveal that the researcher must fail to reject hypothesis 5. Hypotheses 1, 2, 3, 4, 6, 7, 8, 9 and 10 were partially rejected. Explanations for the failure to reject and for partial rejection will be given with the discussion of each hypothesis.

Hypothesis 1

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups.

The results of one-way ANOVA revealed that no ethnic groups were significantly different on the variables of praise or frequency. On the variables of criticism and procedure, there were differences between Japanese, Vietnamese, East Indians, Chinese, Caucasians, and Native Canadians. Analysis of variance

does not reveal where the differences occur, but the post hoc measure applied, Fisher's LSD, using ranges of 2.78 set for the .05 level of significance, showed that the significant differences are between native Canadians and the other groups mentioned above. Native Canadians receive different amounts of criticism and procedural contacts than do Japanese, Vietnamese, East Indians, Chinese and Caucasians.

Hypothesis 1 is therefore partially rejected i.e. there is a difference in the teacher-student interactions of criticism and procedural contacts across the student groups identified.

Hypothesis 2

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and student gender.

As there were ethnic by gender cells with insufficient numbers to permit analysis, the categories of ethnic group were collapsed to Caucasian and non-Caucasian. The two-way ANOVA revealed that males receive more criticism than females regardless of their ethnic group. Interactive effects were not significant. One might conclude that gender had more impact on the teacher-student interaction of criticism than ethnicity. The effect of gender on criticism was significant at the .01 level ($F = 23.787$, $df = 1/471$).

Hypothesis 2 was not rejected on the variables of praise, procedure, and frequency, but was rejected on the variable of criticism i.e. males receive significantly more criticism than do females.

Hypothesis 3

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and perceived academic potential groups.

The original twelve ethnic groups were collapsed into five categories of: Caucasian, Oriental, East Indian, Black, and Native Canadian in order to calculate two-way ANOVAS. No significance was found on praise but it was found that native Canadians receive significantly fewer interactions overall ($F = 2.388$, $df = 4/468$, $p = <.05$) and that native Canadians rated as low academic (4) receive fewer interactions ($F = 22.722$, $df = 14/468$, $p = <.001$), fewer procedural contacts ($F = 3.343$, $df = 14/468$, $p = <.001$) and less criticism ($F = 1.711$, $df = 14/68$, $p = <.05$).

This hypothesis was therefore partially rejected.

Hypothesis 4

There will be no significant differences in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups between teacher groups on the variable of multicultural training.

The results of the analyses reveal that Caucasians receive more praise ($F = 4.637$, $df = 1/470$, $p = <.05$). It was also found that teachers who have had multicultural training give more praise ($F = 40.543$, $df = 1/470$, $p = <.01$), more procedural contacts ($F = 36.535$, $df = 1/470$, $p = <.01$), and demonstrated a significantly greater frequency of interactions with students ($F = 34.962$, $df = 1/470$, $p = <.01$).

This hypothesis was therefore substantially rejected.

Hypothesis 5

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across student ethnic groups and ESL training.

Ethnic groups had to be collapsed into two categories, Caucasian and non-Caucasian, because of empty cells. Analysis of variance revealed no significant differences between any variables, leading the researcher to fail to reject the hypothesis.

Hypothesis 6

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups.

Ethnic group had to be collapsed into two categories, Caucasian and non-Caucasian because of empty cells. The ANOVA revealed that high scorers on the BSDS give significantly more praise ($F = 5.555$, $df = 1/471$, $p = <.05$). There were no significant differences on the other variables, resulting in the rejection of the null hypothesis for high BSDS scorers on praise, and failure to reject the null hypothesis on the other variables.

Hypothesis 7

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and student gender.

Three-way ANOVAS were calculated resulting in findings of significant interactive effects for praise on ethnic group and gender ($F = 3.485$, $df = 4/468$, $p = <.05$), procedure on ethnic group and gender ($F = 3.338$, $df = 4/468$, $p = <.01$), and for frequency on ethnic group and gender ($F = 4.469$, $df = 4/468$, $p = <.001$). Significant main effects were found for criticism on ethnic group ($F = 2.349$, $df = 4/468$, $p = <.05$) and on gender ($F = 22.683$, $df = 4/468$, $p = <.001$).

These results indicate that Caucasian males receive more praise, procedural contacts, and significantly greater frequency of interactions. The main effects findings reveal that Caucasians receive more criticism, and that males receive more criticism.

This hypothesis was substantially rejected.

Hypothesis 8

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and perceived academic potential groups.

Teachers who scored high on the BSDS in this study were found to give significantly more praise ($F = 6.592$, $df = 1/465$, $p = <.01$), than did those teachers who scored low on BSDS.

An interactive effect was found between the two levels of the BSDS and perceived academic potential which revealed that low BSDS scorers give more criticism to students rated as high academic, whereas high BSDS scorers give more criticism to students rated as middle academic (Figure 2). No significant differences were found between academic ability and ethnic group.

This hypothesis was partially rejected.

Hypothesis 9

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups and students requiring ESL training.

It was found that native Canadians receive significantly less criticism ($F = 2.346$, $df = 4/468$, $p = <.05$) and that high BSDS scorers give more praise ($F = 5.387$, $df = 1/468$, $p = <.05$). No significant differences were found on the other variables.

This hypothesis was partially rejected.

Hypothesis 10

There will be no significant difference in the content (praise, criticism, procedure) or frequency of teacher-student interactions across high and low scoring groups on the BSDS and student ethnic groups between teachers who have had or have not had multicultural training.

It was found that teachers who have received multicultural training give more praise ($F = 40.462$, $df = 1/467$, $p = <.001$), more procedural contacts ($F = 34.406$, $df = 1/467$, $p = <.001$) and interact more frequently ($F = 32.762$, $df = 1/467$, $p = <.001$). It was also found that high BSDS scorers give more praise ($F = 36.403$, $df = 1/467$, $p = <.01$) and that native Canadians receive less criticism ($F = 2.461$, $df = 4/467$, $p = <.05$).

This hypothesis was substantially rejected.

Discriminant Function Analysis

The results of the discriminant function analysis revealed that none of the variables demonstrated significant ability to predict group membership. It is therefore concluded that the variables examined in this study do not enable one to determine to which group of BSDS scorers teachers might belong. While it was found that there was some relationship between high BSDS scorers and ESL, it could not be shown that there was a significant predictive relationship (large proportion of shared variance). In practise, while teachers may volunteer to accept ESL students, there is no mechanism to ensure that ESL students are only placed in the classrooms of teachers who do so.

Limitations

The major limitation in this study was empty cell size for some variables. As a result, the researcher was forced to collapse categories of variables in order to combine cells so that statistical analyses could be calculated. Although twelve ethnic groups were classified among the students observed, there were not enough subjects in some groups to permit analysis in relation to the other variables.

Because of cell size limitations conclusions about the relationship of ethnic group and gender, or ethnic group and perceived academic ability must be viewed cautiously. One cannot surmise with confidence about significant relationships between these variables.

Another serious limitation arose from the distribution of the BSDS scores. The distribution was severely skewed in favour of high scores. Conflicting explanations are feasible. It may be that elementary teachers teaching in the schools from which the sample was drawn generally hold positive attitudes

schools from which the sample was drawn generally hold positive attitudes towards ethnic minorities, or it may be that those who hold more negative views did not return the questionnaire. It is also possible that some respondents were inclined to record socially correct responses which may not have reflected accurately how they actually felt.

The Board of Education granted permission for the study on the basis that teachers would know what the purpose of the study was. Not only might this information have influenced responses to the questionnaire, but it may have encouraged teachers to adjust their responses to students while being observed, for instance, teachers may have made conscious efforts to interact more with all students, and to offer more positive feedback.

The fact that nothing is known about the influence of teacher variables such as gender, ethnic group, SES, age, experience or qualifications other than multicultural training may also limit the generalizability of the findings.

Conclusions

This discussion will be in relation to the research questions which formed the basis for this study. The first research question asked whether there are differences in teacher-student interactions related to the student's gender and ethnic background. Secondly, it was asked whether multicultural training of teachers influence teacher-student interactions. The third question considered the possible influence of students who require ESL training on the results, and the fourth question examined the effect of teachers' perceptions of student academic ability on teacher-student interactions. The fifth research question examined the relationship between teachers' scores on the BSDS and teacher-student interactions.

Teacher-student interactions were defined in the study as praise, criticism, procedural contacts (procedure) and frequency. Praise was found to be more likely to be given by high BSDS scorers and by teachers who had received multicultural training. Native Canadians were found to receive less criticism and fewer procedural contacts than Japanese, Vietnamese, East Indians, Chinese and Caucasians. Teachers who had multicultural training were found to give more procedural contacts and interacted more frequently with their students than did teachers who had not had multicultural training. Males were found to receive more criticism and Caucasian males were found to receive more praise, procedural contacts and to be interacted with more frequently. High BSDS scorers gave more praise and criticism generally than low BSDS scorers, although high BSDS scorers were found to give more criticism to students rated 3 on academic ability, whereas low BSDS scorers gave more criticism to students rated high (1) on academic ability.

The scarcity of data for many of the variables tested forces the researcher to avoid coming to any conclusion about a number of the relationships investigated other than to surmise that further research is needed about the relationships between these variables. For example, one must interpret cautiously results between ethnic group and student gender because of the size of many cells. The same is true for academic ability and ethnic group. Insufficient data in some categories also limits the examination of differences between high BSDS scorers and low BSDS scorers, although some differences were in fact found.

Implications

The researcher was interested in whether teachers' attitudes towards ethnic minorities as indicated by their scores on the BSDS seemed to be related

to teacher-student interactions. The finding that high BSDS scorers appear to give more praise and criticism and were somewhat more likely to have ESL students in their classrooms suggests that despite the limitations noted in obtaining accurate responses about teacher attitudes, further study into the effect of teacher attitudes on teacher-student interactions may be worthwhile. A question which cannot be answered by this study, but which may be an area for further research is why high BSDS scorers are somewhat more likely to have ESL students in their classrooms? Why do teachers with more positive attitudes towards ethnic minorities appear to give more praise to all students? Why do teachers with less positive attitudes towards ethnic minorities appear to give less praise and less criticism?

School districts may be encouraged to note the finding that teachers who have received multicultural training give more praise, procedural contacts, and interact more frequently with students. There is a suggestion that multicultural training may inspire teachers to interact more and in a wider variety of ways with students.

The finding that native Canadians apparently receive less praise, criticism, fewer procedural contacts and fewer interactions overall than other children is disturbing. The number of native Canadians who are reported in the study is very small, but the trend is deserving of further study. While insufficient data for many of the categories of ethnic group in relation to other variables makes any conclusions suspect, the finding that at least one ethnic group appears to receive different treatment is reason for concern, and for further study. Further studies into attribution theory may be warranted in this area. Are native Canadians treated differently, for instance, because of stereotypes about native Canadians which influence the interactions between teachers and native Canadians? Do attributions held by teachers because of stereotypes interfere with a teacher's

ability to perceive accurately the actual characteristics of the native Canadian student i.e. learning style, personality, attitudes etc which ought to provide the teacher with clues as to how best to communicate with the native student?

The finding that Caucasian boys receive more praise, procedural contacts and more interactions, and that all males receive more criticism seems to be consistent with the findings of other studies which concluded that boys receive more feedback than do girls (Lenney, 1977, Irvine, 1985). If feedback is related to performance (Brophy & Good, 1970, Simpson & Erickson, 1983, Irvine, 1985) then this may help to explain why boys appear to perform better at certain tasks than do girls. These findings suggest another area which may warrant further attention.

Recommendations

Despite the problems encountered in obtaining sufficient data for some variables, the level of cooperation received from the school district and from its teachers was very encouraging. Teachers were aware that the study was to examine some very sensitive issues. The school district's Ethics Committee would not permit any information about the purpose of the study to be withheld from potential participants. The major problem was not lack of cooperation, but limitations because only one researcher was available to gather data. A much larger and more comprehensive data collection might provide answers to questions which could not be answered by this study. It is believed that the study does offer clues as to where further research may be warranted.

Considerable time and resources are being urged on teachers and school districts for multicultural training of teachers. The findings of this study suggest that such programs deserve further attention. The finding that there appears to

be a relationship between multicultural training and teacher-student interactions which encourages more praise and increased communication suggests that teachers and therefore students may benefit from such training for teachers. For example, what elements within multicultural training programs for teachers seem to contribute to the finding that teachers who have had such training appear to give all students more praise and more frequent interactions and less criticism? How might teachers be given feedback about their interactions with students in order to stimulate more positive responses to students?

It was not possible to detect any connections between teachers' attitudes towards minority groups as indicated by the results of the BSDS and whether or not teachers had received multicultural training, but the findings about multicultural training may indicate such training is worthwhile for all teachers.

Because there were some findings which suggest that teachers' attitudes towards ethnic minorities have some relationship with teacher-student interactions, not only is further study of this seen to be needed, but the results suggest that teachers should be more aware of how their attitudes may affect their interactions with students. Teacher preparation programs at the pre-service stage, i.e. within university programs of education; and teacher-in-service programs might be encouraged to be more cognizant of this concern.

School district officials may wish to take more care in placing ESL students, at least ensuring that the receiving teacher is willing to accept them.

No attempt was made in this study to examine the relationship between teacher-student interactions and student performance. A number of studies have suggested that the connection between teacher-student interactions and outcomes for students relative to student achievement, behaviour, attitudes, etc is an area of study which warrants scrutiny. Such studies would appear to be a

logical followup. For example, do students who appear to receive more praise, criticism, procedural contacts and more frequent contacts reflect this in improved performance?

Dusek and Joseph contend that much more research needs to be done with classroom teachers and their own students (1985: 244). They consider that while research in social psychology and other related disciplines may offer "leads to research with classroom teachers, ... the artificiality of the procedures used in the majority of studies ... supports the contention that a more veridical picture of the bases of teacher expectancies will be gained by studying intact classrooms" (1985: 244-245).

This study considered current theories which may explain why certain teacher variables may have an influence on teacher-student interactions in the classroom which in turn may affect student performance.

As Weiner describes it

there are reversible associations for at least some of the linkages in the theory - outcomes determine general affective states, and general affective states influence outcome perceptions; attributions influence expectancy, and expectancies guide attributions; attributions influence communicated emotions, and communicated emotions provide attributional information; causes are placed in dimensions, and dimensional focus might direct attributional decisions (1986: 241).

It is believed that what teachers do in relation to students in classrooms is so critical to the outcomes for students that research which attempts to investigate variables which influence teacher-student relationships ought to be encouraged.

PLEASE NOTE

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**92, Appendix A
Social Distance Scale**

**93-100, Appendix B
Teacher-Child Dyadic Interaction**

University Microfilms International

APPENDIX C

CALCULATIONS OF INTRARATER RELIABILITY COEFFICIENTS

1. Calculations for the rater which are based on the coding of the three videotapes done at intervals of one day.

Videotape 1

Praise	Criticism	Procedure	Frequency
74 70	0 5	213 210	287 285
%=94.59	%=0	%=98.59	%=99.30
pi=.726		pi=.93	pi=.965

Videotape 2

Praise	Criticism	Procedure	Frequency
80 76	22 19	169 175	271 270
%=95.0	%=86.36	%=96.57	%=99.63
pi=.750	pi=.318	pi=.829	pi=.982

Videotape 3

Praise	Criticism	Procedure	Frequency
107 105	24 23	348 345	479 473
%=98.13	%=95.63	%=99.14	%=98.75
pi=.915	pi=.792	pi=.952	pi=.936

Note:

In calculating the pi's, using the formula

$$pi = \frac{Po - Pe}{1.00 - Pe}$$

$$Pe = 80.0$$

2. Calculations based on comparisons of the ratings of the first observations done (the first figure shown under each of the categories above) and ratings obtained two weeks later. The same formula and Pe as noted above were used to obtain the pi's.

Videotape 1

Praise	Criticism	Procedure	Frequency
74 77	0 0	213 211	287 288
%=96.10	%=100	%=99.06	%=99.65
pi=.805	pi=1.0	pi=.953	pi=.983

Videotape 2

Praise	Criticism	Procedure	Frequency
80 75	22 26	169 165	271 266
%=93.75	%=84.61	%=97.63	%=98.51
pi=.688	pi=.231	pi=.682	pi=.926

Videotape 3

Praise	Criticism	Procedure	Frequency
107 110	24 22	348 342	479 474
%=97.27	%=91.67	%=99.13	%=98.96
pi=.864	pi=.584	pi=.957	pi=.948

APPENDIX D**TEACHER DATA**

NAME:

SCHOOL:

MULTICULTURAL TRAINING:

Multicultural training is being defined for purposes of this study as courses or seminars which consist of at least 30 hours in total duration, and which have had as their focus the development of increased understanding of, and appreciation for, a variety of other cultures

I have had multicultural training which fits the definition:

(please circle)

yes no

APPENDIX E

STUDENT DATA

NAME:

SEX: M F ETHNIC BACKGROUND:

Is this student receiving ESL training? yes no

Please indicate where you believe this student rates on the characteristic of academic potential.

1 (high) 2 3 4 5

TEACHER:

SCHOOL:

APPENDIX F**TABLE 18**

**Analysis of Variance for Praise in Relation to Two Levels of BSDS Scorers,
Five Levels of Ethnic Group and Two Levels of Gender**

Source	SS	df	MS	F
BSDS scores	30.145	1	30.145	5.847
Ethnic group	38.795	4	9.699	1.881
Gender	2.519	1	2.519	.489
BSDS x Ethnic	41.380	4	10.345	2.006
BSDS x Gender	.663	1	.663	.129
Ethnic x Gender	71.878	4	17.969	3.485*
BSDS x Ethnic x Gender	46.661	4	11.665	2.263
Residual	2315.010	449	5.156	

*p = <.01

TABLE 19

**Analysis of Variance for Criticism in Relation to Two Levels of BSDS
Scorers, Five Levels of Ethnic Group and Two Levels of Gender**

Source	SS	df	MS	F
BSDS scores	8.036	1	8.036	2.028
Ethnic group	37.229	4	9.307	2.349*
Gender	89.874	1	89.874	22.683**
BSDS X Ethnic	12.665	4	3.166	.799
BSDS x Gender	6.827	1	6.827	1.723
Ethnic x Gender	29.744	4	7.436	1.877
BSDS x Ethnic x Gender	31.142	4	7.786	1.965
Residual	1778.992	449	3.962	

*p = <.05

**p = <.001

TABLE 20

**Analysis of Variance for Procedure in Relation to Two Levels of BSDS
Scorers, Five Levels of Ethnic Group and Two levels of Gender**

Source	SS	df	MS	F
BSDS scores	4.528	1	4.528	.108
Ethnic group	316.474	4	79.118	1.888
Gender	16.344	1	16.344	.390
BSDS x Ethnic	67.414	4	16.853	.402
BSDS x Gender	71.945	1	71.945	1.717
Ethnic X Gender	559.457	4	139.864	3.338*
BSDS X Ethnic X Gender	207.247	4	51.812	1.236
Residual	18815.294	449	41.905	

*p= <.01

TABLE 21

**Analysis of Variance for Frequency in Relation to Two Levels of BSDS
Scorers, Five Levels of Ethnic Group and Two levels of Gender**

Source	SS	df	Ms	F
BSDS scores	38.407	1	38.407	.500
Ethnic group	702.362	4	175.591	2.287
Gender	228.318	1	228.318	2.973
BSDS x Ethnic	171.738	4	42.934	.559
BSDS x Gender	141.820	1	141.820	1.847
Ethnic x Gender	1372.482	4	343.120	4.469**
BSDS x Ethnic x Gender	415.527	4	103.882	1.353
Residual	34476.419	449	76.785	

**p= <.001

APPENDIX G

TABLE 22

**Analysis of Variance of Praise in Relation to Two Levels of BSDS Scorers,
Five Levels of Ethnic Group and Two Levels of ESL Training**

Source	SS	df	MS	F
BSDS scores	28.437	1	28.437	5.387*
Ethnic group	34.286	4	8.571	1.624
ESL	.553	1	.553	.105
BSDS x Ethnic	31.904	4	7.976	1.511
BSDS x ESL	7.868	1	7.868	1.490
Ethnic x ESL	32.391	4	8.098	1.534
BSDS x Ethnic x ESL	27.449	3	9.150	1.733
Residual	2375.485	450	5.279	

*p = <.05

TABLE 23

**Analysis of Variance of Criticism in Relation to Two Levels of BSDS
Scorers, Five Levels of Ethnic Group and Two Levels of ESL Training**

Source	SS	df	MS	F
BSDS scores	10.343	1	10.343	2.448
Ethnic group	39.636	4	9.909	2.346*
ESL	.180	1	.180	.043
BSDS x Ethnic	29.964	4	7.491	1.773
BSDS x ESL	8.494	1	8.494	2.011
Ethnic x ESL	17.774	4	4.444	1.052
BSDS x Ethnic x ESL	5.265	3	1.744	.415
Residual	1900.875	450	4.224	

*p = <.05

TABLE 24

**Analysis of Variance for Procedure in Relation to Two Levels of BSDS
Scorers, Five Levels of Ethnic Group and Two Levels of ESL Training**

Source	SS	df	MS	F
BSDS scores	8.154	1	8.154	.188
Ethnic group	341.618	4	85.405	1.973
ESL	26.091	1	26.091	.603
BSDS x Ethnic	159.816	4	39.954	.923
BSDS x ESL	98.150	1	98.150	2.268
Ethnic x ESL	105.416	4	26.354	.609
BSDS x Ethnic x ESL	18.890	3	6.297	.145
Residual	19476.617	450	43.281	

TABLE 25

**Analysis of Variance for Frequency in Relation to Two Levels of BSDS
Scorers, Five Levels of Ethnic Group And Two Levels of ESL Training**

Source	SS	df	MS	F
BSDS scores	32.411	1	32.411	.404
Ethnic group	750.913	4	187.728	2.338
ESL	29.454	1	29.454	.367
BSDS x Ethnic	282.181	4	70.545	.879
BSDS x ESL	244.185	1	244.185	.879
Ethnic x ESL	253.992	4	63.498	.791
BSDS x Ethnic x ESL	104.703	3	34.901	.435
Residual	36135.434	450	80.301	

APPENDIX H

TABLE 26

**Analysis of Variance of Praise in Relation to Two Levels of BSDS Scorers,
Five Levels of Ethnic Group and Two Levels of Multicultural Training**

Source	SS	df	MS	F
BSDS scores	36.403	1	36.403	7.561*
Ethnic group	33.533	4	8.383	1.741
Training	194.804	1	194.804	40.462**
BSDS x Ethnic	34.500	4	8.625	1.791
BSDS x Training	.066	1	.066	.014
Ethnic x Training	18.668	4	4.667	.969
BSDS x Ethnic x Train	16.169	3	5.390	1.119
Residual	2161.699	449	4.814	

*p = <.01

**p = <.001

TABLE 27

**Analysis of Variance of Criticism in Relation to
Two Levels of BSDS Scorers, Five Levels of Ethnic Group
and Two Levels of Multicultural Training**

Source	SS	df	MS	F
BSDS scores	10.006	1	10.006	2.359
Ethnic group	41.765	4	10.441	2.461*
Training	2.770	1	2.770	.653
BSDS x Ethnic	23.994	4	5.999	1.414
BSDS x Training	.303	1	.303	.071
Ethnic x Training	16.716	4	4.179	.985
BSDS x Ethnic x Train	9.173	3	3.058	.721
Residual	1904.592	449	4.242	

*p = <.01

TABLE 28

**Analysis of Variance for Procedure in Relation
to Two Levels of BSDS Scorers, Five Levels of Ethnic Group
and Two Levels of Multicultural Training**

Source	SS	df	MS	F
BSDS scores	1.308	1	1.308	.033
Ethnic group	256.866	4	64.216	1.599
Training	1381.921	1	1381.921	34.406**
BSDS x Ethnic	103.571	4	25.893	.645
BSDS x Training	6.802	1	6.802	.169
Ethnic x Training	24.323	4	6.081	.151
BSDS x Ethnic x Train	193.143	3	64.381	1.603
Residual	18034.236	449	40.165	

**p = <.001

TABLE 29

**Analysis of Variance for Frequency in Relation
to Two Levels of BSDS Scorers, Five Levels of Ethnic Group
and Two Levels of Multicultural Training**

Source	SS	df	MS	F
BSDS scores	64.854	1	64.854	.868
Ethnic group	581.234	4	145.308	1.945
Training	2447.005	1	2447.005	32.762**
BSDS x Ethnic	256.376	4	64.094	.858
BSDS x Training	3.242	1	3.242	.043
Ethnic x Training	124.834	4	31.209	.418
BSDS x Ethnic x Train	342.243	3	114.081	1.527
Residual	33536.419	449	74.691	

**p = <.001

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