

**CLASSROOM CONTROL AND READING ACHIEVEMENT
IN GRADE TWO AND GRADE FIVE**

CENTRE FOR NEWFOUNDLAND STUDIES

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CLASSROOM CONTROL AND READING ACHIEVEMENT
IN GRADE TWO AND GRADE FIVE

A Thesis Presented to
The Faculty of Education
Memorial University

In Partial Fulfillment
of the Requirements for the Degree
Master of Education



by
G. M. Brooker
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ABSTRACT

This study is concerned with decisions the teacher makes in the classroom regarding classroom control, and the effects these decisions have on reading achievement. The teacher is seen as a manager, responsible for deciding how to control the transactions in the social system of the classroom so that learning tasks are accomplished efficiently and effectively. Data used to test the hypotheses in this study were gathered as part of a study of elementary classroom teaching entitled the Teaching Strategies Project, and conducted by the Institute for Educational Research and Development, Memorial University of Newfoundland. Classroom process data were collected during approximately thirty hours of observations in each of 75 classrooms. During this period the Gates-MacGinitie Reading Tests were also administered as pre-test and post-test.

This study used the conception of classroom control developed by Morrison (1974) which defined control as consisting of three dimensions: warmth, boundary control and response to deviant behavior. To determine if these dimensions are important predictors of reading achievement a two stage analysis was conducted. The first stage involved the association between the dependent and independent variables. A correlational analysis was first used to determine if a relationship exists between the

independent variables (warmth, desk, task, talk, mild reprimand, severe reprimand, threat, punishment and other) and the three composites (boundary control, response to deviant behavior and total control). Total control consisted of the composites of warmth, boundary control and response to deviant behavior, and a regression analysis was used to determine the contribution of each of these composites to total control.

The second stage of analysis examined the question of whether the independent variables have a linear or a nonlinear relationship to the dependent variables of reading. In order to test this, teachers were divided into groups on the basis of the independent variables. An analysis of variance was applied, followed by tests for linear and nonlinear trends. The computing procedure used was SPSS BREAKDOWN, using the ANOVA option with separation of trends for linear and nonlinear regression. The significance of the linear and nonlinear relationship was determined by the F test. All tests of significance used in this study were at the .05 level of probability.

Based on these tests it was concluded that warmth was significantly associated with reading achievement in grades two and five and therefore the first hypothesis was accepted. A significant linear relationship was also found for warmth and reading achievement in grade two. The second hypothesis, that high boundary control is significantly

associated with reading achievement was supported for grade five, but not for grade two. The test for linear relationships showed that only the task variable in grade five had a significant linear relationship. The third hypothesis, that low response to deviant behavior is significantly correlated with reading achievement in grades two and five was rejected because of an insignificant correlation in grade two, although grade five was found to have a significant correlation. Also a significant linear correlation was found for mild reprimand in grade two. Hypothesis four involved a composite of the dimensions of warmth, boundary control and response to deviant behavior. It was found that this composite was significantly related to reading achievement in both grades.

This study shows that the dimensions of classroom control are important for reading achievement, particularly in grade five, and that there are important differences between grades with regard to control.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES.....	viii
 Chapter	
1. THE PROBLEM AND ITS SETTING.....	1
INTRODUCTION.....	1
STATEMENT OF THE PROBLEM AND	
PURPOSES OF THIS STUDY.....	12
The Problem.....	12
Purpose.....	13
JUSTIFICATION.....	15
DEFINITIONS.....	20
CONCEPTUAL FRAMEWORK:.....	24
HYPOTHESES.....	27
LIMITATIONS OF THE STUDY.....	30
11. REVIEW OF RELATED LITERATURE.....	31
INTRODUCTION.....	31
EARLY RESEARCH ON LEADERSHIP	
AND CONTROL.....	31
CLASSROOM OBSERVATION STUDIES.....	40
RESEARCH ON WARMTH AND CONTROL.....	45
RESEARCH ON TEACHER RESPONSE	
TO DEVIANT BEHAVIOR.....	58
Summary.....	62

Chapter	Page
11.1. METHODOLOGY AND RESEARCH DESIGN.....	63
INTRODUCTION.....	63
The Iscale of the Study.....	63
The Population of the Study.....	64
The Sample.....	64
Data Collection.....	66
Variables.....	69
Reliability.....	72
Treatment of Data.....	72
IV. RESEARCH FINDINGS.....	75
INTRODUCTION.....	75
Correlation Analysis.....	76
Nonlinear Relationships.....	81
V. DISCUSSION OF RESULTS.....	95
INTRODUCTION.....	95
Summary.....	95
Statement of the Problem and Purpose of the Study.....	96
Hypothesis One - Major Findings and Discussion.....	99
Hypothesis Two - Major Findings and Discussion.....	100
Hypothesis Three - Major Findings and Discussion.....	103

Chapter		Page
V.	Hypothesis Four - Major Findings and Discussions.....	105
	Summary of Findings.....	105
	Limitations.....	108
	Suggestions for Further Research...	109
	BIBLIOGRAPHY.....	111

LIST OF TABLES

Table	Page
I. Pearson Correlation Coefficient for Dimensions of Classroom Control and Vocabulary, Comprehension and Total Reading Gain in Grade Two and Grade Five.....	77
II. Summary of Regression Analysis, Components of Classroom Control, Grade Two.....	82
III. Summary of Regression Analysis, Components of Classroom Control, Grade Five.....	83
IV. Summary of Means for Groups and Test of Linearity of Warmth, Grade Two.....	85
V. Summary of Means for Groups and Test of Linearity of Warmth, Grade Five.....	85
VI. Summary of Means for Groups and Test of Linearity for Dimensions of Boundary Control, Grade Two.....	86
VII. Summary of Means for Groups and Test of Linearity for Dimensions of Boundary Control, Grade Five.....	87
VIII. Summary of Means for Groups and Test of Linearity for Dimensions of Response to Deviant Behavior in Grade Two.....	88
IX. Summary of Means for Groups and Test of Linearity for Dimensions of Response to Deviant Behavior in Grade Five.....	90

Tables

Page

X. Number of Teachers Observed Using Responses to Deviant Behavior in Grade Two and Grade Five.....	93
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CHAPTER 1

THE PROBLEM AND ITS SETTING

INTRODUCTION

This study is primarily concerned with decisions the teacher makes in the classroom regarding classroom control, and the effects these decisions have on reading achievement. The kinds of control implemented by the classroom teacher is an issue of concern for educators, administrators and researchers (Amsterdam, 1957; Bean and Roy, 1974; Corsini and Howard, 1964; Jackson, 1968; Morrison, 1974). Although there is no scarcity of opinion or prescription on 'how to', it has been noted by many researchers that evidence concerning classroom control based on scientific study is rare (Appleberry, 1971; Ausubel, 1961; Bernhardt, 1964; Ferguson, 1973; Kounin and Gump, 1961; Lortie, 1975; Ryans, 1963). In the absence of a theoretical or empirical basis for decisions concerning classroom control the teacher is left with only instinct, feelings and personal experience to base these important decisions upon.

Although there are no definitive conclusions with regard to the best kind of classroom control for reading achievement, the evidence thus far does indicate that the type of control the teacher implements in the classroom

is an important factor in determining how much learning takes place (Anderson, 1939; Cogan, 1956, 1963; Flanders, 1967; Lewin, Lippitt and White, 1939; Soar, 1967; Withall, 1949). Studies of classroom control concerned specifically with the teaching of reading have been conducted by Delacato and Delacato (1952), Perkins (1965), Medley and Mitzel (1959), and Soar (1975). The results of these studies are far from conclusive. Delacato and Delacato (1952) studied a group of eleven boys referred for remediation, and found that a permissive environment produced growth in reading skills and more favorable attitudes. Perkins (1965) found that lecturing and criticizing were related to loss in reading comprehension scores in a study of under-achieving, high-ability fifth graders, although there was gain in reading vocabulary. Medley and Mitzel (1959) found only a slight relationship between growth in reading and emotional climate. Soar (1975) in his review of findings from his four studies of teacher effectiveness suggests that a curvilinear relationship exists, and that "...neither extreme of freedom or control is likely to be most functional for learning....the precise balance between them which will be optimal is likely to shift with the complexity of the learning objective" (p. 16). These conclusions support the advice of Crawford et al. (1977) that future

research in classroom control should consider both specific context effects and pupil characteristics before attempting to prescribe optimal instruction. This presents a very complex issue, but as Willower and Jones state, research on classroom control "...points to pupil control as an integrative concept of some value in studying educational organizations. However, we have only scratched the surface. Further studies which focus on pupil control in schools are needed to reveal other useful integrative concepts" (Willower and Jones, 1963, p. 109).

The study of classroom control presents many complex issues, as does the study of reading. Reading is defined by Walcutt, Lampert and McCracken (1974, pp.26-27) as involving three different processes that must exist together for the competent reader. The first step deals with mechanical skills. It involves the use of symbols and is concerned with decoding print into sound. The second step involves understanding the language that has been decoded and is concerned with formulating, expressing and communicating ideas. The third area is concerned with creative reading and involves extending culture, science, thought and art through the printed word.

Reading is not a skill to be acquired passively, but as Stauffer states, "Reading is a mental process - a dynamic, active process" (Stauffer, 1968, p.3). Reading is a thinking activity that is a function of the total personality of the person, and therefore the structure of the classroom and the interactions permitted during the learning situation are important factors in the learning process. As Russell states, "Emotions and attitudes not only help determine what reaches consciousness but act as directive forces in most thinking processes" (Russell, 1970, p.83). Control of the classroom is an important determinant not only for the emotional and attitudinal response of the students, but as Duke states, there is also a relationship between achievement, attitudes and behavior of students, as well as the mental health, job satisfaction and effectiveness of teachers (Duke, 1979, p.xli).

Classroom control in this study used the definition developed by Morrison (1974) and is concerned with the decisions the teacher makes in the classroom concerning control of boundaries, emotional response, and response to deviant behavior in the classroom. These decisions are made in order to provide an appropriate "climate" so that the task of learning is achieved effectively and efficiently. Morrison's work will be

discussed in greater detail later in this chapter. Flanders defines the climate of the classroom as an outgrowth of classroom social interactions that are formed as a result of participating in classroom activities.

He states that:

...the word climate is merely a shorthand reference to those qualities that consistently predominate in most teacher-pupil contacts between pupils in the presence or absence of the teacher. (Flanders, 1967, p. 104)

But Flanders cautions that the precise meaning is seldom clear, and that:

To have any meaning at all, the word must always be qualified by an adjective, and it is in the choice of adjectives that researchers reduce their scientific integrity by losing their objectivity; e.g., Lippitt and White's choice of "authoritarian" and "democratic" to describe climate. (Flanders, 1967, p. 104)

The importance of Flanders' warning is illustrated by Dunkin and Biddle's (1974, p. 94) review of research on classroom control. These authors agree that a black-white attitude has developed toward this issue with the "good" teacher seen as democratic, integrative and learning-centered, and the "bad" teacher seen as autocratic, dominative and teacher-centered. "Good" and "bad" have different labels attached by various studies, for example: "democratic" vs. "autocratic" by Lewin, Lippitt and White (1939), "learner-centered" vs. "teacher-centered" by Withall (1949), "integrative" vs. "dominative" by

H. H. Anderson (1939), and "humanistic" vs. "custodial" by Willower, Eldell and Hoy (1973).

The bias implicit in the use of these terms is illustrated by the definition Willower, Eldell and Hoy (1973, pp. 5-6) give of "humanistic" and "custodial" classroom control. The humanistic orientation of classroom control is defined as existing in classrooms where members learn through interaction and experience, emphasizing worthwhile activity rather than passive absorption of facts. The teacher is described as being optimistic and cultivating the positive aspects of friendship and respect and to develop self-disciplined rather than disciplined students. Rules and status are flexible, and teachers and students act upon their own volition and accept responsibility for their actions. On the other hand, the custodial orientation of classroom control is defined as highly controlled classrooms concerned primarily with the maintenance of order. Teachers stereotype students by their background and students are perceived as irresponsible and undisciplined persons who must be controlled through punitive sanctions. These teachers are moralistic, impersonal, pessimistic and mistrustful. They conceive of the school as an autocratic institution where students are expected to carry out their instructions to the letter.

Although other researchers have used different terms to label these concepts, the underlying problems remain the same; first, that "good" and "bad" are seen as existing on a single continuum, and second, that control and warmth are not viewed as separate variables. In other words, a teacher can not be warm and keep high control of the classroom, or harsh and have low classroom control. There has been a growing appreciation for the complexity of the problems involved in the field of classroom control since the question was first investigated by Lewin, Lippitt and White (1939) and H. H. Anderson (1939). Although neither of these studies has a clear, precise definition of control, they have still provided valuable information in the area of classroom control. These studies, conducted independently of each other, have produced mutually supportive results that established the notion of social climate in the classroom.

Other studies (Christensen, 1960; Crawford et al., 1977; and Soar, 1966) have examined various aspects of classroom control in relation to reading achievement, using control and warmth as separate variables. Christensen (1960) found that only warmth was related to vocabulary gain. Crawford et al. (1977), using 21 variables from the Texas Teacher Effectiveness Project

(Brophy and Evertson, 1973) to develop six factors of classroom interactions, found few significant correlations. Soar's study (1966) of reading achievement related to warmth and control found that indirect teaching produced significantly greater growth, but emotional climate made no significant difference, while low-hostile direct teaching and high-hostile indirect teaching were associated with most growth. The results of these studies are contradictory and do not lend themselves to any clear concept of the relationship of classroom control and warmth to reading achievement. Although these studies are concerned with similar problems, they are structured differently, and therefore are not easily comparable. Christensen (1960) has based his study on the use of questionnaires, while Soar (1966) and Crawford et al. (1977) have used observational data. Also, the definition of warmth and control varies in each study.

Although these and subsequent studies contributed much to the understanding of the importance of classroom control, R. C. Anderson (1959) in his review of studies of classroom control concluded that the work in this field was weak and contradictory and called for the abandonment of research in this area. He found that definitions were imprecise, that researchers ignored other findings in the area and that there was a lack of

theoretical basis for the studies. The research in this field was not abandoned however, but flourished and survived primarily because of advancements in instrumentation and the contributions of theories from other areas of study. In part, this success is due to the work of N. A. Flanders and his development of the Flanders Interaction Analysis Categories system (FIAC) (Flanders, 1960). Flanders not only developed a classroom observational system that greatly improved the systems in existence, he also developed hypotheses about the effects of direct and indirect teaching and a matrix for testing and interpreting data. The work of Flanders has also been instrumental in the application of research to teacher education. The success of classroom observation instruments can be observed from the amount of data relevant to classroom control now available, and the over 400 systems in existence ten years later (Rosenshine and Furst, 1971).

Other contributions to the understanding of classroom control came from outside the area of education, from theories that helped develop a better understanding of the term "control". For example, Fleishman (1953) conducted a study at the Personnel Research Board, Ohio State University, to determine effectiveness in business leadership. His categories were labelled "initiating

structure" and "consideration", terms which correspond to "control" and "warmth" respectively, and are used to define the concept of control as used in classroom leadership.

The social systems theory (Miller and Rice, 1967; and Rice, 1965) also provides a framework for clearly specifying the concept of control as used in classroom leadership. In the social systems theory the term control refers specifically to the leader's control of transactions across internal or external boundaries of the system. The concept of boundary is used to analyse interactions between and within groups. Setting these boundary conditions, for example, freedom of movement, freedom of speech, and freedom of access to materials, sets conditions for other behaviors under which students live and learn at school.

These advances in theory and techniques have provided the foundations for further study in classroom control, but the problem of operationally defining precisely what is meant by classroom control still persists. Earlier studies confused the variables of control and warmth, and as a result teachers were merely categorized as "good" or "bad". Morrison (1974) developed a definition of classroom control using the social systems theory of Miller and Rice (1967) and Rice (1965)

which views the teacher as a leader in the classroom. This theory includes three specific and separate areas of control of transactions where the teacher may be operationally observed. The first area of control concerns specific response to deviant behavior, the second concerns the teacher's emotional relationship to the class, and the third concerns the way in which the teacher structures the classroom. This is defined to include the degree of constraint on the children with regard to freedom to initiate conversations, freedom of movement about the classroom, and freedom of choice of work tasks. This third area of control is defined as boundary control in this study, and is based on the concept that the teacher is a leader in the classroom and therefore is responsible for decisions concerning control of transactions among group members so that the task of learning is accomplished effectively and efficiently. Morrison's definition of classroom control presents an issue of somewhat greater complexity than the view of classroom control as either "good" or "bad" and suggests an issue that requires in-depth understanding and deliniation of dimensions involved in classroom control.

The purpose of this study is to examine the question of classroom control, using the theory of

Morrison (1974). Use of this theory permits the analysis of these dimensions of classroom control and their relationship to reading achievement in grades two and five. This will be discussed in the next section.

STATEMENT OF THE PROBLEM AND PURPOSES OF THIS STUDY

The Problem

The central problem in this study concerns classroom control and its power to predict reading achievement. Specifically the question under consideration is whether classroom control, as defined in this study, is significantly related to reading achievement in grades two and five. The dimensions included in classroom control are warmth, boundary control and response to deviant behavior. Warmth refers to the extent to which the atmosphere of the class is relaxed and comfortable and the degree to which the teacher maintains positive inter-personal relationships with pupils. Boundary control consists of three variables, (1) desk, (2) task and (3) talk. The variable desk indicates whether a student is sitting at his or her desk in the classroom and indicates the degree of freedom of movement the student has in the classroom. The variable task indicates who has chosen the activity in which the student is engaged and is an indication of the degree of freedom of work choice the student has.

The third variable talk is an indication of whether the student is interacting with another person other than the teacher and is a measure of the student's freedom to initiate conversations in the classroom. The third dimension of classroom control response to deviant behavior is a record of the way the teacher acts when disruptive behavior occurs. Five variables in this dimension are (1) mild reprimand, (2) severe reprimand, (3) threat, (4) punishment and (5) other. Mild reprimand is a verbal call for the disruptive behavior to stop. Severe reprimand leads to a digression in the lesson in order to restore order. Threat refers to punishment, extra work or withdrawal of privileges if the disruptive behavior does not stop. Punishment is direct non-verbal action taken on the pupil. Other includes mild forms of non-verbal reprimand such as a glare, arm-shaking or pointing. Each of these variables will be examined separately and then incorporated to form the overall concept of classroom control which includes warmth, boundary control and response to deviant behavior. This concept will also be tested for significant relationship to reading achievement in grades two and five.

Purpose

The purpose of this study was to examine the relationship of the dimensions of warmth, boundary

control and response to deviant behavior and reading achievement in grades two and five. Specifically, the purposes of this study were:

- (1) To investigate differences and similarities in the independent variable of warmth within and between grades two and five with respect to (a) residualized vocabulary gain score, (b) residualized comprehension gain score and (c) overall reading gain score.
- (2) To investigate differences and similarities in the dimension of boundary control using the independent variables desk, task and talk, within and between grades two and five with respect to (a) residualized vocabulary gain score, (b) residualized comprehension gain score and (c) overall reading gain score.
- (3) To investigate differences and similarities in the dimension of response to deviant behavior using the independent variables mild reprimand, severe reprimand, threat, punishment and other, within and between grades two and five with respect to (a) residualized vocabulary gain score, (b) residualized comprehension gain score and

(c) overall reading gain score.

- 7
- (4) To investigate the premise that the combination of warmth, boundary control and response to deviant behavior will yield maximum association with reading gain scores in grade two and grade five.

JUSTIFICATION FOR THE STUDY

The ability to read is a uniquely human achievement, and has a major role in shaping the values, customs and beliefs of both individuals and society. Reading provides the individual with the opportunity to gain access to information essential for independent thought and to develop an understanding of needs and obligations within society, to develop logical critical thinking processes, and to gain personal insights. The question of how best to teach children to read has produced much controversy over the years, primarily because evidence and theories are often contradictory for even the most basic questions of when, what and how to teach. Yet these questions must be satisfactorily answered before an effective, coherent program for reading instruction can be developed. Decisions concerning reading programs should not be made on an ad hoc basis in response to demands of the moment, or

based on personal experiences, reactions or feelings, but in the absence of reliable scientific evidence, that is all that is left to the classroom teacher.

The kind of classroom structure implemented by the teacher is centered around several important considerations. These involve (1) the way in which learning activities are structured, (2) the attitude the teacher has towards the students, (3) what learning is determined to be of value and how this learning is to be evaluated and (4) the limits the teacher places on the students and the response of the teacher if these limits are not adhered to by the students. These are the decisions the teacher makes in the classroom in order to control the transactions in the social system of the classroom and facilitate learning. An important aspect of this is the control the teacher exercises over students with regard to freedom of task choice, movement and talk, and whether the climate in the classroom is emotionally supportive, and how discipline is maintained in the classroom. These last issues concern classroom control, are questions of major importance in education and have been a persistent theme in research and literature for almost four decades (Bean and Hoy, 1974). Tanner (1978) describes classroom control as one of the survival concerns for beginning teachers, but it is also an issue on which colleagues

and administrators judge teacher competence in the classroom (Hoy, 1969; Jones and Blankenship, 1970, 1972; Penta, 1977; Silberman, 1970; Willower and Lawrence, 1979).

Although the importance of classroom control is well recognized, it has been noted by many researchers that the amount of evidence based on scientific study is rare (Appleberry, 1971; Ausubel, 1961; Bernhardt, 1964; Ferguson, 1973; Kounin and Gump, 1961; Lortie, 1975; Ryans, 1963). This is a result of research in this area being hindered by many problems. For example, Adams (1972) noted the inherent complexity and consequent cost of researching the classroom, Dunkin and Biddle (1974) found there was a complete lack of use of random samples, and Nuthall (1968) and Rosenshine and Furst (1973) noted the lack of adequate theory to provide an orderly sense of direction. Another problem for research in this area concerns ambiguous operational definitions where the same term can have two distinct meanings. Soar (1967) demonstrates this with the term "permissive" which involves two dimensions in recent research - the emotional climate of the classroom and the degree of closeness of control exercised by the teacher. These represent valid criticisms of research into classroom control, and must be met before true confidence can be

placed in the results of any investigations in this area.

Classroom control is an important factor in determining learning outcomes and this study is directed towards gaining a better understanding of the interactions of control that are important for reading achievement. The criticisms of earlier studies as expressed by Adams (1972), Dunkin and Biddle (1974), Nuthall (1968), Rosenshine and Furst (1973), and Soar (1967) are recognized as important considerations and an attempt was made to avoid these problems.

This study is part of a naturalistic study of classrooms in grades two and five in Newfoundland, Canada, conducted by members of the Institute for Educational Research and Development, Memorial University of Newfoundland. The schools in the study were selected randomly from schools within approximately 300 kilometers of St. John's, Newfoundland. Data were gathered over a three year period through use of questionnaires, interviews, Q-sort, classroom observations and student testing. The variables used in this study of classroom control were selected from this larger source of data using the definition of classroom control developed by Morrison (1974) as the criterion for selection. This study also used the results of other studies, particularly

those of Christensen (1960) and Soar (1966), whose work included the hypothesis that warmth and control are separate variables.

Theories important to this study include those of Bernstein (1975), Taba et al. (1964), and Piaget (1932). Bernstein (1975) investigated the relationship between modes of social control (framing), which corresponds to boundary control as defined by this study, and the linguistic background of the students. This theory suggests that the linguistic background of the child is an important factor for school achievement and is related to the kinds of control the teacher uses in the classroom.

Another important theory for this study is the learning theory developed by Taba, Levine and Elzey (1964) which indicates that children may need different control structure for different learning tasks. This theory is important for the study of reading achievement because of the different levels of thinking involved in the reading act, for example, creative reading and comprehension require abstract thought and therefore more freedom of thought than do decoding skills.

The Piagetian approach to discipline (1932) states that the ability to become self-disciplined develops through stages with maturity and learning experiences. A child in an early stage of development who finds

himself in an undirected learning situation may experience difficulty while a child who has advanced to the formal operational level may feel frustrated if he is not given some freedom of self-discipline and self-direction. This theory suggests that the structure of classroom control should be different for grade two and grade five, with a looser structure required in grade five in order to accommodate self-direction.

DEFINITIONS

In order to provide clear insight into the meaning of the concepts and propositions used in this study, the basic terms must be defined in relation to their use in this investigation. Throughout this study reference is made to classroom control, boundary control, emotional relationship (warmth), deviance and achievement. Further consideration of the major concepts will be provided in the theoretical framework and in the review of literature.

One of the major problems in research involving classroom control is in providing a clear, testable definition of exactly what is meant by the term "control". Because the term "control" seems to evoke many connotations and overtones, this becomes an important consideration in order to avoid what Dunkin and Biddle

(1974) describe as only distinguishing the "good" guys from the "bad" guys.

The work of Morrison (1974) avoids this pitfall by providing a clear, empirically testable definition of classroom control that can be used to determine the relationship of classroom control to reading achievement. Classroom control concerns the decisions the teacher makes in the classroom. It encompasses three distinct areas; first, warmth, second, boundary control, and third, teacher's response to deviant behavior. Decisions concerning control are made on the basis of providing a climate for learning and child development.

Warmth is defined by Morrison (1974) as the teacher's emotional relationship with the class. In this study it is measured by the degree of responsiveness in the classroom and related to Getzel's (1968) concept of efficiency of a classroom group; that is, to the degree of satisfaction or of other emotional or affective reactions of class members. In this study warmth refers to the extent to which the atmosphere of the class is relaxed and comfortable or tense and uncomfortable. It also encompasses the degree to which the teacher maintains positive inter-personal relationships with pupils. Warmth was measured using a five point rating scale, with ratings being made by the classroom observer at approximately 12 minute intervals throughout

an observation session.

22

Boundary Control is defined by Morrison (1974) with regard to the degree of freedom of interactions the pupils have in the classroom. The interactions are defined in terms of task choice, movement and talk. Classrooms with high boundary control are carefully regulated by the teacher with respect to student talking, movement and choice of work tasks. Low boundary control classrooms are not highly regulated by the teacher, and therefore the pupils have more freedom of access to facilities in the room, and more freedom in choice of work tasks. These three dimensions of boundary control as identified by Morrison (1974) are defined in this study by the variables desk, task and talk. Desk is a record of the pupil's location and was coded if the pupil was sitting at his desk. Task is a record of who has chosen the activity in which the target pupil was engaged and was coded if the activity was chosen by the target pupil. Talk is a record of communication that was occurring in the classroom and was coded if the student was interacting with another person other than the teacher. In all cases, coding occurred at about four minute intervals for each of six target pupils. Categories were averaged over all target pupils during a lesson to provide the raw data.

The third area of classroom control as defined by Morrison (1974) is response to deviant behavior and is defined as the specific teacher responses to undesirable behavior. In this study deviant behavior refers to behavior

that breaks a rule of the classroom. Response to deviant behavior refers to the action the teacher takes when a rule is broken. In this study only disruptive behavior that elicits teacher action was considered. The variables used were thus derived from coding in which the teacher was the target. Such coding occurred at about one minute intervals in the classroom. Categories were averaged over a lesson to provide the raw data. Five possible responses have been coded. Mild reprimand was coded if the teacher simply issued a verbal call for the disruptive behavior to stop. Severe reprimand occurred if the teacher's verbal response to the disruptive behavior caused an interruption in the lesson for more than just an instant. Threat occurred if the teacher referred to punishment, extra work or withdrawal of privileges if the disruption did not cease. Punishment was coded if a direct non-verbal action such as sending the student from the room was taken. Other was coded if the teacher's action could not be coded in the other categories, for example, a glare or pointing.

Reading Achievement was measured by the Gates-MacGinitie Reading Tests (MacGinitie, 1978) and included the two parts of each test, vocabulary and comprehension. The reading gain score was the residualized difference in score between the pre- and post-test scores for the overall test. The vocabulary gain score was the residualized difference in gain score for only the vocabulary section of the test, and the comprehension gain score was the residualized difference for only the

comprehension section of the Gates-MacGinitie test. Residualized scores are scores that are obtained by predicting the post-test scores from the pre-test scores and then subtracting the predicted scores from the post-test scores. This procedure removes any pre-test influences.

CONCEPTUAL FRAMEWORK

The rationale for this study is derived from Bernstein's (1975) concept of strong and weak framing, Getzel and Thelen's (1960) social systems theory, the learning theory of Taba, Levine and Elzey (1964) and Piaget's theory of discipline development (1932).

Bernstein, as a sociolinguist, has concentrated his research on speech as a central process in social theory. This theory develops from the concept that acquisition of language is important in self-formation and that social class differences in language are in some way related to educational problems faced by children from working classes. Bernstein defines "frame" as being used to determine the structure of the message system and refers to the context in which knowledge is transmitted and received. Bernstein states that:

Frame refers to the specific pedagogical relationship between teacher and taught. Strong framing entails reduced options; weak framing entails a range of options. This frame refers to the degree of control teacher and pupil

possess over selection, organization and pacing of the knowledge transmitted and received in the pedagogical relationship. (Bernstein, 1971, p. 50)

This concept of framing corresponds to the concept of boundary control, in that strong framing and high boundary control both involve high teacher control of classroom activities, and weak framing and low boundary control involve high student choice in classroom activities. As Bernstein (1975) states, "How a society selects, classifies, distributes, transmits and evaluates the educational knowledge it considers to be public, reflects both the distribution of power and the principles of social control" (Bernstein, 1975, p.85).

Social Systems Theory refers to the view of the classroom as a group or social system where the teacher is seen as the group leader or manager and each child as a subsystem (Getzel and Thelen, 1960). Within this system the question of teacher control becomes one aspect of teacher leadership in the classroom group. Morrison states that:

In social systems theory, the concept of boundary is used to analyze interactions between and within groups. Boundaries, which can be physical but need not be, occur at points of discontinuity in space, time, or behavior. A discontinuity is a boundary if there is control or regulation of transactions across it (J.C. Miller, 1971). It is an important function of the management of an organization to regulate transactions across the boundaries that separate subsystems within the organization itself. (Morrison, 1975, p. 120)

This theory views the teacher in a leadership role in which decisions are made in order to control interactions among group members so that learning is best accomplished.

The learning theory of Taba, Levine and Elzey (1964) indicates that children may need different control structure for different tasks. They suggest that concrete learning activities require highly structured teaching, while abstract learning activities require more freedom. This theory suggests that classroom control should be structured according to the nature of the task, for example, "high" control may be better for learning skills, while "low" control is better for activities that require abstract thought. This theory is supported by Soar's study in which he concludes:

...pupil learning of low cognitive level objectives proceeds best under relatively tightly structured, closely-focused learning conditions, whereas more complex kinds of learning proceed best in settings in which pupils have more freedom to explore and interact with subject-matter, that is, more freedom in their thinking processes. (Soar, 1975, p. 14).

Piagetian theory of discipline (Piaget, 1932) indicates that there are important qualitative differences in the moral development of children. Piaget suggests that self-discipline develops through stages with maturity and learning experiences. These stages include

the preoperational stage, from ages four to seven, the concrete operations stage, from ages seven to eleven, and formal operations stage, from age twelve. Although these ages are approximate, and children will progress at different rates, the differences between the stages are important considerations for classroom control. For example, during the preoperational stage obedience to adults is the moral philosophy of the child. During the concrete operations stage the children have developed the understanding that rules may vary and that there may be inconsistencies.

Although the development of self-discipline and self-direction in learning should be an ultimate goal of education, this theory suggests that boundary control should vary according to the stage of development of the child, and that the child in later grades should be given more responsibility with regard to control of behavior.

HYPOTHESES

The hypotheses stated below were generated from the concept that warmth and control are separate variables and that a teacher can be warm and still maintain high classroom control. Also total classroom control, defined by the dimensions of warmth, boundary control and response to deviant behavior, is significantly related

to reading achievement. These hypotheses have been generated from the problems posed in Chapter 1, and are, for the most part, supported by the related research presented in Chapter 2.

Christensen (1960) and Soar (1966) have shown that warmth and control may be treated as separate variables and the importance of high warmth in the classroom has been reported by many researchers (Christensen, 1960; Cogan, 1958; Evertson, 1975; Reed, 1962).

The degree of control in the classroom that provides optimal achievement in reading is a controversial matter. Soar (1968) suggests that the relationship is curvilinear, and that neither extreme is best. Soar (1975) also suggests that the degree of control that is optimal will depend on the nature of the learning task and the characteristics of the child. This is in accordance with the theories of Taba et al (1964) and Piaget (1932).

It is also hypothesized that a low response to deviant behavior is significantly related to high reading achievement. This is in accordance with the research of Kounin and Gump (1961), who found that punitive teachers created more aggression and tension than non-punitive teachers.

Using this research and theory, it was hypothesized in this study that high warmth, high boundary control and low response to deviant behavior are each associated with high reading achievement, and that the association becomes greater when these variables are combined in a single classroom setting.

The following hypotheses were tested by this study:

- H₁: High warmth is significantly associated with high residualized reading gain scores in both grade two and grade five.
- H₂: High boundary control is significantly associated with high residualized reading gain scores in both grade two and grade five.
- H₃: Low response to deviant behavior is significantly associated with high residualized reading gain scores in both grade two and grade five.
- H₄: Classroom control which includes warmth, boundary control and response to deviant behavior will yield a greater degree of association with high residualized reading gain scores than these dimensions considered separately for both grade two and grade five.

In addition to specific tests for these hypotheses, a further analysis was conducted to examine the possibility of nonlinear relationships between the independent and dependent variables, following the line of argument presented by Soar (1975).

LIMITATIONS OF THE STUDY

This study has the following limitations:

1. Analysis of data is based on correlation relationships. It is therefore not possible to infer causal connections.
2. The type of learning activity and the age of the students were found to be important factors for classroom control. The characteristics of individual students may also be important factors in determining the degree of control required, but these characteristics have not been studied.

CHAPTER 11

REVIEW OF RELATED LITERATURE

INTRODUCTION

The body of literature surrounding classroom control is extensive, and covers a broad range of issues and topics. Since the 1960's this literature has taken two distinct paths, the first continues in the tradition of Lewin, Lippitt and White (1939) and H. H. Anderson (1939), and the second introduces new concepts and ideas, and uses systematic observation to a greater degree. In this section literature related to classroom control and the tradition from which it is derived will be examined, and some of the more recent research that prompted this study will be reviewed.

EARLY RESEARCH ON LEADERSHIP AND CONTROL

Glassroom control has been an issue of major importance in educational literature and research for almost four decades, and is generally considered to have its roots in the classical study of leadership by Lewin, Lippitt and White (1939). This study measured both aggressive behavior and productive behavior in classrooms with authoritarian, democratic and laissez-faire style leadership. The researchers created small five-member groups of eleven year old boys engaged in after school

club activities. The three styles of leadership were presented to different groups of boys through a period of several weeks as experimental treatments. Each group experienced an authoritarian, a democratic and a laissez-faire leader, with each of the four adult leaders role-playing more than one of the leadership styles, thus allowing the experimenters to control for leader personality and to observe changes within groups as leaders switched. It was found that groups with democratic leadership were more task oriented, cooperative and friendly, and showed more independence and initiative. Laissez-faire leadership consistently produced the most aggression and the least productivity. Authoritarian leadership was more complex in that groups showed either rebellion or submission. When the autocratic leader was present, productivity was high, but in the absence of the leader, productivity gave way to aggression and destructiveness.

This study stimulated interest among social psychologists and educators, but it also led to many questions concerning the crucial variables involved in the research. McCandless (1961), one of the group leaders in the experiment, suggests that the crucial variable may have been the degree of emotional support or warmth that was transmitted. McCandless states that:

The four leaders were graduate students or postdoctoral fellows in child and clinical

psychology. All were convinced and liberal egalitarians, living at a time when Hitler, the arch-authoritarian, was consolidating his power and preparing for world conquest. Each preferred and put his heart into his democratic leadership role, becoming perhaps the warmest and most dedicated democratic leader in recent history. But, when his turn came to play the authoritarian, he tended to become cold and hard--a veritable Captain Bligh. In the laissez-faire role, detachment of a profound sort became the order of the day. In other words, the crucial variable involved may have been warmth. (McCandless, 1961, p. 438)

Smith and Hudgins (1964) also suggest that in addition to warmth, directiveness may also have influenced the outcome of the study. They suggest that another crucial variable may have been the directiveness or nondirectiveness of the leader in interaction with the students. The autocratic group leader was highly directive, the democratic group leader was less directive but still determined the course of events, and the laissez-faire group leader did little or no directing.

The study of Lewin, Lippitt and White (1939) defined leadership behavior in the classroom in a way that confuses the crucial variables of warmth and directiveness (or control). This confusion still exists in much of the research in this area, although research studies of Christensen (1960), Crawford et al (1977) and Soar (1966) support the notion that warmth and control can be studied as separate variables.

At about the same time as Lewin's autocratic-democracy study, H. H. Anderson and his group (1939, 1945, 1946a, 1946b) developed methods for the naturalistic study of the effects of dominative vs. integrative behavior in kindergarten children. Their hypothesis was that dominance on the teacher's part produced less involvement in work for children than did integrative behavior. Anderson defined dominance as teacher behavior that is rigid, inflexible, teacher-centered, and involving force or threats to resist change. Integrative behavior is concerned with individual differences, and is flexible, adaptive, objective and scientific. The results of this study seemed to demonstrate that dominative teacher behavior, in contrast with integrative behavior, produced less pupil independence, less spontaneity and initiative, less participation, and less involvement in problem-solving. But, as with Lewin's study (Lewin, Lippitt and White, 1939) the definition of control confounded the two variables of warmth and directiveness, and also the single dimension of dominative-integrative only resulted in differentiating good teachers from bad teachers.

The research of Lewin, Lippitt and White (1939), and H. H. Anderson (1939) provided the beginnings of an important area of study in educational research. Although these studies did not yield "good" evidence for the relationship of classroom control to achievement, they did

contribute important information for the understanding of classroom control. These studies, conducted independently of each other, but using conceptually similar terms, showed that first, a pattern of behavior exists in the classroom and that this behavior spreads throughout the classroom; second, the behavior of the teacher, more than any other individual, sets the climate of the class; and third, the pattern a teacher develops in one year is likely to persist in his classroom the following year with completely different pupils.

In 1949 Withall conducted a study to assess and describe the "social-emotional climate" of the classroom. In this study, climate represented the emotional tone of interpersonal interactions. Withall developed seven categories of teacher verbal behavior as indicators of classroom climate. These categories included learner-supportive statements, acceptant and clarifying statements, problem-structuring statements, neutral statements, directive statements, depreciating remarks, and teacher self-supporting remarks. Withall also suggested a "climate index" which is the ratio of "learner-centered" to "teacher-centered" statements. Withall's classification of teacher's verbal statements produced an index of teacher behavior which is almost identical to H. H. Anderson's (1939) dominative-integrative classification.

The work of Lewin, Lippitt and White (1939),

H. H. Anderson (1939) and Withall (1949) as well as that of Bales (1950), who developed a system of interaction analysis to classify verbal statements of the teacher, was continued and expanded by Flanders (1960). In the 1960's Flanders developed an instrument for observing classroom interactions that stimulated a wide variety of research and interest in classroom control and interactions. He developed hypotheses and a new way of analysing data, and also applied his research to improving teaching through teacher education. Flanders and his colleagues were interested in the concept of teacher influence in the classroom and attempted to continue and expand earlier studies. Flanders used the terms direct and indirect influence to describe teacher interactions. He defined them as follows:

Direct influence consists of stating the teacher's own opinion or ideas, directing the pupil's action, criticizing his behavior, or justifying the teacher's authority or use of that authority.

Indirect influence consists of soliciting the opinions or ideas of the pupils, applying or enlarging on those opinions or ideas, praising, encouraging the participation of pupils, or clarifying and accepting their feelings. (Flanders, 1967, p.109)

The measure of indirect influence is the sum of the following teacher behavior categories: (1) accepts feelings, (2) praises or encourages, (3) accepts or uses students' ideas, and (4) asks questions. The measure of direct influence is the sum of: (5) lecturing, (6) giving

directions and (7) criticizing or justifying authority. The first two categories reflect a positive emotional response, or warmth, while categories three and four reflect teacher control.

Although Flanders did not distinguish between the concepts of teacher control and teacher warmth, he rejected the assumption that classroom democracy is inevitably to be advocated and domination to be avoided. Flanders stated that "anyone with teaching experience recognizes that there are situations in which an integrative teacher behavior is less appropriate than a dominative pattern" (Flanders, 1967, pp.106-07). He also recognized that teacher flexibility is important, and developed hypotheses about conditions under which direct influence might be preferable to indirect influence.

During the last two decades, a great expansion of research has taken place in classroom observation studies, and this, to a great extent, is due to the Flanders Interaction Analysis Categories system (FIAC). This instrument was coded by time (every three seconds) rather than by utterance, and therefore allowed for comparison of categories. It contained categories for judging pupil and teacher behavior, and thus made possible the study of teacher-pupil interaction. It also allowed researchers to study sequence of events by tabulating data on a matrix

system, allowing pairwise analysis of categories and thus analysis of "interaction".

Flanders and his colleagues conducted numerous studies using the FIAC system. In 1960 Flanders studied seventh-grade social studies and eighth-grade mathematics classes, and found that the teachers in the superior classrooms spoke approximately 50 to 60% of the time, but the more directive aspects of their verbal influence went down to 40 to 50%. Flanders also found that these teachers were more flexible in the quality of their influence, sometimes very direct, but on more occasions very indirect.

In a laboratory experiment of different teaching patterns, created by the same role-playing teacher, Amidon and Flanders (1961) showed that dependent-prone junior high school students are more sensitive than average students to difference in patterns of teacher influence and that the dependent-prone junior high school students learned less geometry when exposed to a rigid, direct pattern of influence than they did with an indirect pattern.

In 1963 Flanders observed 147 teachers, representing all grade levels in six different school districts in two counties, and from this study developed the "rule of two-thirds". He stated that:

About two-thirds of the time spent in a classroom someone is talking. The chances are two out of three that this person is the teacher. When the teacher talks, two-thirds of the time is spent by

many expressions of opinion and fact, giving some direction and occasionally criticizing the pupils. The fact that teachers are taking too active a part for effective learning is shown by comparing superior with less effective classrooms. A superior classroom scores above average on constructive attitudes toward the teacher and the classwork. It also scores higher on achievement tests of the content to be learned, adjusted for initial ability. (Flanders, 1963, p.254)

Flanders' research generally supported the hypothesis that indirect teachers were more successful than direct teachers, although the 1965 study also advocated teacher flexibility. In 1965 Flanders found that during the first few days of a two-week unit of study in seventh-grade social studies and when introducing new material in eighth-grade mathematics, superior teachers were initially more indirect, becoming more direct as goals and associated tasks became clarified, while average or below average teachers were exactly the opposite.

In a series of studies that spanned ten years, Flanders attempted to relate pupil attitudes as measured by a climate index to teacher influence patterns as identified by trained observers using the Flanders system. Among the principal conclusions of these studies was the identification of a direct-indirect dimension of teaching behavior. Indirect teaching includes the behaviors of questioning, of accepting, clarifying or extending pupil ideas, of praising and of accepting feelings. Direct teaching includes lecturing, giving directions, criticizing

and justifying authority. A major conclusion of the research of Flanders was that in general as the teacher teaches more indirectly, pupils learn more subject matter and have more favorable attitudes about school. But, as can be seen from the definition of indirect as accepting ideas and feelings and using praise, and direct as directing and criticizing, the concepts of direct-indirect confound at least two dimensions of leadership behavior: control and warmth. Also, Flanders conducted his research at the seventh and eight grade level. Results at this level may not be applicable to other grades.

The research on leadership behavior in the classroom was reviewed by R. C. Anderson (1959) and found to be weak and contradictory. Because he found that the research lacked rigor, ignored the findings of others, and was not based on theory, he called for the abandonment of research in this area. However, since the 1960's, the work of Flanders has contributed much to the understanding of classroom control, and not only has the research not been abandoned, but it has increased remarkably. Many of these studies using observational systems to study classroom control will be reviewed in the next section.

CLASSROOM OBSERVATION STUDIES

Systematic observation of classroom events is a

methodology that provides data for in depth analysis of teacher and student overt behavior in the classroom in a precise and relatively unbiased manner. Interaction analysis uses systematic observation and requires an instrument to code the behavior in a relatively undistorted manner. It is concerned with generating normative data through use of an instrument designed to classify specific behaviors that can then be measured and analysed. One of the first of these systems was developed by Bales (1950) who devised a coding system which allowed observers to describe behaviors of a small group. Research in this area was expanded on and improved by Flanders (1960) with his Flanders Interaction Analysis Categories system (FIAC). Flanders conducted numerous studies over a ten year period and concluded that in general, as a teacher teaches more indirectly, pupils learn more subject matter and have more favorable attitudes about school. Since the development of FIAC, numerous classroom observation studies (reviews by Biddle, 1967; Boyd and DeVault, 1966; Dunkin and Biddle, 1974; Rosenshine, 1970; Rosenshine and Furst, 1971) have provided much relevant information concerning classroom interactions.

Many researchers have conducted studies in the area of teacher behavior in the classroom, using either FIAC system or a modification of it, resulting in findings

which agree with Flanders' conclusions concerning direct-indirect teacher behavior. La Shier and Westmeyer (1967) related teacher behavior to pupil achievement gain and attitudes in a unit of Biological Science Curriculum Study, and found that both were positively related to teacher indirectness. Furst (1967) also confirmed that indirectness is related to gain in achievement, while Tisher (1970) found that indirectness was associated with achievement gain of pupils with low-achievement orientation. Soar (1968) also found indirectness associated with achievement gains, but suggested that the relationship was curvilinear, with the optimum degree of teacher indirectness lower for concrete learning tasks than for more abstract learning tasks.

Other researchers have found that the nature of the learning task and the characteristics of the pupils indicate that there may be a relationship between teacher behavior and pupil growth by grade. Powell (1968) and Weber (1968) analysed different growth measures from pupils in the same classrooms. Nine teachers of grades one to three were classified as direct or indirect, and pupils' differences in achievement and creativity were examined. Powell found that indirect teaching was associated with higher scores for arithmetic and higher composite achievement measure, but not with a higher score

for reading. Weber found significantly higher scores on several verbal creativity measures for pupils who had indirect teachers in grades one to three, but when the effect of the first three years was statistically controlled, no differences associated with teaching style in grade four were found. Wallen (1966) also found differences in relationships between first and third grade. This suggests that the relationship between teacher behavior and pupil growth could vary by grade level, but there is also evidence that there may be an interaction between ability levels of pupils and classroom control. Schantz (1963) found that high ability pupils exhibited greater growth under indirect than under direct teaching, while there was no difference in the effect of teaching style for low ability pupils. Calvin, Hoffman and Harden (1957) also found that permissive teaching led to greater growth for high I.Q. pupils, but handicapped subjects with an average I.Q.

Recent reviews of literature (Rosenshine, 1979; Gage, 1978) dispute the findings that indirect instruction is best, and suggest that direct instruction is the more effective method of teaching. Rosenshine (1976) compared the studies of Brophy and Evertson (1975), Sgar (1973) and Stallings and Kaskowlitz (1974) and found that all three conducted correlational studies between prespecified

instructional variables and student achievement on standardized tests in reading and mathematics. The results of these studies showed consistently positive correlations for direct time, narrow questions, positive teacher feedback, attention to task and supervised student study in small or large groups. This led Rosenshine (1979) to argue that "direct instruction" was the most effective technique for teaching basic skills in reading and mathematics. Peterson (1979) on the other hand has suggested that both the direct view and the indirect view may be simplistic. Peterson suggests that direct instruction may be effective for attaining some educational outcomes or objectives, but not for others. Direct instruction may also be more effective for some kinds of students, but not for others.

Many problems have been suggested in studies of teaching in natural settings. In a review of literature in this area Rosenshine and Furst (1973) found that research tended to be chaotic, unorganized and self-serving. The problems of conducting research in naturalistic settings are many, and include such things as defining terms, finding representative and random samples, and establishing the validity of the variables tested. Nuthall (1968) stated that there was no theoretical rationale and that studies of classroom control lacked the sense of direction and controlled orderliness which could only be provided by adequate theory. Adams (1972) attributed problems in this area to inherent complexities in the classroom

setting, and the consequent cost of researching it. Samples were small, representativeness was rare and random samples were almost never achieved. Another problem in this area of research was that of ambiguous operational definitions where the same term had two distinct meanings. Soar (1967) demonstrated this with the term "permissive" which involved two dimensions in research - the emotional climate of the classroom, and the degree of closeness of control exercised by the teacher. The teacher could maintain a high degree of control and also be warm towards the pupils. The next section will review some of the studies that have attempted to deal with many of these problems.

RESEARCH ON WARMTH AND CONTROL.

Classroom leadership behavior has been viewed as existing on a continuum of "good" vs. "bad" teachers, with "good" defined as indirect and warm, and "bad" defined as direct and cold. Many researchers have recognized that it is possible for a teacher to be both warm and direct, or cold and indirect. For example, a teacher who has an "open" classroom and a "don't care" attitude would be both indirect and cold, while a teacher who has a highly structured work program, is friendly, and gives much emotional support to the students would

be both direct and warm. Evidence supporting warmth as an important factor for academic achievement as well as self-concept has been found by many researchers. Cogan (1958) reported that students with warm, considerate teachers produced unusual amounts of original poetry and art. Reed (1962) found that teachers characterized as considerate, understanding and friendly had a favorable influence on their students' interest in science. Spaulding (1963) found significant correlations between the self-concept of the student and the supportiveness of the teacher.

These studies indicate that warmth can be examined as a separate variable and that there is a relationship between warmth and achievement and self-concept. Cronbach (1954) further observed that warmth and control should be considered as separate variables. Christensen (1960) tested this suggestion in a study which hypothesized that not only was there a relationship between warmth and control and achievement, but also that there was an interaction between warmth and directiveness to produce the greatest achievement gains. Christensen administered questionnaires to ten fifth grade classes of pupils, ten fourth grade classes of pupils, and ten fourth-grade teachers in New York State suburban school system. Although evidence from the study supported the notion

that warmth and permissiveness could be studied as separate variables, the only significant finding in this study was that warmth of teachers was significantly related to vocabulary and arithmetic achievement.

Soar continued the studies of warmth and control as separate variables, but unlike Christensen (1960), Soar used classroom observation, not questionnaires, to gather data. Soar used the theories of Fleishman (1953) which were developed from a study of effective group leadership at the Personnel Research Board, Ohio State University. Fleishman classified 150 items into nine categories, but found the two major factors present were "consideration" and "initiating structure". These two categories are concerned with the extent to which the leader keeps control and the emotional climate. Soar rationalized that the teacher is a classroom leader and that teaching effectiveness might parallel leader effectiveness.

In 1966 Soar used the Flanders Interaction Analysis Categories system and the South Carolina Observational Record to observe 55 teachers in grades three and six in reading, mathematics, personality-attitude, and creative achievement. Soar's research attempted to discover the nature of the relationship between teachers' classroom behavior and achievement of students. Soar (1966) in his

two year study related pupil growth to the two dimensions of classroom control, "warmth" and "directiveness". He selected four combinations - direct, high hostile; indirect, high hostile; indirect, low hostile; and direct, low hostile - and identified teachers at the four extremes for a total of sixteen classrooms. The results of the vocabulary tests showed that indirect teachers produced more growth than direct teachers, and a supportive classroom climate produced more growth than one which was cold. Results of reading achievement showed that indirect teaching produced significantly greater growth, but emotional climate made no significant difference, while low-hostile direct teaching and high-hostile indirect teaching were associated with most growth. Soar concluded that:

Specifically, a different level of teacher control of classroom appears to be optimal for growth in Reading and Arithmetic Problems than is optimal for Vocabulary and Arithmetic Concepts, and a still more extreme level is optimal for growth in creativity. (Soar, 1966, pp. 298-99)

Soar (1966) tested differences in rates of growth in reading in various classrooms, differences that were attributed to emotional climate and control. Control was measured by teacher behavior that expanded or limited student freedom. The teacher was seen as expanding pupil freedom if he praised, encouraged, accepted feelings, or accepted or used a student's idea. This teacher was seen as having indirect control. A direct teacher was one who limited

freedom by use of criticism, justifying authority, or giving directions. The emotional climate was defined in terms of low or high hostility and was developed from analysis of expressions of hostility, criticism, or negative feelings. The expressions of hostility were both verbal and nonverbal and included teasing, threatening, blaming, hitting, humiliating and reproving comments. The higher the score, the higher the incidence of critical or hostile comments or behaviors in the classroom.

Although Soar attempted to distinguish between the two concepts of control and warmth, the operational terms used remain imprecise and unclear. For example, the use of criticism and praise by classroom teachers was studied by Evertson (1975), who found that quantitative studies provided inadequate descriptions of the effectiveness of praise and criticism. Evertson found that when and how praise and criticism were used were important factors for achievement. For example, teacher initiated praise was found to be more effective than praise that was initiated by the student. Brophy (1980) also found that praise does not function as a reinforcement of good conduct, but is reactive to and under the control of student behavior.

Further, Soar's definition of "control" still confounds the two variables of warmth and control. Getzel (1968) defines warmth as the emotional or affective

reactions of class members, and the encouragement and acceptance of feelings is related to the emotional relationship in the class. Also included in Soar's definition of control are use of student ideas and giving directions. This corresponds to Morrison's (1974) definition of control with respect to task choice, but because it is included with warmth, the effects are not tested.

Soar (1968) suggests that there is an optimal level of teacher indirectness which is less than the maximum possible and an optimal level of teacher criticism which is greater than the minimum possible. This curvilinear relationship depends on the relationship of a broad range of teacher behavior and the kinds of learning tasks.

Soar suggests that:

Perhaps a failure of progressive education was the failure to recognize the need to reach concrete objectives by direct teaching. The assumption that a child needed warmth to grow was correct, but the concept of permissiveness was too broad and excluded the sometimes necessary element of teacher direction. (Soar, 1968, p. 280)

Further analysis of this study (Soar, 1970) suggests that these results are a reflection of the anxiety level of the child, and the complexity of the learning task. The more complex the task, the lower the anxiety level of the child who learns most rapidly. If the anxiety level of the child becomes high enough the learning is hampered. He

suggests that there is a nonlinear relationship between the emotional climate of a classroom and pupil growth.

Soar goes on to state:

These conclusions may help to explain some of the history of negative results in education. Studies using terms such as "permissiveness" have tended not to show relationships with pupil growth. Perhaps the reason is that the term "permissiveness" is pooling two things that are independent. The descriptions of the past investigators appear to cite the emotional climate of the classroom and the degree of control of the teacher, the two dimensions analyzed here, as the components of the one measure of "permissiveness". These data, as well as the leadership data, indicate that they are essentially unrelated. When unrelated measures are pooled, the results is garbage; and when the garbage is subjected to further analysis, the process, in the language of computer people, is "garbage in, garbage out." The possibility of researchers having used complexes of unrelated measures in more instances than this one appears real. If so, some fraction of the negative results in the literature may be a consequence. (Soar, 1970, p. 120).

Among other studies that Soar conducted was an evaluation of the first year of planned variations in project Follow-Through (Soar and Soar, 1973). The primary objective was the identification of dimensions of behavior across programs which in turn were related to pupil gain. Eight teachers from each of seven experimental programs were observed, along with two comparison teachers from the same cities as the experimental teachers, for a total of 70 kindergarten and grade one teachers. In 1973 Soar and Soar studied 22 first grade classrooms and 59 fifth grade classrooms in Florida, using the same instruments as the previous studies, but revised in order to focus

on classroom management behavior of the teacher, the response of pupils to that management behavior and expression of affect as the original instrument recorded it. This study distinguished three areas within which the teacher exercises control. These areas include, first, control of the behavior of the pupils, second, control of the choice of subject matter, and third, control of the thinking processes which the pupils use. The effects of these three types of control on pupil growth were found to differ, once the three types were distinguished.

In a review of these studies Soar (1975) concluded that although these findings do not begin to answer the question of how much of a certain behavior is best for which goal for which pupil, some relationships are evident. He reported that:

All four studies support the idea that measures of teacher behavior which represent direction and control of pupil learning tasks show greatest pupil gain at intermediate levels; with the extremes of either high or low control being associated with smaller amounts of pupil gain. (Soar, 1975, p. 13)

The results of these studies support the Taba learning theory (1964) that thinking skills of pupils are developed by gathering extensive, relevant, concrete information from which abstractions and generalizations are drawn, suggesting that the teacher should be direct or indirect depending on the learning objective. Soar states that the data from these studies indicate that:

...pupil learning of low cognitive level objectives proceeds best under relatively tightly structured, closely-focused learning conditions, whereas more complex kinds of learning proceed best in settings in which pupils have more freedom to explore and interact with subject-matter, that is, more freedom in their thinking processes. (Soar, 1975, p. 14)

Crawford et al. (1977) conducted a study of classroom dyadic interaction using 21 dyadic interaction variables determined to be the most stable of the 171 low-inference variables from the Texas Teacher Effectiveness Project (Brophy and Evertson, 1973). These process variables were entered into factor analysis in an attempt to suggest relationships between scores obtained from these factors and residualized achievement gains. Six factors were found:

- (1) The first factor was called "classroom activity: procedural and academic interactions." This includes variables representing public and private work contacts.
- (2) The second factor measures control during public response activities and involves students calling out answers or not volunteering answers.
- (3) The third factor involves praise and criticism of answers or seatwork.
- (4) The fourth factor involves positive evaluation during public response opportunities.
- (5) Factor five consists of three variables representing behavioral control and involves praise,

integration of comments, and absence of errors when disciplining students.

(6) The sixth factor is a measure of the duration of feedback in private, teacher-afforded work interactions.

Significant correlations from this study were few in number, although the data suggest that in higher socioeconomic status classes verbal praise was particularly ineffective and that successful teachers in lower social status classrooms interacted privately with students rather than have public discussions. Effective teachers in lower and higher social status classes placed an emphasis on fast-paced activities during reading groups. This study does not proceed from clearly stated definitions of what was to be tested, and therefore the results and the relationships of the interactions of the 21 variables used are difficult to interpret.

Other studies conducted in the area of warmth and classroom control were concerned with the teacher's pupil control ideology. This area has been studied by Appleberry and Hoy, (1969); Bean and Hoy, (1974); Hoy, (1969); Willower, Eidell and Hoy, (1973); Willower and Jones, (1967); Willower and Landis, (1970); and Willower and Lawrence, (1979). These studies are all based on similar theories and definitions, and employ the Pupil Control Ideology instrument (PCI) to measure the pupil control ideology of educators on a custodial-humanistic continuum. The

school is viewed as a social institution composed on an interlocking network of social relationships and shared orientations which serve as standards for behavior. These relationships and orientations give rise to the climate or personality of the school. This research views pupil control ideology as existing along a continuum ranging from "custodialism" at one extreme to "humanism" at the other. "Custodialism" is defined (Appleberry and Hoy, 1969) as being characterized by the maintenance of order, impersonality, one-way downward communication, distrust of students, and a punitive, moralistic orientation toward the control of students. "Humanism" is defined as stressing the importance of the individuality of each student, and is marked by an accepting trustful view of students and confidence in the students to be self-disciplining and responsible.

The humanistic or custodial orientation of the educator is determined through use of a Pupil Control Ideology form which is a 20-item instrument using a five-point Likert-type scale, scored from five (strongly agree) to one (strongly disagree); the lower the overall score, the more humanistic the respondent. Studies employing the Pupil Control Ideology form have reported many findings as significant. For example, Willower, Eidell and Hoy (1973)

report that teachers are less humanistic in pupil control ideology than principals. Hoy (1969) reports that teachers become significantly more custodial in their pupil control ideology after student teaching, and even more after their first year teaching. Appleberry and Hoy (1969) found that teachers serving in open schools were significantly more humanistic in pupil control ideology than teachers serving in closed schools. And Bean and Hoy (1974) found that, particularly for male teachers, pupil control ideology is significantly related to the instructional climate which is established within a classroom.

Although the research in pupil control ideology has generated many interesting results, there are still many problems inherent in the design of this research. The most important involves the definition of the independent variables used in the studies. For example, a teacher defined as having a "custodial" pupil control ideology is described as one who stresses order, is impersonal, distrustful, punitive and moralistic. This definition confounds many independent variables that may function separately from each other, for example, warmth, boundary control and response to deviant behavior. As Dembo (1977:124) states, warmth and firmness are not always in opposition to each other, but may show a caring attitude on the part of the teacher.

The use of the adjective "humanistic-custodial"

is a prime example of what Flanders (1967) cautions about when he states that "...it is in the choice of adjectives that researchers reduce their scientific integrity by losing their objectivity..." (Flanders, 1967, p. 104). These labels demonstrate the polarization of attitude that serves only to distinguish the "good" teachers from "bad" teachers, as discussed by Dunkin and Biddle (1974). As a result, research in the area of pupil control ideology does not provide any real insights into the dynamics of teaching effectiveness. Also, these studies generally gathered data through a single administration of the PCI questionnaire with no attempt to observe the teachers in the classroom or to measure the effect of the teacher's pupil-control ideology on student achievement in the classroom.

The need to distinguish and define the concepts of warmth and control is stressed by both Soar (1975) and Morrison (1974). Morrison (1974) states that a major problem with the study of the concept of control, as control is currently used, is that it has too many overtones and connotations. Morrison offers a precise conceptualization of classroom control based on the concept of boundary control from social systems theory and differentiates among several aspects of teacher leadership behavior. Morrison

distinguishes between three dimensions of leader behavior that might be incorporated under the concept of control: (1) specific response to deviant behavior, (2) the characteristics of the teacher's emotional relationship to the class, and (3) the teacher's structuring of the classroom (i.e., freedom of movement, freedom to talk, and freedom of choice of work task). The following section will review some of the relevant research on the teacher's response to deviant behavior.

RESEARCH ON TEACHER RESPONSE TO DEVIANT BEHAVIOR

Deviant behavior refers to the behavior of the pupil that is contrary to the rules of the classroom, and teacher's response to deviant behavior refers to the action the teacher takes in response to this behavior. Research studies (Dreikurs, 1968; Gray, 1967) have shown that many teachers remain concerned for "survival techniques", that is, techniques for punishing or confronting deviant behavior on a moment-to-moment basis, and ignore the broader question of why discipline is needed. Investigations of how teachers deal with deviant behavior in classrooms have been made (Barnes, 1963; Herman et al, 1969; Hollomon, 1976; Stendler, 1949), but Morrison (1972) has found that specific teacher attempts to stop deviant behavior after it has begun appear to have no effect on the amount of deviant or productive behavior in the

classroom. Solomon and Kendall (1975) initiated a study which compared teachers' disciplinary activities in traditional and open classrooms. They found that although the child misbehavior category did not show a significant difference between groups, the teachers' discipline and criticism scores were significantly higher in the traditional than in the open classrooms.

Kounin and Gump (1961) paired 174 boys and girls in the first semester, first grade, for punitive vs. non-punitive teachers. They found that punitive teachers created more aggression and tension than non-punitive teachers, and that children with punitive teachers became more unsettled and were involved in more conflicts concerning misbehavior in school. They also found that the punitiveness of the teachers detracted from children's concern with school unique values. They concluded that children who had punitive teachers manifested more aggression in their misconduct, misbehaved more frequently in school, were less concerned with learning and school values, showed some reduction in rationality pertaining to school conduct and developed less trust of school than did children with non-punitive teachers. These findings are congruent with the research work on operant behavior modification in the classroom. This suggests that any attention to undesirable behavior, including attempts to stop deviant behavior, might in fact reinforce such

behavior. In further studies in the area of classroom management and effective teaching Kounin (1970) found that teacher withitness is significantly and positively correlated with student work involvement and freedom from deviancy. However, evidence concerning the relationship of pupil work involvement and deviancy to achievement in learning is somewhat conflicting. For example, when Irving and Martin (1982) attempted to replicate Kounin's correlational research findings on withitness they found discrepancies which they attributed to inconsistencies in theoretical and methodological/operational definitions. In other studies Hudgins (1967) found that in only two of nine junior high school classrooms was there a relationship between attention and task relevance of thoughts. Lahaderne (1968) found that attention was positively related to achievement in reading, arithmetic and language but not to attitudes about school. Cobb (1972) investigated the prediction of academic achievement from rates of specific task-oriented and non-task-oriented behaviors. He used observational ratings of child behavior and differentiated work involvement into attending to task, talking to another pupil about work and talking to the teacher. He also divided deviancy into self-stimulation, out of chair and inappropriate talk. Behavior and arithmetic scores in one school were found to be predictive among schools, while

reading and spelling were only found to be predictive within schools. Attwell, Orpet, and Meyers (1967) also showed that a behavioral rating for attention made in kindergarten was an important predictor of the same child's reading ability in the fifth grade.

Morrison (1972) studied the classroom as a complex social system in which the teacher is viewed as a manager who must control transactions in order that the learning task be accomplished. He administered classroom boundary questionnaires to 32 fourth, fifth and sixth grade classrooms and concluded that teacher actions to stop undesirable student behaviors are less important than the climate of expectations a teacher creates concerning what behavior is appropriate in the classroom. This study is important for the study of classroom control because it attempts to operationalize the concept of social systems boundaries as applied to teacher control in classrooms and thus avoids the problems of polarization that plague other studies in this area.

Morrison's (1974) review differentiates among the several aspects of teacher leadership behavior, specifically (1) response to deviant behavior, (2) the teacher's emotional relationship to the class and (3) the teacher's structuring of the classroom. The theories presented by Morrison combined with the operationally defined terms

offer a new approach for observing classroom interactions that allows the researcher to avoid biases inherent in most studies of classroom control.

Research suggests that classroom control cannot be viewed as a global concept, but must be specifically defined and studied in relation to learning tasks and the grade level of the pupil. Further investigation of these three dimensions of classroom control as defined by Morrison (1974) may provide relevant research data.

Summary

1. Research suggests that classroom control is a complex concept. In particular, warmth appears to differ from other aspects of control, such as response to deviant behavior and control of movement, talk and work choice. Studies also suggest that the question of direct versus indirect teaching remains controversial. Recent studies appear to contradict earlier generalizations that indirect teaching yields more positive outcomes.
2. With respect to reading achievement in particular, the research suggests that warmth is an important factor for reading achievement and that learning tasks and grade level influence the outcomes.

CHAPTER 111

METHODOLOGY AND RESEARCH DESIGN

INTRODUCTION

This chapter is concerned with the design and procedures used in this study. This study is part of a naturalistic study of elementary classroom teaching entitled the Teaching Strategies Project. Information in this chapter concerning the locale of the study, the population from which the sample was drawn, the nature of the instruments used in the study and the processes of data collection are taken from various proposals and progress reports of the project. A more complete account of the overall study may be found in Crocker et al. (1983).

The Locale of the Study

The location of this study consists of all primary and elementary schools within approximately 300 kilometers of St. John's, Newfoundland, Canada. This includes approximately 200 schools, 2,000 classes, and 50,000 pupils.

The Population of the Study

The population of this study consisted of all classes in grades two and five in the above schools. The schools are located in urban and rural areas and range from communities with only a few families to a city with a population of about 100,000. School sizes range from two or three room schools to schools of about 600-800 pupils. In terms of socio-economic status, some schools contain fairly homogeneous populations of either lower or middle class pupils, while others represent a broad social class range. There is a wide range of physical facilities, materials and teacher qualifications, although teachers have generally been trained at a single institution, Memorial University. Also, Newfoundland schools have, until recently, had a strong affiliation with religious denominations. This affiliation still exists in schools of the Roman Catholic and Pentecostal denominations. Schools of most other denominations were integrated some years ago. All schools are part of the public school system of the province and are fully supported by public funds.

The Sample

The aim of the sampling procedure was to obtain a random sample of 80 teachers, 40 in grade two, and 40 in grade five. This sample was drawn from the total population

of grades two and five teachers in schools in the population area. Teachers with less than two years of experience were excluded from the sample because it was felt that the planning and operational problems of beginning teachers may be of a different nature from those of experienced teachers and therefore would complicate the results of the investigation. Specialist teachers were also excluded from the sample.

Early in the 1977-78 academic year, the Superintendents of all the school boards in the area gave permission for the principals and teachers in their schools to become involved in the project if they wished to do so. A sample of schools was then selected and the principals and teachers approached. All but four of the teachers volunteered to participate. In September, however, it was found that eighteen of the teachers were unable to continue in the project because of reassignment or a similar reason. However, all but one of their replacements were willing to become involved in the project. Four had to drop out because they would be taking maternity leave later in the year, and three others could not continue because their involvement in team teaching made the scheduling of observation sessions impossible. In only three instances were all the teachers in a school unable to continue, and in two of these it was a matter

of the teachers' choice. When it was not possible to find replacements for teachers within their schools, volunteers were sought in other schools of comparable size in the same or nearby communities. Overall, the changes made in the sample were not regarded as causing a major departure from the original random nature of the sample.

During the school year 1978-79 when data were collected, four grade two and one grade five classrooms were lost from the study, leaving the final total of 36 grade two classrooms and 39 grade five classrooms in the study. The average grade two class size was 28.0, and ranged from 14 to 46 students. The class of 46 students was a special organization for reading only, and had 30 students for other subjects. The average grade five class was 27.8, ranging from 16 to 45 students.

Data Collection

The primary purpose of this study was to examine relationships between classroom control and reading achievement. Although the Teaching Strategies Project collected much data and used many instruments, only data collection relevant to this particular study will be reviewed here. The instruments of concern to this study are the classroom observation instrument and the 1978 edition of the Gates-McGinitie Reading Tests.

The classroom observation instrument consisted of three forms for observation of the teacher, individual pupils and global lesson characteristics. A detailed description of the instrument may be had in the Manual for Classroom Observers (Crocker et al., 1978). Together the three systems cover dimensions of content, grouping, type of activity, materials, questioning and responding, feedback and lesson modification, discipline and group management. In addition, ratings of warmth, enthusiasm, clarity and efficiency have been included on the lesson coding form to obtain a measure of the classroom atmosphere, teacher involvement and interest, and teacher efficiency in communication, organization and time usage. In addition the observer completed an anecdotal record form at the end of each observation session in order to record unique or unusual events which could not be captured by the other coding forms.

The classroom observations were conducted by six full-time and one part-time observer. These observers were trained for a three week period using discussions, videotapes and coding until an 80% agreement among coders was reached. The observers were then placed in school classrooms similar to those in the research project for two observation sessions in the final week of observer training.

Observation sessions were defined in terms of periods beginning and ending with natural breaks in the school day. Each observer coded about three class sessions per day. Throughout the school year each teacher was observed for an average of 21 observation sessions, of approximately 1½ hours each. On average, observation sessions covered lessons in two subjects, so that each teacher was observed during about 40 separate lessons.

During the observation period the teacher and six pupils (selected at random using a classroom seating chart) were observed. Although it was intended to observe these same six children throughout the year, three other children were also selected randomly in case of absences or transfers. An observation was defined as approximately a 30 second period in which the observer concentrated on one target person. In one coding cycle, six teacher observations, twelve pupil observations and one global observation were obtained. Observations were subsequently aggregated over lessons and subjects within teachers. For this study only those observations occurring during lessons in language arts and reading were used.

The Gates-MacGinitie Reading Tests were also administered as a pre-test at the end of September or in early October, and as a post-test during May. Both tests were administered by the classroom teachers, who followed instructions prepared by the Teaching Strategies staff. The tests were usually scored by the staff, although sometimes teachers scored their own tests.

Variables

For purposes of this study only areas concerned specifically with classroom control were studied. Classroom control, as defined by Morrison (1974), had three distinct areas, (1) warmth, (2) response to deviant behavior and (3) boundary control, defined as freedom of movement, talk and task choice. It was possible to make a direct association between observed variables and the first two dimensions of Morrison's framework. A combination of variables on the pupil focus form was used to create variables corresponding to the third dimension.

Morrison (1974) describes warmth as the degree of satisfaction or of other emotional or affective reactions of class members. For purposes of this study, the Manual for Classroom Observers (Crocker et al., 1978) defined warmth as "...the extent to which the atmosphere of the class is relaxed and comfortable or tense and uncomfortable. It also encompasses the degree to which the teacher maintains positive interpersonal relationships with pupils" (Crocker et al., 1978, p. 57). The dimension of "warmth" was rated on a five-point scale with descriptions and ratings based on the Manual for Observer Rating Scales by Ernest McDaniel (1974). McDaniel found that the Observer Rating Scales have a relatively high degree of construct validity. The construct was described so as to minimize

ambiguity, and the possibility of projecting subjective interpretations into the dimensions has been minimized by providing definitions of behaviors that lie at various points along the continuum. Reliability coefficients for this construct were computed on ratings of the teacher behavior that appeared in a training film. Reliability coefficients were computed using analysis of variance procedures (Winer, 1971, pp. 283-289) for an index of reliability among multiple judges. These reliability coefficients for warmth were .95 in the McDaniel study.

The variables for the second category, "action on disruptive behavior", were based on Morrison (1972) and Kounin (1970). These studies found that specific teacher attempts to stop deviant behavior after it had begun appeared to have no effect on the amount of deviant or productive behavior in the classroom. In this study, deviant behavior was only coded if the pupil's behavior elicited teacher action. Action on disruptive behavior records the way the teacher responds when disruptive behavior occurs, and the categories were coded regardless of whether the teacher was interacting with an individual, a group or a whole class.

The third category included in classroom control was "boundary control" which was described by Morrison (1974) as the control of transactions between and among

students with regard to control of talk, movement, and work tasks. Although there is no single category for "boundary control" in this study, categories in the instrument were concerned with location of the student, task choice and communication group, and were well able to fulfil the criteria of boundary control as defined by Morrison. Descriptions and definitions of the variables used in this study have been given in Chapter I. More detailed information on the variables may be found in Manual for Classroom Observers (Crocker et al., 1979).

The second instrument used in this study was the 1978 edition of the Gates-MacGinitie Reading Tests (MacGinitie, 1978). The pre-test used form 1 level B for grade two, and level D for grade five. Form 2, level B and D, were used for the post-test in the spring. This instrument was used to measure reading achievement and consists of two subtests, the vocabulary test and the comprehension test. The vocabulary test samples the student's reading vocabulary and is primarily a test of word knowledge. The comprehension test measures the student's ability to read complete prose passages with understanding. The questions concerning these passages test both implicit and explicit understanding. The Gates-MacGinitie Reading Test had previously been widely accepted in the Province, and the value of the test as a general measure of reading achievement has been well established.

Reliability

In order to obtain reliability in the beginning of the study for the coding of classroom observations, discussions, training with video tapes and practice coding using pairs of observers were continued until at least 80% agreement among coders was reached.

Subsequently, a generalizability study was conducted using a random sample of data from the main study. A balanced design was created incorporating the facets of observers, teachers and subjects and the appropriate interactions. The results of this procedure were used to adjust data for observer effects as required and to determine which of the classroom observation variables were sufficiently stable to include in the final analysis.

For the reading test used in this study, MacGinitie (1978) reports KR-20 reliability coefficients of .90 and .92 for both the vocabulary and comprehension subscores in both grade two and grade five for the Gates-MacGinitie Reading Tests.

Treatment of Data

The first step in processing the data involved retrieving the raw data for the independent and dependent variables from the data file. For the observation data,

this involved aggregating coded data first to the lesson level for reading lessons and then to the teacher level. The data for grade two and grade five were treated separately in this study because it was felt that the different nature of reading instruction in the two grades and the different level of maturity of the students may influence the results. This study is concerned with the power of the dimensions of classroom control, as defined by Morrison (1974), to predict reading achievement. A two stage analysis was conducted in this study. The first stage involved the association between the dependent and independent variables. A correlational analysis was first used to determine if a relationship exists between the independent variables (warmth, desk, task, talk, mild reprimand, severe reprimand, threat, punishment and other) and three composites (boundary control, response to deviant behavior and total control). Total control consists of the composites of high warmth, high boundary control and low response to deviant behavior. A regression analysis was used to determine the contribution of each of these composites to total control. Data were analyzed using the SPSS NEW REGRESSION procedure (Hull and Nie, 1981), following the TEST option, which essentially drops each component to be tested from the full model and measures the change in R^2 produced.

The second stage of analysis examined the question

of whether the independent variables have a linear or a nonlinear relationship to the dependent variables of reading. In order to test this, teachers were divided into groups on the basis of the independent variables. There were usually five groups for each variable; however, some areas of response to deviant behavior had a high number of teachers who were not observed using a response so in this case only two or three groups could be formed. An analysis of variance was applied, followed by tests for linear and nonlinear trends. The computing procedure used for this part of the analysis was SPSS BREAKDOWN, using the ANOVA option with separation of trends for linear and nonlinear regression. The significance of the linear and nonlinear relationship was determined by the F test.

All tests of significance used in this study were at the .05 level of probability.

CHAPTER IV
RESEARCH FINDINGS
INTRODUCTION

This chapter is primarily concerned with the results of the tests applied to the dimensions of classroom control as defined by Morrison (1974). This study is concerned with the relationship between reading achievement and the dimensions of warmth, boundary control and response to deviant behavior. Warmth refers to the extent to which the atmosphere of the class is relaxed and comfortable and the degree to which the teacher maintains positive interpersonal relationships with pupils. Boundary control refers to constraints on pupil action in the classroom and consists of three observational variables labelled desk, task and talk. Response to deviant behavior is a record of the way the teacher acts when disruptive behavior occurs and is composed of five observational variables, mild reprimand, severe reprimand, threat, punishment and other. An overall dimension of classroom control, labelled total control, is also tested. This dimension is composed of warmth, boundary control and response to deviant behavior. The hypotheses to be tested stated that (1) warmth, (2) boundary control, (3) response to deviant behavior and (4) total control are significantly associated with high residualized reading

gain scores in both grade two and grade five.

Two stages of analysis were used; the first was concerned with the correlation between the independent and dependent variables and the overall predictive value of the independent variables. The second stage examined the question of curvilinearity raised by Soar (1968). An analysis of variance was applied and an F test used to determine the significance of the linear and nonlinear relationship.

Correlational Analysis

This study is concerned with the power to predict reading achievement of the dimensions of classroom control defined by Morrison (1974). In the first stage of analysis Pearson product-moment correlation coefficients were computed between the variables defined as constituting classroom control and residual gains for vocabulary, comprehension and total test scores of the Gates-MacGinitie Reading Tests for grades two and five. The results of the analysis appear in Table I. In grade two there are significant correlations between warmth and the three areas of reading achievement at the .05 level. In grade five warmth is significantly correlated with comprehension gains at the .01 level and with total reading gains at the .05 level. However, the correlation between warmth and vocabulary is just below the critical level.

TABLE I

Pearson Correlation Coefficients for Dimensions of
Classroom Control and Vocabulary, Comprehension and
Total Reading Gain in Grade Two and Grade Five

Dimensions and Composites	Grade Two			Grade Five		
	Vocab.	Comp.	T. Reading	Vocab.	Comp.	T. Reading
Warmth	.34*	.28*	.32*	.26	.35**	.34*
Boundary Control						
Desk	.18	.10	.15	.04	.04	.06
Task	.20	.18	.20	.40**	.42**	.43**
Talk	.21	.15	.21	.13	.27*	.22
Low Response to Deviant Behavior						
Mild Reprimand	.22	.32*	.28*	.39**	.27*	.36**
Severe Reprimand	.08	.14	.11	.35**	.16	.26
Punishment	-.14	-.19	-.17	.46**	.18	.33*
Threat	.09	.12	.11	.11	.09	.14
Other	.09	.08	.11	.09	.14	.05
Total Boundary Control	.27	.19	.25	.28*	.36**	.35**
Total Response to Deviant Behavior	.12	.17	.16	.44**	.18	.33*
Total Control	.35*	.32*	.36*	.49**	.36**	.46**

*p<.05

**p<.01

In grade two the correlations for the variables of boundary control do not show significance with any of the areas of reading achievement. Also, these variables show approximately similar correlations. In grade five the correlations between the variables of boundary control and reading achievement vary substantially in magnitude. High control of desk shows very low correlations with all areas of reading achievement. High control of task in grade five shows correlations for all areas of reading achievement that are significant at .01 level. High control of talk in grade five shows a significant correlation with comprehension gains at a level of .05, but is not significantly correlated with vocabulary or total reading gains.

In grade two the correlations for the variables of response to deviant behavior are all non-significant except for mild reprimand with comprehension and total reading which are significant at a level of .05. In grade five significant correlations occur more often and are greater in magnitude. Low mild reprimand is significantly correlated with all areas of reading achievement (vocabulary, $p < .01$, comprehension, $p < .05$, and total reading gain, $p < .01$). Low severe reprimand is significantly correlated with vocabulary at $p < .01$, but not with comprehension or total reading gain. Low punishment is also significantly correlated with vocabulary gains at a level of $p < .01$ and

total reading gain at $p < .05$, but not with comprehension gains.

The composite boundary control does not show significant correlations with reading achievement in grade two, but in grade five is significantly correlated with vocabulary at $p < .05$, comprehension at $p < .01$ and total reading gain at $p < .01$.

In grade two the composite response to deviant behavior does not yield significant correlations with any of the three areas of reading achievement. In grade five this composite is significantly correlated with vocabulary at $p < .01$ and total reading gain at $p < .05$ but not with comprehension.

The composite of total control, which is comprised of high warmth, high boundary control and low response to deviant behavior, is significantly correlated to all areas of reading achievement in both grades. In grade two the level of significance is .05 for vocabulary, comprehension and total reading, and in grade five the level of significance is .01 for vocabulary, comprehension and total reading gain.

In grade five the correlations between the dimensions of classroom control and reading achievement are much stronger and occur more often. Between grade two

and grade five only the composite of total control is significantly correlated with all areas of reading achievement. This is significant at $p < .05$ in grade two and $p < .01$ in grade five. High warmth seems to be the most consistent significant correlation between grades for the nine independent variables that define classroom control. Warmth is significantly correlated with all areas of reading achievement in grade two and with comprehension and total reading gain in grade five. The only other variable that is mutually significant is mild reprimand for comprehension and total reading gain. Generally significance occurs more often and with greater magnitude in grade five. This suggests that there is a different degree of control that is best for grade two and grade five and that the composite of total control consisting of high warmth, high boundary control and low response to deviant behavior is more important for reading achievement in grade five than grade two.

In order to shed further light on the effect of the composites, and thus on Morrison's model, a step-down regression analysis was conducted. In this analysis a full model was first constructed in which the predictive power of all nine independent variables was tested using the total squared multiple correlation (R^2). Restricted models omitting variables corresponding to the three composites were then

tested, in turn, against the full model. The results of this analysis are given in Tables II and III. In general the multiple correlations for the full model are consistent with the single correlations for the total control as reported in Table I. However, in general, dropping terms from the full model did not yield significant changes in predictive ability. There thus seems to be no particular logical structure to the composite of warmth, boundary control and response to deviant behavior. Rather, as Table I suggests, the predictive ability of any one of these components tends to be a function of individual variables. These variables appear to interact in a complex way in yielding the overall predictive ability of the full model.

Nonlinear Relationships

Ordinary correlation and regression techniques are capable only of detecting linear relationships among independent and dependent variables. However, there have been suggestions (Soar, 1968) that there is an optimal degree of teacher control and warmth which is more than the minimum but less than the maximum possible. To examine this question, a different approach is required. Although various transformations of data are possible which allow ordering multiple linear regression analysis to examine quadratic, cubic, logarithmic and other trends, there is no particular empirical or theoretical basis to suggest which type of

TABLE II
Summary of Regression Analysis,
Components of Classroom Control, Grade Two.

Test	Vocabulary			
	R^2	ΔR^2	F	P
Full Model	.30	-	-	-
Response to Deviant Behavior	-	.09	.70	.63
Boundary Control	-	.07	.88	.46
Warmth	-	.12	4.46	.04

Test	Comprehension			
	R^2	ΔR^2	F	P
Full Model	.30	-	-	-
Response to Deviant Behavior	-	.18	1.36	.27
Boundary Control	-	.04	.46	.71
Warmth	-	.04	1.64	.21

Test	Total Reading Gain			
	R^2	ΔR^2	F	P
Full Model	.32	-	-	-
Response to Deviant Behavior	-	.14	1.06	.40
Boundary Control	-	.06	.74	.54
Warmth	-	.09	.32	.08

TABLE III

Summary of Regression Analysis,
Components of Classroom Control, Grade Five

Test	Vocabulary			
	R^2	ΔR^2	F	P
Full Model	.44	-	-	-
Response to Deviant Behavior	-	.07	.73	.6
Boundary Control	-	.16	2.70	.06
Warmth	-	.01	.61	.43

Test	Comprehension			
	R^2	ΔR^2	F	P
Full Model	.33	-	-	-
Response to Deviant Behavior	-	.04	.34	.88
Boundary Control	-	.11	1.61	.21
Warmth	-	.07	3.13	.09

Test	Total Reading Gain			
	R^2	ΔR^2	F	P
Full Model	.39	-	-	-
Response to Deviant Behavior	-	.04	.35	.88
Boundary Control	-	.14	2.22	.11
Warmth	-	.04	2.10	.16

curvilinear relationship might be expected. (Soar speaks of "inverted U" curves, but it is just as plausible to speak of floor or ceiling effects or other trends which have quite different curves). Then, it was decided to pursue this analysis at an exploratory level only, and to attempt to separate linear from nonlinear tendencies. Several techniques are available for this purpose.

In an initial analysis, teachers were divided into groups based on ranges of the independent variables and the correlation ratio or "eta" statistic (Glass and Stanley, 1970, p.150) calculated. However, this statistic proved to be difficult to interpret since no probability level could be associated with the measure of nonlinearity (the difference between η^2 and r^2) (for discussion of this issue see Glass and Hakstian, 1969). Thus, an alternative approach using analysis of variance was used, as suggested by Hays (1973, pp.680-682). The SPSS BREAKDOWN subprogram includes an option for partitioning sum of square into the required linear and nonlinear components. Results of this analysis are presented in Tables IV to IX. Group means in the form of standardized duration scores are also presented in these Tables, to give a visual impression of the direction of the trends.

The results of the analysis show that there are some significant differences between the groups but these are

TABLE IV

Summary of Means¹ for Groups and
Test of Linearity for Warmth, Grade Two

Dependent Variable	Groups					Significance of F Test	
	Low Warmth		High Warmth			Linear	Nonlinear
	1	2	3	4	5		
Vocabulary	-.28	-.26	.20	-.10	.38	.02	.43
Comprehension	-.11	-.23	-.02	.10	.23	.10	.87
Total Reading	-.21	-.30	.12	.01	.33	.04	.72

¹All means are deviations from the grand mean in
standard score form.

TABLE V

Summary of Means¹ for Groups and
Test of Linearity for Warmth, Grade Five

Dependent Variable	Groups					Significance of F Test	
	Low Warmth		High Warmth			Linear	Nonlinear
	1	2	3	4	5		
Vocabulary	-.19	.04	.07	.18	.03	.09	.33
Comprehension	-.26	.12	-.05	-.01	.24	.07	.35
Total Reading	-.27	.10	-.08	.11	.16	.06	.43

¹All means are deviations from the grand mean in
standard score form.

TABLE VI

Summary of Means¹ for Groups and Test of Linearity
for Dimensions of Boundary Control, Grade Two

Dependent Variable	Groups -- Desk					Significance of F Test Linear Nonlinear	
	Low Control		3	High Control			
	1	2		4	5		
Vocabulary	.03	-.19	.03	-.22	.30	.40	.37
Comprehension	-.03	-.06	.11	-.29	.24	.54	.27
Total Reading	.00	-.14	.08	-.28	.30	.45	.33
Dependent Variable	Groups - Task					Significance of F Test Linear Nonlinear	
	Low Control		3	High Control			
	1	2		4	5		
Vocabulary	-.15	-.14	-.03	.00	.35	.11	.86
Comprehension	-.07	-.20	.01	.00	.28	.16	.75
Total Reading	-.11	-.23	-.01	-.01	.38	.10	.72
Dependent Variable	Groups - Talk					Significance of F Test Linear Nonlinear	
	Low Control		3	High Control			
	1	2		4	5		
Vocabulary	-.24	.01	.03	.18	.05	.26	.86
Comprehension	-.13	.00	-.02	.13	.04	.46	.95
Total Reading	-.24	.03	-.02	.20	.07	.27	.85

¹All means are deviations from the grand mean in standard score form.

TABLE VII

Summary of Means¹ for Groups and Test of Linearity
for Dimensions of Boundary Control, Grade Five

Dependent Variables	Groups - Desk					Significance of F Test Linear Nonlinear	
	Low Control		3	High Control			
	1	2		4	5		
Vocabulary	.01	-.15	.05	.07	.03	.47	.64
Comprehension	-.13	-.07	.09	.11	.01	.33	.82
Total Reading	-.12	-.11	.10	.12	.01	.27	.74

Dependent Variables	Groups - Task					Significance of F Test Linear Nonlinear	
	Low Control		3	High Control			
	1	2		4	5		
Vocabulary	-.21	-.06	.11	.22	-.05	.05	.09
Comprehension	-.33	.03	.09	.16	.10	.02	.43
Total Reading	-.33	.00	.13	.22	.01	.02	.16

Dependent Variables	Groups - Talk					Significance of F Test Linear Nonlinear	
	Low Control		3	High Control			
	1	2		4	5		
Vocabulary	.04	-.23	.12	.03	.04	.45	.18
Comprehension	-.17	-.19	.22	.13	-.01	.17	.22
Total Reading	-.07	-.25	.21	.08	.01	.27	.18

¹ All means are deviations from the grand mean in standard score form.

TABLE VIII

Summary of Means¹ for Groups and Test of Linearity
for Dimensions of Response to Deviant Behavior
in Grade Two

Dependent Variables	Groups - Mild Reprimand					Significance of F Test Linear Nonlinear	
	High Response		Low Response				
	1	2	3	4	5		
Vocabulary	-.16	-.25	.07	.15	.22	.10	.89
Comprehension	-.19	-.23	-.02	.27	.20	.03	.76
Total Reading	-.21	-.26	.02	.25	.24	.04	.87
Dependent Variables	Groups - Severe Reprimand					Significance of F Test Linear Nonlinear	
	High Response		Low Response				
	1	2	3				
Vocabulary	-.01	-.04	.03			.85	.81
Comprehension	-.02	-.09	.08			.59	.55
Total Reading	-.01	-.11	.09			.63	.51
Dependent Variables	Groups - Threat					Significance of F Test Linear Nonlinear	
	High Response		Low Response				
	1			2			
Vocabulary		-.17		.16		Linear*	
Comprehension		-.23		.16		Linear*	
Total Reading		-.21		.17		Linear*	
Dependent Variables	Groups - Punishment					Significance of F Test Linear Nonlinear	
	High Response		Low Response				
	1			2			
Vocabulary		.18		-.06		Linear*	
Comprehension		.17		-.06		Linear*	
Total Reading		.19		-.06		Linear*	

TABLE VIII (Continued)

Dependent Variables	Groups - Other		Significance of F Test	
	High Response 1	Low Response 2	Linear	Nonlinear
Vocabulary	-.11	.03	Linear*	
Comprehension	-.10	.03	Linear*	
Total Reading	-.14	.04	Linear*	

¹All means are deviations from the grand mean in standard score form.

*Fewer than three groups, nonlinear relationships cannot be tested.

TABLE IX
Summary of Means¹ for Groups and Test of Linearity
for Dimensions of Response to Deviant Behavior
in Grade Five

Dependent Variables	Groups - Mild Reprimand					Significance of F Test	
	High Response			Low Response		Linear	Nonlinear
	1	2	3	4	5		
Vocabulary	-.12	.03	-.15	.13	.09	.16	.41
Comprehension	.01	-.11	-.26	.14	.22	.12	.17
Total Reading	-.06	-.07	-.24	.13	.23	.07	.28

Dependent Variables	Groups - Severe Reprimand		Significance of F Test	
	High Response	Low Response	Linear	Nonlinear
	1	2		
Vocabulary	-.07	.07	Linear*	
Comprehension	-.01	.02	Linear*	
Total Reading	-.05	.05	Linear*	

Dependent Variables	Groups - Threat		Significance of F Test	
	High Response	Low Response	Linear	Nonlinear
	1	2		
Vocabulary	.00	.00	Linear*	
Comprehension	-.00	.01	Linear*	
Total Reading	.01	.01	Linear*	

Dependent Variables	Groups - Punishment		Significance of F Test	
	High Response	Low Response	Linear	Nonlinear
	1	2		
Vocabulary	-.30	.05	Linear*	
Comprehension	-.14	.03	Linear*	
Total Reading	-.25	.05	Linear*	

TABLE IX (Continued)

Dependent Variables	Groups - Other		Significance of F Test	
	High Response 1	Low Response 2	Linear	Nonlinear
Vocabulary	-.04	.01	Linear*	
Comprehension	.09	-.03	Linear*	
Total Reading	.03	-.01	Linear*	

¹ All means are deviations from the grand mean in standard score form.

* Fewer than three groups, nonlinear relationships cannot be tested.

for a linear relationship rather than a nonlinear relationship. These significant linear correlations are for warmth, grade two for vocabulary ($p < .02$) and total reading gain ($p < .04$), mild reprimand, grade two for comprehension ($p < .03$) and total reading gain ($p < .04$). In grade five the only significant linear correlation is for task for vocabulary ($p < .05$), comprehension ($p < .02$) and total reading gain ($p < .02$). Although nonsignificant, several other variables show definite trends toward linearity, for example, warmth in grade five, mild reprimand in grade five and task in grade two. There does not appear to be any strong tendency toward nonlinearity for any of the variables tested.

For most of the dimensions of response to deviant behavior in both grade two and grade five it was found that many teachers were not observed using any response for many of the variables of deviant behavior. It is not known if this is because there was no deviant behavior or if deviant behavior was ignored. However, because of this only two or three groups could be formed rather than the five groups of the other variables. With fewer than three groups a nonlinear relationship cannot be tested. Table X shows the number of teachers who were observed using various responses to deviant behavior.

Several attempts were made to illustrate graphically the trends in means for groups for the independent variables of classroom control. However, because of the small number

TABLE X

Number of Teachers Observed Using Various
Responses to Deviant Behavior in Grade Two and Grade Five

Variables	Grade Two*	Grade Five**
Mild Reprimand	36	35
Severe Reprimand	21	19
Threat	19	12
Punishment	9	5
Other	8	8

* N = 36

** N = 39

in the groups and because there was so much disparity
in the data, graphic displays were felt to be misleading.

CHAPTER V

DISCUSSION OF RESULTS

INTRODUCTION

The purpose of this final chapter is to discuss the results of the tests administered in this study. The results will be reported with respect to accepting or rejecting the hypotheses generated in Chapter one.

Summary

The first chapter in this study presented the statement of the problem which is concerned with decisions the teacher makes in the classroom with regard to classroom control, and the effects these decisions have on reading outcomes. The hypotheses to be tested were also formed in this chapter. Chapter two presented a review of research in the area of classroom control and Chapter three provided an outline of the methodology and research design for the study. The fourth chapter presented the research findings and this final chapter will examine these findings in order to test for rejection or acceptance of the hypotheses. The findings will be discussed and the results will be compared to other studies concerned with classroom control and examined for similarities and differences. Limitations and suggestions for further research in this area will also be considered.

Statement of the Problem and Purpose of the Study

The question under consideration in this study concerns classroom control, specifically what kind of classroom control results in the greatest reading gain and does this level of control vary according to reading activity and grade level.

One of the initial problems in the study was determining which independent variables comprise classroom control. This study used the definition developed by Morrison (1974) which defined classroom control as consisting of three dimensions. The first is the teacher's emotional relationship with the class, or warmth. The second concerns the degree of constraint of the children with regard to use of time and space in the classroom and with regard to interactions with other members of the class. This is defined as Boundary Control and is concerned with decisions the teacher makes concerning freedom of work choice (defined by the independent variable task), freedom of movement (defined by the independent variable desk), and freedom to initiate conversations (defined by the independent variable talk). The third dimension of classroom control concerns the teacher's response to deviant behavior and is defined by the independent variables of mild reprimand, severe reprimand, threat, punishment and other. Decisions are made in these areas by the teacher

who is seen as a manager, responsible for deciding how to control the transactions in the social system of the classroom so that learning tasks are accomplished efficiently and effectively.

An overall dimension called total control was also tested. This is defined as high warmth, high boundary control and low response to deviant behavior. This dimension was also tested for grade two and grade five for comprehension, vocabulary and total reading gains.

Data used to test the power of these dimensions of classroom control to predict reading achievement were gathered in a large scale study of elementary classroom teaching entitled the Teaching Strategies Project. Classrooms for this study were selected randomly from all primary and elementary schools within approximately 300 kilometers of St. John's, Newfoundland, Canada, and included about 200 schools, 2,000 classes and 50,000 pupils. The sample for this study consisted of 36 grade two classrooms and 39 grade five classrooms and observations were conducted during the 1978-79 school year. Data was collected during approximately thirty hours of observations per classroom. Data from reading and language arts classes were used in this study. Pre- and post-tests of Gates-MacGinitie Reading Tests were also administered during this period. These instruments provided the data used in this study to test the relationship

of classroom control to residualized reading gain scores for vocabulary, comprehension and total reading. The residualized reading gain scores are scores which are obtained by predicting the post-test scores from the pre-test scores and then subtracting the predicted scores from the post-test scores. This gives the residual scores and removes any pre-test influence.

To determine if the dimensions defined by Morrison (1974) as classroom control are important predictors of reading achievement a two stage analysis was conducted. The first stage was a correlational analysis, followed by a multiple linear regression analysis, to determine whether any of the independent variables or appropriate composites of these variables were significantly associated with reading test scores.

The second stage of the analysis was concerned with the question of whether there is a linear or nonlinear relationship between the independent variables and reading achievement. This was determined by dividing teachers into groups based on standardized scores on the independent variables, carrying out a one way analysis of variance, and partitioning the sums of squares into linear and nonlinear components.

The results of these tests have been presented in Chapter four, and this final chapter will present and discuss the major findings, and accept or reject the hypotheses on

the basis of these results. Limitations of the study and suggestions for further research in the area of classroom control will also be presented in this chapter.

Hypothesis 1 - Major Findings and Discussion

The first hypothesis is concerned with the importance of warmth in the classroom for reading achievement. It states that high warmth is significantly associated with high residualized reading gain scores in both grade two and grade five. This hypothesis is generated from the work of Christensen (1960), Cogan (1958) and Soar (1966). Cogan (1958) found that teacher warmth helped creative achievement in the classroom. Christensen (1960) found a significant relationship between warmth and vocabulary achievement in grades four and five. Soar (1966) using classroom observations of 55 teachers from grades three to six found that warmth was important for vocabulary, but made no significant difference for reading achievement. In order to obtain a clearer concept of the relationship of warmth to reading achievement, a Pearson correlation coefficient was calculated for residualized reading gain scores. The results of the Pearson correlation coefficient, Table I, show that the correlation for warmth and overall reading gain is significant for grade two and grade five. Therefore on the basis of this evidence the first hypothesis is accepted. Comprehension was found to be significantly correlated in both grades and vocabulary was significant in grade two, but did not quite

reach significance in grade five. These results are in partial agreement with other studies in this area.

Christensen's (1960) study of grade four and five students, using a questionnaire, found that warmth was only significantly related to vocabulary gains. In his 1966 study, Soar found that in grades three and six, supportive classroom climate produced more growth in vocabulary tests, but that emotional climate made no significant difference for reading achievement. The differences in the results may be explained by the use of different methods, definitions and procedures in these studies. The results do indicate, however, the importance that grade level and the nature of the reading task have in a study of warmth and reading achievement.

Soar's suggestion (1968) that there is a curvilinear relationship between warmth and reading achievement is not supported by this study. The test for significance between groups for the analysis of variance shows that in grade two there is a significant linear relationship for warmth and vocabulary and total reading gain, and that for comprehension the trend is toward linearity. In grade five the relationship is below the level of significance adopted, but is in the same general direction.

Hypothesis Two - Major Findings and Discussion

Boundary control is defined in this study as the composite of the three independent variables task, talk and

desk. These variables involve the degree of freedom of interaction the students have in the classroom with regard to (1) task choice, (2) talk and (3) movement. Hypothesis two states that high boundary control is significantly associated with high residualized reading gain scores in both grade two and grade five. Pearson correlation coefficient scores were computed in order to test this and it was found that boundary control was significantly related to all areas of reading achievement in grade five, but because grade two was not found to be significantly correlated the hypothesis is not accepted. However, there are some interesting aspects to the independent variables between grades. In grade five high control of the independent variable task proved to be highly significant. High control of talk was also significant for comprehension but the other areas of talk and control of desk showed no significance in grade five. The vast differences in the three variables in grade five contrast greatly with the results in grade two. In that grade all three variables proved to be of approximately equal importance, although all were non-significant.

These results differ from the studies of Soar (1966, 1968) where it was found that low boundary control was significantly associated with vocabulary gain. He also found that for reading, most growth was associated either

with indirect control and low warmth or direct control and high warmth. Flanders' Indirect/direct ratio study of teacher influence found that students learned more effectively as measured by standardized tests in classrooms with more indirect teacher influence (Amidon and Flanders, 1961; Flanders, 1964). However, because the Soar and Flanders' studies compounded the two variables of warmth and control comparisons with this study are difficult.

Kounin (1967) also studied classroom control and found that high work involvement and low amount of deviant behavior in the classroom were the most effective. These results are in excellent agreement with the findings for grade five where high task control was found to be highly significant for reading achievement. However, because this study was only concerned with teacher response to deviant behavior, and not the amount of deviant behavior in the classroom, the second area of Kounin's work was not tested in this study.

The analysis of variance test for linearity between groups (Tables VI and VII) shows that only the task variable in grade five was significantly related to achievement and this was a linear relationship. Task in grade two and talk in grade two show a linear trend. The other variables do not show any strong tendencies in either direction. The evidence, therefore, is not especially in accord with Soar's (1968) suggestions.

The results of the variables within the dimension of boundary control emphasize the importance of understanding each variable. The idea that a classroom must be quiet with students working silently at their desk is not upheld by this study. Boundary control is shown to be of some importance for achievement in reading, but not all variables defined as boundary control are of significance. High control of task in grade five and talk in the same grade when related to comprehension were the only independent variables that were significantly related to reading achievement.

Hypothesis Three - Major Findings and Discussion

Response to deviant behavior concerns the response the teacher makes when a rule is broken. Only behavior that elicits a response from the teacher is considered in this study. The dimension of response to deviant behavior is a composite of five possible responses defined by the independent variables of mild reprimand, severe reprimand, threat, punishment and other. Hypothesis three states that low response to deviant behavior is significantly associated with high residualized reading gain scores in both grade two and grade five. Table I shows that there is no significant correlation between low response to deviant behavior and reading achievement in grade two and therefore this hypothesis is not supported. However, several

aspects concerning this hypothesis are of interest. First, low response to deviant behavior is significantly correlated with vocabulary gain and total reading gain in grade five. Second, the dependent variable vocabulary gain is more highly correlated with more independent variables than comprehension gain in grade five. For example, vocabulary is significantly correlated with (low) mild reprimand, (low) severe reprimand and (low) punishment, but only (low) mild reprimand is significantly correlated with comprehension gains. These results illustrate differences between grades and between comprehension and vocabulary gains. Also of interest is the low number of teachers who were observed using any response to deviant behavior (Table X). It is not known if this is because there was not any deviant behavior, or if the teachers were ignoring deviant behavior. Evertson's (1975) study of praise and criticism in the classroom reported that a quantitative study provided an inadequate description, and that how and when these dimensions were used were important factors for achievement. These same conditions may also apply to a study of deviant behavior. In order to gain insights into the relationship between deviant behavior and reading achievement, a more precise definition of terms and more classroom observations would be necessary.

The analysis of variance test between groups to determine linear or nonlinear relationships shows the only

significant trend was in grade two for mild reprimand for a linear relationship. Mild reprimand in grade five tends toward a linear relationship and severe reprimand in grade two shows no significance. The other variables have fewer than three groups so no nonlinear trend could be detected.

Hypothesis Four - Major Findings and Discussion

Hypothesis four states that classroom control, as the composite of warmth, boundary control and response to deviant behavior will be more highly associated with residualized reading gain scores for both grade two and grade five. In general, the correlation coefficient tends to show a distinct increase when the composite variable is used. On the basis of this evidence hypothesis four is accepted.

Tables II and III show a summary of the regression analysis that was conducted in order to determine which dimensions contribute significantly to total control. The only dimension that showed significant correlations was warmth (vocabulary) in grade two. The high correlation of the composite of total control seems to be caused by an interaction among the dimensions that are used to form it.


Summary of Findings

Based on the findings of this study, the first hypothesis that high warmth is significantly associated with reading achievement in grades two and five and the fourth hypothesis that classroom control which includes warmth, boundary control and response to deviant behavior will yield

the greatest significance for high residualized reading gain scores in grades two and five, are accepted. Hypotheses two and three were not accepted. However, some of the specific areas included under these hypotheses did show a significant correlation with reading achievement. High control of task in grade five was very significantly related to reading gains, and also low mild response to deviant behavior in grades two and five. Low punishment response to deviant behavior in grade five was also significantly correlated with reading achievement.

Also of importance was that the definitions developed by Morrison (1974) proved to be operationally testable and provided the means to avoid the "labels" that have compromised other work in this field. Morrison's analysis permits the dimensions which comprise the area of classroom control to be studied objectively and compared independently or as a group, and therefore provides the foundations for better understanding of interactions in the classroom with regard to control. However, the area of response to deviant behavior requires even more precise definitions. The quantitative method used in this report is still too global to provide adequate data to conduct a thorough investigation of this area.

The learning theory of Taba, Levine and Elzey (1964) suggests that children may need different control structure



for different tasks, with concrete learning activities requiring highly structured teaching, while abstract learning activities require more freedom. This study found that at the second grade level structuring of activities (boundary control) made no significant differences for either abstract or concrete learning activities. In grade five high control of task was significant for both vocabulary and comprehension gain, but high control of talk was significant only for comprehension gains. If comprehension is more abstract in nature than vocabulary then these results do not support the theory of Taba et al.

Piagetian theory of discipline (Piaget, 1932) suggests that self-discipline develops through stages with maturity and learning experience. This suggests that boundary control and response to deviant behavior should vary according to the stage of development of the child, and that the student in later grades should be given more responsibility with regard to control of behavior. Table I shows that there are differences between grade two and grade five for boundary control and response to deviant behavior variables, but that only high control of boundaries is significant, and only for task and for talk in the area of comprehension. For response to deviant behavior, low control showed a much greater trend towards significance in grade five with older students.

This suggests that the theory may apply to some areas of control of behavior, but not to others.

The results of this study show that some areas of classroom control are significant factors for reading achievement, and that there are differences in these areas between grade two and grade five, and between vocabulary and comprehension gains. The results of this study support the suggestion of Crawford *et al.* (1977) that in future research in classroom control studies of both specific context effects and pupil characteristics be made before attempting to prescribe optimal instruction.

Limitations

There are several important limitations in this study of the effects of classroom control on reading gain. First, cause and effect relationships are not reported, and data are either reported as significant or non-significant. Understanding cause and effect relationships help develop insights and understanding of the area. For example, a greater understanding of response to deviant behavior is achieved when it is known how the rules were implemented at the beginning of the year, and also whether there is a low response to deviant behavior because the students are well behaved or because the teacher is ignoring infringements of the rules.

Another important limitation of this study is that

the individual characteristics of the students are not considered. This study has found that grade level is an important factor in determining the degree of control that provides optimum reading gains. Other characteristics may also be important, for example, the sex of the student, self-concept, high or low achievement, social-economic background or intelligence.

Also, generalizations drawn from the findings in this study should be limited to the population sampled, or applied cautiously to a population similar to the one in the sample.

Suggestions for Further Research

This study has shown that some areas of classroom control are significant factors for reading achievement. It has also shown that the level of control varies for reading achievement for grade two and grade five, and also for the nature of the reading task. However, there has been no attempt to determine why this occurs. Is it because teachers in different grades emphasize different areas, or is it a reflection of intellectual development of the students? Also, although this study took grade level into consideration and found it to be important, other factors such as socio-economic background, high or low achievement levels, sex, self-concept and intellectual development may also prove to be important

for classroom control and reading achievement. Studies of other areas of the curriculum may also provide better insights into the nature of classroom control.

The area of classroom control has been shown to be of importance for reading achievement; however, much additional research is still necessary in order to acquire better insights into this field.

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