

A STUDY OF THE RELATIONSHIP OF PERCEIVED
CLASSROOM CLIMATE AS ESTABLISHED BY
INSTRUCTOR BEHAVIORS AND
ACHIEVEMENT IN A
PSYCHOMOTOR
SKILL

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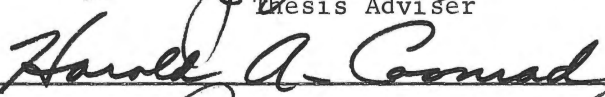
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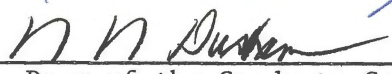


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PREFACE

This study was an attempt to determine the relationship between perceived classroom climate and achievement in a psychomotor skill--typewriting. A climate perception measurement instrument was designed and used. The scores on this instrument were correlated with achievement scores determined by timed writings.

The author wishes to express gratitude to her thesis adviser, Dr. Phillip V. Lewis, for his guidance and invaluable assistance in this project, and to express appreciation to the other committee members, Dr. Robert A. Lowry, Dr. William E. Segall, and Dr. Harold A. Coonrad, for their assistance in the preparation of the manuscript.

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Others to whom the author is indebted are those educators who rated the items included in the opinionnaire.

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CHAPTER I

INTRODUCTION

Learning, motivation and achievement are significant terms in describing the educational process. Each educator perceives his or her role or function in the educational process differently, giving these terms his or her own definition and placing different priorities on each.

Learning is a private process which takes place somewhere within the individual child and can only be assessed through testing his performance, often by inaccurate methods. The teacher himself cannot cause learning to take place but is only able to favor its occurrence. His functions consist in transmitting information from sources external to the child, judiciously applying reinforcements on appropriate occasions to shape behavior, and manipulating motivational conditions to optimize the learning process.

The latter function may actually be the single most important activity of the teacher, for modern technology has amply demonstrated that humans are inefficient information transmitters, prone to errors and repetition, and that they often apply reinforcements at inappropriate times and places.

. . . the cultivation of intrinsically motivated behavior in the classroom will ultimately lead to the development of adults who continue to learn and explore their environments after completing their formal course of education.¹

H. I. Day and D. E. Berlyne seem to suggest in their discussion of intrinsic motivation that the instructor's most important role in the classroom is to establish a climate conducive to the stimulation or

¹H. I. Day and D. E. Berlyne, "Intrinsic Motivation," Psychology and Educational Practice, ed. Gerald S. Lesser (Glenview, 1971), pp. 294-295.

facilitation of learning rather than to the traditional role of teaching or imparting information. Carl Rogers defines significant learning in psychotherapy as that learning which makes a difference in the individual's behavior, in the course of action he chooses in the future and in his attitudes and his personality. He suggests that the conditions of learning psychotherapy--(1) facing a problem, (2) congruence in the therapist, (3) unconditional positive regard for the client and (4) empathic understanding of the client's world--also have implications for education. He states that significant learning occurs more readily when students perceive problems, when the teacher is a real person who does not assume a role or a facade, when the teacher accepts and understands the student, conveying empathy and an unconditional positive regard.²

A somewhat different approach to learning is that discussed by Robert F. Mager.

Once an instructor decides he will teach his students something, several kinds of activity are necessary on his part if he is to succeed. He must first decide upon the goals he intends to reach at the end of his course or program. He must then select procedures, content, and methods that are relevant to the objectives: cause the students to interact with appropriate subject matter in accordance with principles of learning; and finally, measure or evaluate the student's performance according to the objectives or goals originally selected.³

Arlene Silberman defines a good school as "a place of learning where every student feels valued and achieves some measure of

²Carl R. Rogers, On Becoming A Person (Boston, 1961), pp. 280-295.

³Robert F. Mager, Preparing Instructional Objectives (Palo Alto, 1962), p. 1.

success."⁴ She lists these principles that outstanding school principals stand for:

1. The unshakable belief that every child can learn.
2. The belief that teachers and principals must be life-long learners.
3. The belief that people must always come before paper work.
4. The conviction that school must be an encouraging, supportive place, where people feel free to take risks, knowing that they won't be ridiculed if they are wrong and that they will be respected for trying.⁵

Are learning, motivation and achievement related to the priorities, feelings and behaviors of the instructor, which establish the climate or atmosphere in the classroom?

This study is an attempt to determine students' perception of classroom climate and its relationship to achievement in a psychomotor skill classroom.

Therefore, the study should contribute to the determination of whether learning occurs more effectively when instruction is teacher oriented, goal oriented and when achievement is frequently evaluated; or whether learning occurs more effectively when the instructor motivates conditions to optimize the learning process, when the instructor focuses the attention of students on problem solving, is congruent in verbal and nonverbal behaviors, has positive regard for and understanding of the student, and when the school is an encouraging, supportive place where people are comfortable taking risks.

⁴ Arlene Silberman, "The Principal Principle," Ladies Home Journal, Volume 91, No. 10 (October, 1974), p. 50.

⁵ Ibid., p. 54.

Statement of the Problem

The purpose of this study is an attempt to determine if there is a relationship between achievement in a psychomotor skill--typewriting --and the classroom climate or atmosphere as perceived by students.

Hypotheses

In this study we shall hypothesize that there is no significant relationship between the students' perception of classroom climate and achievement in a psychomotor skill.

We shall further hypothesize that there is no significant relationship between the achievement of students who perceive a supportive or nonthreatening climate in the classroom and students who perceive a defensive or nonsupportive climate.

Definition of Terms

For the purposes of this study, the following operational definitions will be used.

Classroom Climate. In this study Classroom Climate is defined as that atmosphere established by instructor verbal and nonverbal behaviors and the instructor's interaction with students.

Supportive or Nonthreatening Climate. A Supportive Climate is defined as an atmosphere in which the student feels empathy, understanding, acceptance and respect from the instructor. The instructor is responsive and receptive to student needs, reveals his or her feelings and is congruent in verbal and nonverbal behaviors. The activities in the classroom are occasionally spontaneous; the students are non-anxious, and there is a problem orientation and an emphasis on learning.

Defensive or Nonsupportive Climate. A Defensive Climate is defined as an atmosphere in which the student feels disapproval, misunderstanding, rejection and disrespect from the instructor. The instructor is unresponsive and unreceptive to the needs of students, assumes a role, hiding true feelings, and is incongruent in verbal and nonverbal behaviors. The activities in the classroom almost always are based on instructor strategy, the students feel threatened and anxious, and there is emphasis on control and evaluation.

Perception. Perception is defined as the students' intuitive recognition of the climate or atmosphere as established by instructor behaviors and student-teacher interaction.

Psychomotor Skill. A psychomotor skill involves the development of neuromuscular activity that leads to automatization of a series of interdependent time and space patterns known as response chaining. Typewriting is a skill usually placed in this category.

Limitations

In reviewing the literature it became apparent that several factors, in addition to perception of classroom climate, are relevant to achievement--student motivation, physical climate, teaching methodology and peer group influence.

James O'Hanlon's study analyzed the dynamics of the classroom group to determine if there are factors in the interaction among students capable of producing a class atmosphere conducive to greater learning by class members.⁶ He hypothesized that classes of a teacher

⁶James P. O'Hanlon, "Student-Generated Classroom Group Atmosphere and Its Influence on Achievement" (Unpublished doctoral thesis, University of Nebraska Teachers College, Lincoln, 1964).

differ in the atmosphere or psychological climate that exists within them, that identifiable factors in the interaction among the students of the classes of a teacher account for these differences in atmosphere and that these differences in atmosphere influence the subject-matter learning which takes place within the classes. He suggested that the mean achievement of the members of classroom groups which are highly positive in atmosphere is higher than that of classroom groups in which the atmosphere is less highly positive.

O'Hanlon also found that the members of the high atmosphere classes chose more of their classmates as persons they "were happy to be in class with." The members of high classes saw their groups as being made up of individuals who participated well in class discussions, competed on a friendly basis, cooperated well with each other, liked each other, admired good scholarship, encouraged or "pepped up" each other and shared the same beliefs and opinions. He concluded that the developing of skills such as critical thinking ability and/or a positive attitude towards the subject may be stimulated by experience with the type of student interaction which takes place in a high atmosphere class.

Hugh V. Perkins, in 1949, said the learning which results from interaction with others in the classroom is also a part of the individual's total development. The findings of the study indicated that differences in the social-emotional climate did produce significant differences in group learning as revealed in verbal statements made by participants in group meetings.⁷

⁷Hugh V. Perkins, "Climate Influences Group Learning," Journal of Educational Research, Volume 45 (October, 1951), pp. 115-119.

In studying the classroom peer group Richard Schmuck⁸ outlines two properties of the social climate--cohesiveness (relations with group members) and norms (shared attitudes about objects and behaviors). Cohesiveness is reflected in the esteem which pupils hold for themselves and the overall attractiveness of the group to the individual members. Cohesive peer groups with norms opposed to authority and the school usually are not supportive climates for academic learning. Pupils in Schmuck's study with diffuse liking structures perceived their teachers as understanding them and thought that schoolwork was "fun" more often than pupils in a central liking structure. Pupils in peer groups with diffuse liking structures compared to those in centrally structured groups showed more positive attitudes toward classroom peers, school life and themselves as pupils. They also shared a more supportive perception of the teacher and academic work. The diffuse structure was low in variability for the positive and negative sociometric choices.

To more fully study the effect of climate or atmosphere on achievement additional investigation of the class as a group might be significant. This study proposes to measure the perception of the support students receive primarily from the instructor.

Physical climate, defined as appropriate or inappropriate lighting, equipment in proper or improper working order, comfortable or uncomfortable seating arrangements, sufficient or insufficient working space and optimal or undesirable room temperature, is also relevant to achievement. This study attempts to measure students' perception of the emotional climate rather than the physical climate and to correlate that

⁸Richard Schmuck, "Some Aspects of Classroom Social Climate," Psychology in the Schools, Volume 3 (January, 1966), pp. 59-65.

perception with achievement.

The study is also limited because of the difficulty in measuring subjective perceptions or attitudes. However, since much of that which is learned in the classroom is in the affective domain then it seems feasible to attempt the assessment of a less than objective variable in this study.

Methodology and Design

The data for this study were secured from eight beginning type-writing classes in secondary schools in Garfield County, Oklahoma. The classes were taught by seven different instructors--two men and five women--and the students were enrolled in five schools. A total of two hundred three students participated in the study. The enrollment of the classes ranged from fourteen to forty.

Each student completed the opinionnaire designed to measure his or her perception of the classroom climate and took a three-minute timed writing to measure his or her achievement. The opinionnaire and the timed writing were administered in the same fifty-minute period after the first six weeks of the course and before the students received their first major evaluation. The responses from the opinionnaire were correlated with the timed writing scores.

Data Analysis

The fifteen items making up the opinionnaire to determine perception of classroom climate were weighted one through five, the higher score reflecting a supportive climate and the lower score reflecting a defensive or nonsupportive climate.

The achievement measurement was determined by net words per minute on a three-minute timed writing using material with 3.1 syllable intensity, 5.2 average word length and 91% high frequency words, which is rated "fairly easy."

Using the Pearson Product Moment correlation coefficient, the average responses on the climate scale were correlated with the timed writing scores.

The Pearson r formula used is:

$$r = \frac{\sum XY - (\sum X) \cdot (\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

X = individual average responses to opinionnaire items

Y = timed writing scores

N = number of students

The sample was split into two groups divided as nonsupportive and supportive on the basis of their opinionnaire score. Persons whose average response fell above the groups' mean were labeled students who perceived a supportive climate and persons whose average response fell below the groups' mean were labeled as students who perceived a non-supportive climate. The groups' mean and median response was 3.534.

A t test for significance was then run to determine whether or not the typewriting test scores for the two groups differed significantly.

The formula for the t test used to determine significance is:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left[\frac{\sum X_1^2 - (\sum X_1)^2}{N_1} + \frac{\sum X_2^2 - (\sum X_2)^2}{N_2} \right] \times \left(\frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

X_1 = typewriting test score for individuals who had supportive scores on climate measure

X_2 = typewriting test scores for individuals who had nonsupportive scores on climate measure

N_1 = number of students with supportive scores

N_2 = number of students with nonsupportive scores

A discussion of the preparation of the perceived climate opinionnaire, the administration of the timed writings, and a description of the subjects used will appear in Chapter III. An interpretation of the data acquired by administering these instruments is presented in Chapter IV, and in Chapter V the investigator will attempt to draw some conclusions from the data and suggest improvement for additional research in the area of classroom climate.

CHAPTER II

REVIEW OF SELECTED RESEARCH AND LITERATURE

To facilitate learning and achievement an instructor must be aware of student-teacher interaction, the classroom climate established by his or her behaviors and the evaluation of teachers by students.

The literature is rife with studies of teacher evaluation;¹ however, specific studies measuring student-teacher interaction and classroom climate are less abundant. Interpersonal communication, communication climate and nonverbal communication are areas of study which researchers and theorists suggest have implications for effective learning in the classroom.

The literature reviewed in this chapter can theoretically be discussed as that relating to Classroom Climate and its definition and implications for the classroom; Student-Teacher Interaction, which might be considered interpersonal communication in the classroom; and Teacher Evaluation, particularly those studies which include references to student-teacher interaction.

Classroom Climate

Classroom Climate has been defined primarily in terms of teacher

¹Richard I. Miller provides a rather extensive annotated bibliography on faculty evaluation in his publication Developing Programs for Faculty Evaluation (San Francisco, 1974), pp. 106-238.

and student verbal and nonverbal behaviors. In the mid-1940's Harold H. Anderson, et al., at Michigan State divided teacher behaviors into "Integrative" and "Dominative" behaviors.²

Integrative behaviors included those in which the teacher accepts, clarifies and supports ideas and feelings of pupils, praises and encourages students, asks questions to stimulate pupil participation and to orient pupils to schoolwork.

Dominative behaviors included those in which the teacher expresses or lectures about his or her own ideas or knowledge, gives directions or orders, criticizes or deprecates pupil behavior and justifies his or her own position or authority.

John Withall has defined social-emotional climate as the emotional tone which is a concomitance of interpersonal interaction . . . a general emotional factor which appears to be present in interactions occurring between individuals in face-to-face groups.

In 1949 he hypothesized that the teacher's behavior is the most important factor in creating climate in the classroom and that the teacher's verbal behavior is a representative sample of her total behavior. He classified these behaviors into seven categories in his Climate Index, which included three learner-centered categories:

1. Learner supportive statements having the intent to reassure or commend student,
2. Acceptance and clarifying statements having the intent to convey to pupil the feeling he was understood,
3. Problem structuring statements or questions which proffer information or raise questions about a problem in objective

²Ned A. Flanders, "Teacher Influence in the Classroom," Interaction Analysis: Research, Theory and Application, ed. E. J. Amidon and J. B. Hough (Boston, 1967), pp. 103-116.

manner with the intent to facilitate learner's problem solving;

one neutral category:

4. Neutral statements which comprise polite formalities, administrative comments, verbatim repetition with no intent inferable;

and three teacher-centered categories:

5. Directive statements with the intent to have the pupil follow a recommended course of action,
6. Reproving or deprecating remarks intended to deter the pupil from continued indulgence in present "Unacceptable" behavior,
7. Teacher self-supporting remarks intended to sustain or justify the teacher's position or course of action.

The instrument was developed by the assessment of statements gathered through the use of recordings of regular class sessions of several secondary classes.

Withall concluded that climate can be assessed and described, that a valid measure of social-emotional climate of groups is obtainable through a categorization of teacher statements, and that verbal behaviors producing "positive" and "negative" feelings can be categorized by impartial observers.

Withall also postulated that learning is most likely to occur when experiences are both meaningful to the learner (perceived by the learner as pertinent to his needs and purposes) and when learning experiences occur in a nonthreatening situation (learner is free from a sense of personal threat, interacts with others in a wholesome social milieu and is helped to evaluate himself on the basis of objective criteria).³

Amidon and Flanders divide teacher verbal behaviors into two

³John Withall, "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," Journal of Experimental Education, Volume 17 (March, 1949), pp. 347-361.

categories: indirect influence and direct influence. The three categories listed under indirect influence include:

1. Accepts and clarifies the feeling tone of the students in a nonthreatening manner,
2. Praises or encourages student action or behavior,
3. Clarifies, builds or develops ideas suggested by a student.

The categories classified as direct influence are:

4. Asks a question about content or procedure with the intent that a student answer,
5. Gives facts or opinions about content or procedures; expresses own ideas; asks rhetorical questions,
6. Gives directions, commands or orders with which a student is expected to comply,
7. Makes statements intended to change student behavior from non-acceptable to acceptable patterns; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.

They also describe student talk:

8. Student talk-response: talk by students in response to teacher. The teacher initiates the contact or solicits student statement.
9. Student talk-initiation: talk by students, which they initiate.⁴

In studying teacher influence in the classroom, Ned Flanders had previously stated that classroom climate refers to generalized attitudes toward the teacher and the class that the pupils share in common in spite of individual differences.

He also stated:

Climate is assessed either by analysis of teacher-pupil interaction and inference of underlying attitudes, or by the use of

⁴Edmund J. Amidon, "Interaction Analysis," Theory Into Practice, Volume 7, No. 5 (December, 1968), p. 160.

a pupil attitude inventory and prediction of the quality of classroom interaction. Its precise meaning, when commonly used, is seldom clear, just as its synonyms 'morale,' 'rapport,' and 'emotional tone' are also ambiguous. To have any meaning at all, the word must always be qualified by an adjective.⁵

Still another definition of "Climate" results from the work of John R. Gibb. He suggests that the atmosphere is either supportive or defensive and that the defensive atmosphere is effected through the use of evaluation, control, strategy, neutrality, superiority and certainty. His list of supportive characteristics in interpersonal communication or in the classroom are description, problem orientation, spontaneity, empathy, equality and provisionalism.⁶

Instructor behaviors which help to establish classroom climate can be nonverbal as well as verbal.

A corresponding list of nonverbal behaviors were developed from Amidon and Flanders verbal categories by Charles Galloway⁷ at Ohio State. Galloway's original polarized list of nonverbal behaviors included these categories:

Encouraging - Restricting
 Congruity - Incongruity
 Responsive - Unresponsive
 Positive - Negative Affectivity
 Attention - Inattention
 Facilitating - Unreceptive
 Supportive - Disapproving

⁵Ned A. Flanders, "Teacher Influence in the Classroom," Interaction Analysis: Research, Theory and Application, ed. Edmund J. Amidon and J. B. Hough (Boston, 1967), p. 104.

⁶Jack R. Gibb, "Defensive Communication," Small Group Communication, ed. Robert S. Cathcart and Larry A. Samovar (Dubuque, 1970), pp. 300-307.

⁷Charles Galloway, "Nonverbal Communication," Theory Into Practice, Volume 7, No. 5 (December, 1968), pp. 172-175.

Some of the nonverbal behaviors listed under these categories are described by Sue S. Lail⁸ in her research using Galloway's model. She mentions the avoidance of verbal interchange, contradiction between verbal and nonverbal cues, lack of attending eye contact, teacher movement, facial involvement and change of teacher's pace.

In his discussion of teacher nonverbal communication Charles Galloway says that each child attempts to understand the teacher's words, gestures, intonation, actions and silence according to the meaning such signs and signals have for him individually. But, he says, it is the culturally disadvantaged child who understands the least amount of information that is transmitted verbally and who reads the most meaning into the nonverbal behavior of the teacher.⁹

In addition to Galloway, other writers have stressed the implications of nonverbal cues in establishing classroom climate.

Albert Mehrabian emphasizes particularly how inconsistency in verbal and nonverbal behaviors can be frustrating to students.¹⁰ He and others suggest that a person's nonverbal behaviors far outweigh the importance of his words when he uses contradictory messages.

Classroom climate would seem to be an atmosphere for learning which stresses the emotional perception by students of instructors' attitudes as exhibited by both verbal and nonverbal behaviors.

⁸Sue S. Lail, "The Model in Use (Nonverbal Communication)," Theory Into Practice, Volume 7, No. 5 (December, 1968), pp. 176-180.

⁹Charles M. Galloway, "Teacher Nonverbal Communication," Educational Leadership, Volume 24 (October, 1966), pp. 55-63.

¹⁰Albert Mehrabian, Silent Messages (Belmont, 1971), pp. 46-47.

Instructor-Student Interaction

Student-teacher interaction may be consciously or unconsciously used to accomplish certain objectives in the classroom. It may be used to facilitate motivation to learn; it may be used to encourage students to improve performance; and it may be used to promote change in behavior of students.

Interpersonal communication is more effective in a nonthreatening environment. A perceived threat may be imagined or real. If a student perceives a threatening environment (imagined or real) as established by the instructor's verbal and/or nonverbal behaviors, then we could anticipate less student-teacher interaction and less effective interpersonal communication.

Richard K. Morton defines learning as communication, saying "emotional and psychological factors have much to do with the success of communication and thus of learning."¹¹ He also says that we learn best from those we like and those we respect. In an experiment involving 231 students, Morton tested the students using standardized tests over prepared material after being lectured by someone unknown to them and then tested them again after hearing another set of lectures by instructors whom they knew and with whom they had social contacts or counseling. Grades averaged twenty-one per cent higher with the second set of tests.

Morris L. Cogan has studied teacher-pupil interaction and how the interaction affects students' performance. In an investigation between

¹¹Richard K. Morton, "Learning As Communication," Improving College and University Teaching, Volume 19 (Spring, 1971), pp. 143-145.

certain classroom behaviors of teachers and the productive behaviors of their pupils, he bases his hypotheses:

1. Preclusive behaviors of teachers are negatively related to the amount of self-initiated work performed by the pupils.
2. Preclusive behaviors of teachers are negatively related to the amount of required work performed by the pupils.
3. Conjunctive behaviors of teachers are positively related to the amount of required work performed by the pupils.
4. Conjunctive behaviors of teachers are positively related to the amount of self-initiated work performed by the pupils, although this relationship is weaker than that of conjunctive behaviors to required work.
5. Inclusive behaviors of teachers are positively related to the amount of self-initiated work performed by the pupils.
6. Inclusive behaviors of teachers are positively related to the amount of required work performed by the pupils, although this relationship is weaker than that of inclusive behaviors to self-initiated work.

on this rationale:

. . . The manner in which pupils perceive the teacher's behavior leads to certain predictable behavior of the pupils, which in turn may lead to change.¹²

The following adjectives are used by Cogan to describe preclusive, inclusive and conjunctive-disjunctive behaviors:

Preclusive: antisocial, surly, spiteful, dour, hostile, impatient, self-centered, self-assertive, aloof

Inclusive: outgoing, good-natured, friendly, cheerful, trustful, patient, self-effacing, responsive, self-submissive

Conjunctive-disjunctive: unimaginative, indolent, changeable, habit-bound, intelligent, conscientious, thoughtful, imaginative

The quality of the student-teacher interaction can also be significant when facilitating motivation to learn.

¹²Morris L. Cogan, "Theory and Design of a Study of Teacher Pupil Interaction," The Harvard Educational Review, Volume 26 (1956), p. 322.

Jack Mason and Arthur Blumberg completed a study in 1969 using the Barrett-Lennard Relationship Inventory.¹³ The Relationship Inventory attempts to measure the degree of the variables mentioned by Carl Rogers--empathic understanding, level of regard, unconditionality of regard, congruence and willingness to be known--experienced by the client in his relationship with the therapist. Barrett-Lennard concluded that the relationship factor measured after five interviews would significantly predict change and that these predictions would be stronger when measured from client perceptions than when measured from therapists perceptions.¹⁴

Using the Relationship Inventory Mason and Blumberg attempted to test the hypothesis that students in the classroom they defined as the one in which they learned most will judge the quality of interpersonal relations between them and their respective teachers differently than will those students in the classroom which they defined as the one where they learned the least. Results of the study indicate that students in the learn-most classrooms did perceive themselves as receiving more regard as individuals from their teachers, did perceive their teachers as more genuinely understanding of their feelings and did perceive more consistency between what their teachers said and what their teachers actually did. But students in the learn-most classrooms did not perceive their teachers as being less variable in their affective

¹³Jack Mason and Arthur Blumberg, "Perceived Educational Value of the Classroom and Teacher-Pupil Interpersonal Relationship," Journal of Secondary Education, Volume 44 (March, 1969), pp. 135-139.

¹⁴G. T. Barrett-Lennard, "Dimensions of Therapist Response As Casual Factors in Therapeutic Change," Psychological Monographs, Volume 76 (1962), pp. 1-36.

responses than did those students in the learn-least classrooms.

In Flanders' study over several years reported as Project 397 for the U. S. Department of Education he suggests that in addition to showing higher achievement, the students in classes where teachers praised student behavior, clarified and developed ideas suggested by students, and accepted and clarified the feelings of students in a nonthreatening manner scored higher class averages on a test of student attitudes. However, he stated that in his six years of research this was the first evidence that, when student attitudes are more favorable, higher achievement also occurs.¹⁵

Student-teacher interaction in the classroom also seems to include the use of reward and punishment and its effect on achievement.

Carole Dawn Lee, in a study of the effect of reward and punishment on learning in shorthand, divided students into two matched groups.¹⁶ The same teacher of lower division shorthand classes projected a negative attitude with one group and a positive attitude with the other group. Positive and negative attitudes were established through verbal and nonverbal behaviors such as harsh language directed at specific students, no constructive criticism, impersonal climate, stiff manner, demanding tone of voice, or more positively through praise, constructive criticism, and nonverbal cues in facial expressions. Lee concluded that the progress of students in the skill subject is affected

¹⁵Ned A. Flanders, Teacher Influence, Pupil Attitudes, and Achievement, United States Department of Health, Education and Welfare, Office of Education, Cooperative Research Project No. 397 (Minneapolis, 1960).

¹⁶Carole Dawn Lee, "A Study of the Effect of Reward and Punishment on Learning in Shorthand" (Unpublished master's thesis, Brigham Young University, Provo, 1962).

by the attitude projected by the instructor. Students exposed to a rewarding, positive classroom climate achieve significantly greater progress in shorthand than students exposed to a classroom climate characterized by punishment and negativism. Lee also concludes that the climate or atmosphere of the classroom is set by the teacher.

Student-teacher interaction in the classroom is sometimes restricted primarily to the control of students.

In a study entitled Philosophies of Human Nature and Nonverbal Communication Patterns¹⁷ using the Philosophies of Human Nature Scale to determine teachers' attitudes and Galloway's Analysis of Nonverbal Communication, Walter Scott Hopkins concluded that the philosophy of teachers appears to be reflected in the degree to which they expect compliance and conformity to rules and authority on the part of their pupils. He also concluded that instructors' philosophy appears to be reflected by positive and negative nonverbal communication utilized within their classrooms and to be reflected in their teaching methodology.

The results of the study indicated that teachers who have a more positive view of man use nonverbal communicative acts which encourage student involvement in classroom interaction, and those teachers with a negative view use nonverbal communicative acts to discourage student involvement.

Donald J. Willower, Terry L. Eidell and Wayne K. Hoy¹⁸ tested

¹⁷Walter Scott Hopkins, "Philosophies of Human Nature and Nonverbal Communication Patterns" (Unpublished doctoral thesis, Oklahoma State University, Stillwater, 1973).

¹⁸Donald J. Willower, Terry L. Eidell and Wayne K. Hoy, The School and Pupil Control Ideology, Studies No. 24 (University Park, 1973), pp. 1-66.

hypotheses concerning pupil control ideology of public school professional personnel and suggest that pupil control problems play a major part in teacher-teacher and teacher-administrator relationships. They suggest control is essential to group life and that norms, role expectations and rules deal with the content of the behavior to be controlled. They conceptualize a continuum of control ranging from "Custodialism" to "Humanism" and suggest that the rigidly traditional school serves as a model for the custodial orientation, emphasizing the maintenance of order. The model of the humanistic orientation is the school conceived as an educational community in which members learn through interaction and experience. Learning in the humanistic model is looked upon as an engagement in worthwhile activity rather than the passive absorption of facts. The humanistic orientation leads teachers to desire a democratic classroom climate with flexibility in rules, open channels of two-way communication and increased student self-determination.

They hypothesized that:

1. Those directly responsible for the control of unselected clients would be more custodial in their control ideology.
2. Teachers would be more custodial in their pupil control ideology than principals or guidance counselors.
3. Secondary teachers would be more custodial in their pupil control ideology than would elementary teachers.
4. Secondary principals would be more custodial than elementary principals.
5. More experienced teachers would be more custodial in their ideology than the less experienced teachers.
6. Closed-minded educators would be more custodial in ideology than would open-minded educators.

Using a Pupil Control Ideology Form, which they devised, to measure

degree of custodialism or humanism orientation, a personal data sheet and the Rokeach's Dogmatism Scale (Form E), the major hypotheses were confirmed.

Other studies concentrate specifically on interaction analysis. Kenneth Everard studied the verbal behavior patterns of novice business teachers.¹⁹ Using the Flander's Interaction Analysis Categories and Interaction Matrix he taped and analyzed the classes (excluding type-writing and shorthand) of sixteen student teachers of business subjects. He found that the average teacher talks seventy-six percent of the time, the students talk only seventeen percent of the time and that the basic teaching pattern is: lecture-question-response-praise.

Everard concluded that the novice business teacher tends to exercise a very direct influence in the classroom, limiting the active verbal involvement of learners.

Steven Egglund²⁰ attempted to analyze the verbal student-teacher interaction in distributive education classes. Using the Flander's Interaction Analysis Categories he attempted to describe the nature of the student-teacher interaction in DE Classes to compare interaction patterns for high school DE classes with established norms for other types of classes and to compare the interaction patterns of DE classes and teacher-coordinators who display selected characteristics.

The average percentage of teacher talk for the thirty-eight

¹⁹Kenneth Everard, "Verbal Behavior Patterns of Novice Business Teachers," The Delta Pi Epsilon Journal, Volume 14, No. 4 (August, 1972), pp. 18-20.

²⁰Steven A. Egglund, "Student-Teacher Interaction in Distributive Education," The Delta Pi Epsilon Journal, Volume 15, No. 2 (February, 1974), pp. 17-24.

participants was 57.78 percent, the average percentage of student talk was 30.68 percent and the average percentage of silence or confusion was 11.53 percent.

Some of the conclusions drawn from the findings which seem relevant to the perception of classroom climate and achievement are:

1. Teacher-coordinators in classes that have 17 or more students talk more and the students talk less than teacher-coordinators and their students in classes that have less than seventeen students.
2. Students in classes who are in the central stages of a teaching sequence spend more time in extended responsive talk (category 8 by category 8 percentage) than do students in classes that are not in the central stages of a teaching sequence.

In one of his studies of classroom environment, Alexander W. Astin attempted to discover if the behavior of the instructor, the behavior of the students and the types of instructor-student interaction that occur in classes in various fields differ through the use of a thirty-five item questionnaire submitted to 4,109 students at 245 colleges in nineteen different fields of study.²¹

The items in the questionnaire were primarily concerned with observable events and facts, and students were asked to circle "yes" or "no" following each item, some of which read:

I almost never spoke in the class unless I was called on.

The instructor encouraged a lot of class discussion.

The instructor was often sarcastic in class.

Students had assigned seating.

I sometimes argued openly with the instructor.

²¹Alexander W. Astin, "Classroom Environment in Different Fields of Study," Journal of Educational Psychology, Volume 56, No. 5 (1965), pp. 275-282.

The lectures followed the textbook closely.

Astin factored Foreign Language versus Social Science, Natural Science versus English and Fine Arts, and Business versus History. The results show that classroom environments reflect differences among various fields of study and support the hypothesis that the college environment is affected by the proportions of students and faculty in various fields of study.

"The investigation of the effectiveness of teachers in general and the student-teacher relationship in particular is a highly complex problem."²² So concluded Edwin C. Lewis in "An Investigation of Student-Teacher Interaction As a Determiner of Effective Teaching."

However, he does theorize that the effectiveness of a particular teacher is, to some extent, related to the characteristics of his students and that one teacher is not equally effective for all students and that such differences may be a function of the personality interaction among teachers and students.

After comparing students and instructors through the use of the Guilford-Zimmerman Temperament Survey and a 100-item biographical inventory he could not support the hypothesis that students and teachers tend to interact along measurable personality dimensions or that effective teachers can be differentiated from less effective teachers on the basis of personality variables.

²²Edwin C. Lewis, "An Investigation of Student-Teacher Interaction As a Determiner of Effective Teaching," The Journal of Educational Research, Volume 57, No. 7 (March, 1964), p. 362.

Teacher and/or Teaching Evaluation

One of the areas of emphasis in evaluating teachers is that of instructor behaviors which seem to be significant in establishing classroom climate.

Turner and Denny²³ suggest that each teacher has a set of reasonably stable characteristics that can be measured outside the classroom, that these characteristics are reflected in the classroom behaviors of the teacher and that both the characteristics and behaviors are reflected in changes in pupil characteristics.

They chose five teacher characteristics--Warmth-Spontaneity, Involvement, Educational Viewpoint (child-centered versus subject-centered), Organization and Stability; seven teacher behaviors--Teacher-Pupil Relationship, Motivational Climate (threatening versus reinforcing behavior), Encouragement of Unusual Pupil Responses, Teacher Initiative in Control of Instruction versus Pupil Initiative, Variation in Materials and Activities, Adaptation to Individual Pupils and Teacher Approach; and four pupil characteristics--Redefinition (ability to redefine uses), Spontaneous Flexibility, Ideational Fluency and Sensitivity to Problems for comparison.

The results of analysis indicated that there was a tendency for each of the teacher characteristics, except Stability, to be related to a particular measure of pupil creativity and to a restricted number of teacher classroom behaviors. Of particular interest, the results indicate that teachers characterized as warm and spontaneous and teachers

²³Richard L. Turner and David A. Denny, "Teacher Characteristics, Teacher Behavior, and Changes in Pupil Creativity," The Elementary School Journal, Volume 69, No. 5 (February, 1969), pp. 265-270.

characterized as child-centered tend to obtain the greater positive changes in pupil creativity. The changes appear to come about through teacher classroom behaviors that involve positive reinforcement of pupil responses, through adaptation of activities to pupils, through attention to individuals and through variation in activities and materials. Teachers characterized as having a high degree of organization tend to depress changes in pupil creativity.

In 1953 A. W. Bendig²⁴ found three factors to account for the intercorrelations of the first ten scales on the Purdue Rating Scale for Instruction:

- (a) a general "halo" factor,
- (b) a group factor with loadings on four scales called "Instructional Competence," and
- (c) a group factor correlating with four other scales called "Instructor Empathy."

When he asked students in an introductory psychology class to rate instructors on competence and empathy he found that the empathy of an instructor is evaluated the same by both men and women students, but they disagree on their judgments of competent teaching behavior of instructors.

He found a high negative correlation between mean student achievement and mean rating on Instructional Competence. An instructor whose students achieved at a high level tended to be rated as being less competent as a teacher than an instructor whose students perform less well on objective achievement tests. He found student achievement unrelated

²⁴A. W. Bendig, "Student Achievement in Introductory Psychology and Student Ratings of the Competence and Empathy of Their Instructors," The Journal of Psychology, Volume, 36 (1953), pp. 427-433.

to judgments of instructors' empathy.

When Wilbert J. McKeachie reviewed the research on student ratings of college teachers and teaching he made several interesting and relevant observations.²⁵

1. D. N. Elliott in research for his Ph.D. thesis in 1949 at Purdue University discovered that certain instructors were more effective in stimulating achievement in low-ability students than in high-ability students.
2. What a student has achieved in a course is to some degree reflected in his rating of his instructor.
3. The instructor's knowledge is not important in determining his effectiveness in student eyes.
4. General severity of grading does not affect overall ratings of the instructor although instructors who grade low are more likely to be rated low in the item "Fairness in Grading."

Other studies reported by McKeachie in collaboration with others in 1963, 1964, 1966 and 1970 involve the effect of teacher personality variables on teaching effectiveness and students' ratings of teacher effectiveness.

Isaacson, McKeachie and Milholland²⁶ studied a group of seventeen teaching fellows and all students enrolled in the introductory psychology courses in the fall and spring of 1959-60 and the fall and spring of 1960-61, at the University of Michigan using Peer Group Nominations, a Descriptive Adjective Inventory and sixteen Cattell personality factors.

They obtained five factors from student evaluations: (1) skill,

²⁵Wilbert J. McKeachie, "Student Ratings of Faculty: A Research Review," Improving College and University Teaching, Volume 5 (1957), pp. 4-8.

²⁶Robert L. Isaacson, Wilbert J. McKeachie and John E. Milholland, "Correlations of Teaching Personality Variables and Student Ratings," Journal of Educational Psychology, Volume 54, No. 2 (1963), pp. 110-117.

(2) overload, (3) structure, (4) student rapport, and (5) group interaction. The five factors defined by the peer nomination procedure were:

1. Surgency (assertive, frank, energetic, talkative, etc.)
2. Agreeableness (cooperative, attentive, mild-mannered, not jealous, etc.)
3. Dependability (responsible, conscientious, orderly, etc.)
4. Emotional Stability (calm, poised, in control of emotions, etc.)
5. Culture (artistic, polished, imaginative, effectively intelligent, etc.)

In attempting to correlate peer group nominations by teaching fellows and student evaluations, the only high relationship with student evaluation was Peer Group Nomination factor five--Culture. They did state that several personality variables correlate with student rating called "Student Rapport," but that only "Surgency" appears for students of both sexes. They concluded that teachers judged by their peers as high on surgency, culture and emotional stability are most likely seen in a good light by their students.

In 1960-61 Isaacson, McKeachie, Milholland, Lin, Hofeller, Baerwaldt and Zinn²⁷ expanded their study of student evaluation by factoring the 145 items in an instrument which incorporated items from Gibb's Teacher Behavior Description Inventory, and student evaluation forms from the University of Minnesota, Ohio State University and the University of Michigan. After factoring, a new evaluation instrument of

²⁷Robert L. Isaacson, Wilbert J. McKeachie, John E. Milholland, Yi G. Lin, Margaret Hofeller, James W. Baerwaldt and Karl L. Zinn, "Dimensions of Student Evaluations of Teaching," Journal of Educational Psychology, Volume 55, No. 6 (1964), pp. 344-351.

46 rating items and an "additional comments" question was administered to University of Michigan psychology students in the spring and fall of 1961 evaluating sixteen teachers in the spring and seventeen teachers in the fall.

Their factor similarity analysis of those items suggested that six factors can be regarded as evidencing stability over sexes and evaluation periods, student groups and teacher groups. The six factors evolving were the five factors obtained in their earlier studies: (1) skill, (2) overload, (3) structure, (4) group interaction, and (5) student-teacher rapport, plus a feedback or evaluation factor.

In a study reported in 1966, W. J. McKeachie, et al.,²⁸ hypothesized that grades of students high in affiliation motivation will be relatively higher in classes high in affiliative cues (instructor is warm, friendly, and personally interested in each student) than in classes with few affiliative cues, while the grades of students lower in affiliation motivation will be relatively lower in classes high in affiliative cues than in classes with few affiliative cues.

By measuring need affiliation through the use of the Thematic Apperception Test developed by Shipley and Veroff of over five hundred students in freshmen mathematics or general psychology, by determining classroom characteristics through the use of a twelve-item questionnaire, and by assessing achievement through the use of objective and essay testing and course grades, the hypothesis was supported at a close to chance level. They found a significant interaction among

²⁸W. J. McKeachie, Yi-Guang Lin, John Milholland and Robert Isaacson, "Student Affiliation Motives, Teacher Warmth, and Academic Achievement," Journal of Personality and Social Psychology, Volume 4, No. 4 (1966), pp. 457-461.

affiliation cues, motivation and grades for all students in psychology and for men in mathematics and psychology. The grades for low need affiliation women were contrary to the hypothesis.

McKeachie, Lin and Mann²⁹ report in May, 1971, the results of five studies in which they have attempted to replicate previous findings. In three of the five studies students used to rate instructors were enrolled in introductory psychology courses and the measurement instrument for achievement was the Introductory Psychology Criteria Test designed by J. E. Milholland in 1964 to measure some of the higher levels of cognitive objectives. In the fourth study the students rated second year French teachers and the criterion measures were a departmentally administered test of oral expression, a test of grammar and reading. In the fifth study students in an introductory economics course were measured at the beginning and at the end of the course by an attitude sophistication questionnaire.

The hypothesis that the Skill factor, the Group Interaction factor and the Feedback (evaluation) factor, previously defined, would be positively related to teacher effectiveness as measured by student performance was confirmed. The Rapport (warmth) factor was also significantly related to effectiveness.

Other minor hypotheses were also confirmed:

1. In four of the five studies teachers rated high on "Skill" tended to be effective with women students.
2. In all five studies teachers rated high in "Structure" tended to be more effective with women than men.

²⁹W. J. McKeachie, Yi-Guang Lin and William Mann, "Student Ratings of Teacher Effectiveness: Validity Studies," American Educational Research Journal, Volume 8, No. 3 (May, 1971), pp. 435-444.

3. Teachers who were high in "Rapport" ("Warmth") tended to be effective on measures of student thinking.
4. Teachers whom students rated as having an impact on beliefs were effective in changing attitudes.

Though not overwhelming, the literature, especially the studies of McKeachie and associates, seem to indicate there is a relationship between the achievement of students and the students' perception of affiliative behaviors of the instructor.

If the classroom climate is based on the students' perception of these behaviors and the degree of student-teacher interaction then additional study of student perception and achievement seems justified.

CHAPTER III

INSTRUMENTATION AND PROCEDURES

To study the relationship between achievement in a psychomotor skill--typewriting--and the classroom climate as perceived by students, it was necessary to secure or prepare an instrument to measure perceived classroom climate as established by instructor behaviors, both verbal and nonverbal, and to measure typewriting skill.

Several questionnaires, inventories or measurement scales had some application to the study of classroom climate. However, those instruments examined had limitations which seemed to discourage the use of any of them in this study. The instruments prepared by these researchers did not seem completely congruent with the purpose of this study:

1. John Withall's Climate Index and Flander's Interaction Analysis were limited to the measurement of observable verbal behaviors.

2. Charles Galloway's Matrix provided for analysis of nonverbal as well as verbal behaviors, but as these behaviors were observed rather than as perceived.

3. The Barrett-Lennard Relationship Inventory was designed primarily to measure the client-therapist perception of climate in a counseling situation.

4. Willower, Eidell and Hoy's Pupil Control Ideology form was designed to be used to measure instructors' opinions or perceptions.

5. W. J. McKeachie's Student Evaluation Instrument measures observable occurrences of verbal acts rather than measuring the attitudes concerning the acts.

6. James O'Hanlon's Atmosphere Scale was used to rate only four general characteristics of the psychological climate.

7. A. W. Astin's thirty-five item questionnaire was designed to elicit information about the instructor's behavior and techniques, students' behavior in the course, interaction between student and teacher and among students; but it also seemed to be measuring observable behaviors rather than attitudes about or perception of the behaviors as they affected each student.

8. The Minnesota Student Attitude Inventory indicates attitudes toward teacher, class activities, teachers' system of rewards and punishments and students dependence on the teacher, however, it does not seem to measure perceived climate as it is defined operationally in this study.

Therefore, it seemed necessary to design a measurement instrument to determine perceived climate as primarily established by instructor behaviors.

The original instrument consisted of twenty-eight items--statements indicating the perception or attitude of students about the classroom or instructor, with which he or she could agree or disagree or with which he or she had no opinion. This instrument was submitted to thirty-five educators--five university business teachers, five professors of education, six public school business teachers, three vocational business teachers, three counselors, two fine arts teachers, two secondary school principals, two elementary school principals, three other

secondary public school teachers, two elementary public school teachers, one graduate education student and one graduate student in religious education. These teachers, principals and graduate students were asked to list each statement in the measurement instrument which they felt would measure these supportive or nonsupportive behaviors of the instructor:

- | | |
|-------------------------------------------------------------------|-----------------------------------------------|
| 1. Acceptance, respect | Disapproval, disrespect |
| 2. Revelation of instructor's true personality | Assumption of a role |
| 3. Congruence in verbal and nonverbal behavior | Incongruence in verbal and nonverbal behavior |
| 4. Spontaneity | Manipulation, strategy |
| 5. Support of student interests and learning, Problem orientation | Frequent judgment or evaluation of students |

More than sixty percent of the thirty-five educators listed fifteen of the twenty-eight statements under one of the five dichotomous categories defining a supportive or defensive climate. These fifteen statements were used to prepare the opinionnaire measuring the perceived climate in the eight classrooms reported in the study. (See Appendix A.) Responses by students to each statement were rated on a five point scale:

- | | |
|-------------------|----------------|
| Strongly agree | - five points |
| Agree | - four points |
| Neutral | - three points |
| Disagree | - two points |
| Strongly disagree | - one point |

To measure typewriting skill, the students were given a three-minute timed writing. Since the students were enrolled in a beginning course and their skill was measured prior to the middle of the first semester, the timed material used was rated "fairly easy." The timed

material used had 3.1 syllable intensity, 5.2 average word length, and 91% high frequency words.

Two hundred three students participated in the study. These students were enrolled in five secondary schools in Garfield County, Oklahoma, in the fall of 1974. The schools were located in rural areas, small towns and larger communities. The students were enrolled in eight classes ranging in size from fourteen to forty and were instructed by seven teachers. This stratified sample was selected from the approximately twenty beginning typewriting classes in the ten high schools in Garfield County, Oklahoma.

Each student was asked to complete the opinionnaire after receiving an explanation of the appropriate method of completing the instrument. The students were informed they were a part of a study and that their honesty was very important.

The timed writing was given after the students completed the opinionnaire, and the timed-writing scores were paired with the opinionnaire scores. The students were allowed time to warm up at the typewriters but did not see the timed material until the timed writing was given.

The scores on the timed writings were calculated on a net words per minute basis, deducting two words per minute for each error.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

The data collected in this study were used to test these null hypotheses:

There is no significant relationship between the students' perception of classroom climate and achievement in a psychomotor skill.

There is no significant relationship between the achievement of students who perceive a supportive or nonthreatening climate in the classroom and students who perceive a defensive or nonsupportive climate in a typewriting classroom.

The data collected were those scores on the opinionnaire measuring perception of classroom climate and the net words per minute for each student.

Treatment of the Data

Opinionnaire scores and net words per minute were punched on IBM cards, tabulated, and the mean and median determined. A computer program was developed for correlating the average response of the statements on the opinionnaire and the net words per minute, as well as a matrix correlating each statement on the opinionnaire with every other statement.

An additional computer program was developed to determine the significance of the differences in the typewriting test scores between those students who perceived a supportive climate and those students who perceived a nonsupportive or defensive climate. (See Appendix B.)

Results in Testing the Hypotheses

In correlating the individuals' average responses on the opinionnaire and typewriting scores by using the Pearson Product Moment Coefficient of Correlation, the computation produced a 0.00 coefficient, which would indicate there is no relationship between perception of classroom climate by students and their achievement in a psychomotor skill.

Therefore, the null hypothesis was not disproved. There is no significant relationship between the students' perception of classroom climate and achievement in a psychomotor skill as evidenced by this study.

However, by correlating each statement in the opinionnaire with the timed writing scores there seemed to be some correlation, though not significant. Table I lists the correlation coefficient of each statement with the timed writing scores.

These coefficients would indicate that the responses to statement Number 2 on the Perception instrument--"The instructor of this class praises me occasionally"--more likely predict the result on a timed writing than any of the other fourteen statements on the instrument.

In analyzing each statement in the perception measurement instrument, the correlation coefficients listed in Table II resulted from the average response of each statement.

No coefficient of correlation above .70 was found between the statements on the climate perception instrument, so no t test was warranted to determine significance.

However, Statements 1, 3, 8, 10 and 15 were computed at coefficients of .60 or above. This might indicate that these five statements

TABLE I
LIST OF CORRELATION COEFFICIENTS OF EACH STATEMENT
ON THE CLIMATE PERCEPTION INSTRUMENT WITH
TIMED WRITING SCORES

Statement Number	Correlation Coefficient
1	0.02
2	0.16
3	-0.02
4	0.04
5	-0.01
6	-0.06
7	-0.04
8	-0.07
9	0.02
10	-0.01
11	0.03
12	0.04
13	0.03
14	-0.04
15	-0.05

TABLE II
LIST OF CORRELATION COEFFICIENTS OF THE AVERAGE OF
EACH STATEMENT ON THE CLIMATE PERCEPTION
INSTRUMENT WITH THE INDIVIDUAL
PERCEPTION SCORES

Statement Number	Correlation Coefficient
1	.60
2	.42
3	.63
4	.21
5	.41
6	.36
7	.16
8	.63
9	.47
10	.68
11	.30
12	.50
13	.38
14	.49
15	.65

somewhat reliably measure perception of climate. Two other statements resulted in coefficients of approximately .50. Statement 12 correlated at .50 and Statement 14 correlated at .49.

The correlation matrix comparing each statement in the climate perception instrument with each of the other statements produced few significant coefficients.

The coefficients of correlation between statements on the climate perception instrument are listed in Table III.

In analyzing the correlation coefficients between the various statements on the climate perception instrument several correlations, though not significant, seem to be worthy of observation.

Statement Number 7--"I feel spontaneous activities occur in this classroom which have not been preplanned by the instructor"--correlates negatively or not at all with eight of the other statements.

Statement Number 1--"The instructor of this class respects me"--correlates at the .25 level or above with seven of the other statements.

Statement Number 3--"The instructor of this class tries to understand my viewpoint"--correlates at the .24 level or above with eight of the other statements.

Statement Number 4--"I feel the instructor of this class does not try to control all the activities in the class"--does not seem to correlate with any of the other statements in the instrument.

Statement Number 8--"I feel the instructor tries to make students feel comfortable in this class"--correlates at the .24 level or above with six of the other statements.

Statement Number 10--"The instructor of this class tries to reduce the amount of frustration the students feel in learning"--correlates at

TABLE III

LIST OF CORRELATION COEFFICIENTS BETWEEN STATEMENTS
ON THE CLIMATE PERCEPTION INSTRUMENT

Statement Numbers	Correlation Coefficient
1 with 2	0.40
1 with 3	0.38
1 with 4	0.07
1 with 5	0.11
1 with 6	0.28
1 with 7	-0.06
1 with 8	0.38
1 with 9	0.21
1 with 10	0.34
1 with 11	0.16
1 with 12	0.22
1 with 13	0.14
1 with 14	0.26
1 with 15	0.45
2 with 3	0.24
2 with 4	-0.04
2 with 5	0.08
2 with 6	0.00
2 with 7	-0.14
2 with 8	0.18
2 with 9	0.19
2 with 10	0.26

TABLE III (Continued)

Statement Numbers	Correlation Coefficient
2 with 11	0.12
2 with 12	0.11
2 with 13	0.07
2 with 14	0.15
2 with 15	0.23
3 with 4	0.10
3 with 5	0.17
3 with 6	0.17
3 with 7	0.04
3 with 8	0.36
3 with 9	0.17
3 with 10	0.37
3 with 11	0.10
3 with 12	0.32
3 with 13	0.24
3 with 14	0.24
3 with 15	0.46
4 with 5	0.08
4 with 6	-0.06
4 with 7	0.11
4 with 8	0.05
4 with 9	0.14
4 with 10	0.05
4 with 11	-0.05

TABLE III (Continued)

Statement Numbers	Correlation Coefficient
4 with 12	0.00
4 with 13	-0.04
4 with 14	0.00
4 with 15	0.00
5 with 6	0.05
5 with 7	0.17
5 with 8	0.24
5 with 9	0.11
5 with 10	0.22
5 with 11	0.11
5 with 12	0.12
5 with 13	-0.00
5 with 14	0.12
5 with 15	0.13
6 with 7	-0.05
6 with 8	0.22
6 with 9	0.02
6 with 10	0.33
6 with 11	0.23
6 with 12	0.01
6 with 13	0.03
6 with 14	0.25
6 with 15	0.30
7 with 8	0.04

TABLE III (Continued)

Statement Numbers	Correlation Coefficient
7 with 9	0.12
7 with 10	0.04
7 with 11	-0.02
7 with 12	-0.00
7 with 13	-0.02
7 with 14	-0.00
7 with 15	-0.15
8 with 9	0.27
8 with 10	0.47
8 with 11	0.10
8 with 12	0.28
8 with 13	0.16
8 with 14	0.15
8 with 15	0.40
9 with 10	0.34
9 with 11	0.14
9 with 12	0.24
9 with 13	0.07
9 with 14	0.06
9 with 15	0.15
10 with 11	0.02
10 with 12	0.21
10 with 13	0.25
10 with 14	0.35

TABLE III (Continued)

Statement Numbers	Correlation Coefficient
10 with 15	0.38
11 with 12	0.02
11 with 13	0.03
11 with 14	0.16
11 with 15	0.10
12 with 13	0.19
12 with 14	0.15
12 with 15	0.49
13 with 14	0.19
13 with 15	0.26
14 with 15	0.32

the .25 level or above with nine other statements in the instrument.

Statement Number 14--"I feel the instructor in this class is more interested in whether the students learn than testing and assigning grades"--correlates at the .24 level or above with five other statements.

Statement Number 15--"The instructor in this class seems willing to listen to students' questions and comments in the classroom and out of the classroom"--correlates at the .25 level or above with seven other statements in the instrument.

Statements Number 2, 5, 6, 9, 11, 12 and 13 show little correlation with other statements in the instrument.

To test the second hypothesis the t test was used to determine the significance between the timed writing scores of those students who perceived a supportive classroom climate and those students who perceived a defensive or nonsupportive classroom climate. The t test revealed a ratio of 0.12, which is not significant with 201 degrees of freedom.

Therefore, the second null hypothesis was not disproved. There seems to be no significant relationship between the achievement of students who perceive a supportive or nonthreatening climate in the classroom and those students who perceive a defensive or nonsupportive climate in a typewriting classroom.

In addition to the statistical analysis of the data collected in this study, averages by class were computed for both the climate perception scores and the timed writing scores. These averages seem to support the correlation coefficients obtained through statistical analysis.

In analyzing the data, there seems to be no relationship between perceived climate score and the timed writing scores.

TABLE IV
AVERAGES BY CLASS OF THE CLIMATE PERCEPTION
SCORES AND THE TIMED WRITING SCORES

Class	Average Perception Score	Average Timed Writing Score
1	3.3	6.80 NWAM
2	3.6	-0.05 NWAM
3	3.6	6.70 NWAM
4	3.6	8.60 NWAM
5	3.4	7.70 NWAM
6	3.5	1.79 NWAM
7	3.7	10.40 NWAM
8	3.6	9.15 NWAM

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study was designed to determine the relationship between achievement in a psychomotor skill--typewriting--and the classroom climate as perceived by students.

To do this, a Climate Perception Instrument was prepared. The statements in the instrument were evaluated by educators on the basis of supportive and nonsupportive climate definitions, and the instrument was revised and administered to 203 students enrolled in beginning typewriting courses. After completing the perception instrument, the students' typewriting achievement was measured by a three-minute timed writing.

The data acquired were subjected to statistical analysis. By using the Pearson Product Moment Coefficient of Correlation, little, if any, relationship could be found between perceived climate and achievement in beginning typewriting.

Related Studies

There is some inconsistency in the literature about how the perception of instructor behaviors affect achievement. John Withall suggests that learning is most likely to occur when the learner perceives the learning experiences are pertinent to his needs and when learning experiences occur in a nonthreatening situation.

Richard Morton's studies indicate that grades are higher when students are tested over material presented by instructors whom they know and with whom they have social contacts. Morris Cogan's studies of teacher-pupil interaction conclude that pupils' perceptions of the teacher's behaviors are positively related to pupils' scores in required work and in self-initiated work. The results of the Mason and Blumberg study indicate that the students in the "learn most" classrooms do not perceive themselves as receiving more regard as individuals from their teachers, but do perceive their teachers as more genuinely understanding of their feelings and perceive more consistency between what their teachers say and what the teachers actually do.

Carole Lee studied the effect of reward and punishment on learning, and concludes that the progress of students is affected by the attitude projected by the instructor. Ned Flanders also found that students in a nonthreatening class situation score higher class averages on a test of student attitudes.

The teacher-student relationship and its effect on achievement is highly complex. This relationship does continue to be studied by those who prepare and analyze teacher evaluation instruments.

Instructor empathy, warmth-spontaneity, and student rapport are recurring terms in the literature relevant to teacher evaluation. These are characteristics which seem to be defined by instructor behaviors, both verbal and nonverbal.

The perceived climate instrument used in this study attempts to measure perception of the verbal and nonverbal behaviors of instructors in a psychomotor skill classroom.

Conclusions Drawn From the Findings

Even though the statistical analysis indicated there is no relationship between perception of classroom climate by students and their achievement in a psychomotor skill, we can draw some positive conclusions about the perception measurement instrument.

Five of the statements in the instrument might reliably measure perception of climate. These five statements had correlation coefficients of .60 or above when relating the average of each statement on the climate perception instrument with the individual perception scores.

Statement 1 - The instructor of this class respects me.

Statement 3 - The instructor of this class tries to understand my viewpoint.

Statement 8 - I feel the instructor tries to make students feel comfortable in this class.

Statement 10 - The instructor of this class tries to reduce the amount of frustration the students feel in learning.

Statement 15 - The instructor in this class seems willing to listen to students' questions and comments in the classroom and out of the classroom.

Three other statements resulted in coefficients of .47 or above.

Statement 9 - The instructor of this class occasionally acknowledges that a student might be "right" when a disagreement occurs.

Statement 12 - A student is not afraid to indicate he or she does not understand the instructions given by the instructor.

Statement 14 - I feel the instructor in this class is more interested in whether the students learn than testing and assigning grades.

These correlations might lead us to conclude that operational definitions of a supportive or nonthreatening climate and a defensive or

nonsupportive climate are appropriate.

In correlating the perception instrument with the timed writings, the correlation coefficient was greatest for Statement 2--"The instructor of this class praises me occasionally." With a coefficient of correlation of 0.16 it has limited predictive value of achievement in a psychomotor skill.

There also seems to be no significant relationship between the achievement of students who perceive a supportive or nonthreatening climate in the classroom, as measured by the perception instrument used, and students who perceive a defensive or nonsupportive climate in a typewriting classroom.

As a result, we might conclude that other influences such as intrinsic motivation, teaching methodology, peer group influence or possibly physical climate affect achievement more than classroom climate as established by instructor behaviors in a psychomotor skill.

Because both hypotheses were supported few assumptions can be made:

1. Even though researchers recognize the influence or value of several instructor characteristics--empathetic understanding in the classroom, teacher-student rapport, instructor praise and approval, and student respect--educators, students and researchers define the terms from his or her own frame of reference and measurement of these characteristics is somewhat difficult.

2. Achievement in a psychomotor skill does not depend on a supportive climate as defined by this study. However, the mean score and the median score on the climate perception instrument were 3.534, and the class means ranged from 3.3 to 3.7. This would indicate that the

larger percentage of students participating in the study perceived a classroom climate where the students feel some degree of empathy, understanding and acceptance, as well as a climate where the students are less anxious and where there exists a problem orientation and emphasis on learning.

Questions Raised for Further Study

The results of this study raise several questions which might lead to further investigation of the relationship of perceived classroom climate and achievement.

1. Would the results differ if the students were enrolled in classrooms in metropolitan ghetto areas?
2. Would the results differ if the students were enrolled in classrooms in upper middle-class neighborhoods?
3. Would the relationship between classroom climate and achievement be significant in a class involving cognitive learning? For example, would there be a significant correlation between achievement in a course in the social sciences, physical sciences, biological sciences or mathematics and the perceived classroom climate as established by instructor behaviors?
4. Would there be a significant difference in the achievement of students who perceived a supportive climate and those who perceived a defensive or nonsupportive climate if the groups' mean had been higher or lower?
5. Would there be a significant difference in the achievement of students who perceived a supportive climate and those who perceived a defensive climate if other variables had been included in the study?

Such variables might include: age and sex of students, students' grade point averages, students' self-concept, students' socio-economic status, students' perceived value of the course, methods of instruction, students' need for achievement.

6. Would there be a significant relationship between classroom climate and achievement if the climate perception instrument were modified? Should the reading level of the instrument be lowered?

7. Would there be a significant correlative difference in the achievement of students who perceived a supportive climate and students who perceived a defensive climate if the climate perception instrument were modified?

These questions prompt the recommendation for further investigation into the relationship between classroom climate and achievement. To improve that investigation a modified climate instrument should be prepared, other variables should be considered and other types of measurement of achievement undertaken.

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APPENDIX A

CLIMATE PERCEPTION OPINIONNAIRE

OPINIONNAIRE

Directions:

Please respond to each statement in this opinionnaire by placing an "X" in the appropriate blank to the left of each item.

If you feel there is little doubt the statement describes the behavior or feeling of the instructor in this class mark the item Strongly Agree (SA).

If you are a little less sure the statement describes the behavior or feeling of the instructor then mark the item Agree (A).

If you do not have an opinion about the statement then mark it Undecided (U).

If you do not agree with the statement mark the item Disagree (D).

If you do not feel the statement describes the feelings or behaviors of the instructor in this class mark the item Strongly Disagree (SD).

When possible mark the statement strongly agree or strongly disagree rather than agree or disagree.

SA A U D SD

- | | | | | | |
|-------|-------|-------|-------|-------|-------------------------------------------------------------------------------------------------------------------------------|
| _____ | _____ | _____ | _____ | _____ | 1. The instructor of this class respects me. |
| _____ | _____ | _____ | _____ | _____ | 2. The instructor of this class praises me occasionally. |
| _____ | _____ | _____ | _____ | _____ | 3. The instructor of this class tries to understand my viewpoint. |
| _____ | _____ | _____ | _____ | _____ | 4. I feel the instructor of this class does not try to control all the activities in the class. |
| _____ | _____ | _____ | _____ | _____ | 5. I feel the instructor does not assume a "role" in this class, but is really the same person in the class and out of class. |

SA A U D SD

- | | | | | | |
|--|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------|
| | | | | | 6. I feel the instructor of this class means what he or she says. |
| | | | | | 7. I feel spontaneous activities occur in this classroom which have not been planned by the instructor. |
| | | | | | 8. I feel the instructor tries to make students feel comfortable in this class. |
| | | | | | 9. The instructor in this class occasionally acknowledges that a student might be "right" when a disagreement occurs. |
| | | | | | 10. The instructor of this class tries to reduce the amount of frustration the students feel in learning. |
| | | | | | 11. The instructor's facial expression and tone of voice usually match the statements made by the instructor. |
| | | | | | 12. A student is not afraid to indicate he or she does not understand the instructions given by the instructor. |
| | | | | | 13. The instructor in this class requires students to complete more assignments than the students are able to complete. |
| | | | | | 14. I feel the instructor in this class is more interested in whether the students learn than testing and assigning grades. |
| | | | | | 15. The instructor in this class seems willing to listen to students' questions and comments in the classroom and out of the classroom. |

APPENDIX B

LISTING OF COMPUTER PROGRAMS

```

PAGE 1
// JOB
LOG DRIVE  CART SPEC  CART AVAIL  PHY DRIVE
0000      0004      0004      0000

V2 M10  ACTUAL  8K  CONFIG  8K

// FOR
*IOCS(CARD,1132,PRINTER,DISK,TYPEWRITER,KEYBOARD)
*LIST SOURCE PROGRAM
*ONE WORD INTEGERS
*EXTENDED PRECISION

C   PROGRAM TO PRINT OUT THE AVERAGE TEST RESPONSE.
C   INITIALIZE COUNTERS.
      N=0
      SUMX=0.0
C   READ A CARD AND TEST FOR LAST CARD.
      5 READ(2,10)LAST,X
      10 FORMAT(I3,I30,F3.0)
         IF(LAST=999)20,30,30
C   INCREMENT COUNTERS. RETURN TO READ ANOTHER CARD.
      20 N=N+1
         SUMX=SUMX+X
         GO TO 5
C   COMPUTE AND PRINT THE AVERAGE.
      30 AVF=SUMX/N+.005
         WRITE(1,40)AVF
      40 FORMAT('AVERAGE = ',F10.2)
         CALL EXIT
      END

FEATURES SUPPORTED
ONE WORD INTEGERS
EXTENDED PRECISION
IOCS

CORE REQUIREMENTS FOR
COMMON      0  VARIABLES      12  PROGRAM      98

END OF COMPILATION

// XEQ

```

PAGE 1

// JOB

```
LOG DRIVE   CART SPEC   CART AVAIL   PHY DRIVE
   0000         0004         0004         0000
```

V2 M10 ACTUAL 8K CONFIG 8K

// FOR

*IOCS(CARD,1132 PRINTER,DISK,TYPEWRITER,KEYBOARD)

*ONE WORD INTEGERS

*LIST SOURCE PROGRAM

*EXTENDED PRECISION

C

C MATRIX CORRELATION PROGRAM FOR ZOLLI PAGE

C PROGRAMMED BY DENNIS MITCHELL

C

C RESERVE STORAGE AREAS AND INITIALIZE COUNTERS.

```
DIMENSION R(17,17),SUMX(17),SUMXX(17),CARD(17),SUMXY(17,17)
DATA SUMX,SUMXX,SUMXY/323*0.0/,MINUS/'-'/
N=0
```

C READ A CARD AND CHECK FOR LAST CARD.

```
10 READ(2,20)LAST,(CARD(JM),JM=1,15),ISIGN,CARD(17),CARD(16)
20 FORMAT(13,15F1.0,1X,A1,F2.0,T30,F3.0)
IF(LAST-999)30,70,70
```

C INCREMENT CARD COUNTER, CHECK FOR NEGATIVE TYPING TEST SCORE AND ADD TO ALL COUNTERS.

```
30 N=N+1
IF(ISIGN-MINUS)50,40,50
40 CARD(17)=0.0-CARD(17)
50 DO 60 J=1,17
SUMX(J)=SUMX(J)+CARD(J)
SUMXX(J)=SUMXX(J)+CARD(J)**2.0
DO 60 K=1,17
60 SUMXY(J,K)=CARD(J)*CARD(K)+SUMXY(J,K)
GO TO 10
```

C COMPUTE 289 CORRELATION COEFFICIENTS AND PRINT OUT THE MATRIX.

```
70 DO 80 J=1,17
DO 80 K=1,17
80 R(J,K)=(SUMXY(J,K)*N-SUMX(J)*SUMX(K))/(((N*SUMXX(J)-SUMX(J)**2.0)*
-(N*SUMXX(K)-SUMX(K)**2.0))**.50)+.005
WRITE(3,90)(J,J=1,15),(K,(R(J,K),J=1,17),K=1,15),
-((R(J,K),J=1,17),K=16,17)
90 FORMAT('1',5X,'CORRELATION MATRIX FOR ZOLLI PAGE',/'0',T49,
-'QUESTIONS'T105,'AVERAGE TYPING',/' ',T12,15I6,3X,'RESPONSE TEST
-',15(/'QUESTION',13,15F6.2,2F8.2),/'0AVERAGE',/' RESPONSE',3X,
-15F6.2,2F8.2,/'0TYPING',/' TEST',7X,15F6.2,2F8.2)
CALL EXIT
END
```

PAGE 1

// JOB

```
LOG DRIVE    CART SPEC    CART AVAIL    PHY DRIVE
  0000        00C1        00C1          0000
```

V2 M10 ACTUAL 8K CONFIG 8K

// FOR

*IOCS(CARD,1132,PRINTER,DISK,TYPERWRITER,KEYBOARD)

*ONE WORD INTEGERS

*LIST SOURCE PROGRAM

*EXTENDED PRECISION

C

```
C      T TEST OF SIGNIFICANT DIFFERENCE FOR ZOLLI PAGE
C      PROGRAMMED BY DENNIS MITCHELL
```

C

```
C      RESERVE STORAGE AREAS AND INITIALIZE COUNTERS.
```

```
      DIMENSION SUMX(2),SUMXX(2),XN(2)
      DATA SUMX,SUMXX,XN/6*0.0/
      DATA MINUS/'-'/
```

```
C      LOOP TO READ IN BOTH GROUPS.
```

```
      DO 50 J=1,2
```

```
C      READ A CARD, TEST FOR LAST CARD.
```

```
      5 READ(2,10)LAST,ISIGN,X
      10 FORMAT(I3,16X,A1,F2.0)
      IF(LAST-999)20,50,50
```

```
C      CHECK FOR NEGATIVE TYPING TEST SCORE, AND ADD TO ALL COUNTERS.
```

```
C      RETURN TO READ NEXT CARD.
```

```
      20 IF(ISIGN-MINUS)40,30,40
```

```
      30 X=0.0-X
```

```
      40 SUMX(J)=SUMX(J)+X
      SUMXX(J)=SUMXX(J)+X*X
      XN(J)=XN(J)+1.0
```

```
      GO TO 5
```

```
      50 CONTINUE
```

```
C      COMPUTE T RATIO, AND PRINT RESULTS.
```

```
      T=(SUMX(1)/XN(1)-SUMX(2)/XN(2))/((((SUMXX(1)-SUMX(1)**2.0/XN(1))+
      -(SUMXX(2)-SUMX(2)**2.0/XN(2)))/(XN(1)+XN(2)-2.0))*(1.0/XN(1)+1.0/
      -XN(2))**.50+.005
```

```
      N=XN(1)+XN(2)-2.0+.5
```

```
      WRITE(3,60)T,N
```

```
      60 FORMAT('1' T = '1,F6.2,/'10 DEGREES OF FREEDOM = '1,I5)
```

```
      CALL EXIT
```

```
      END
```

FEATURES SUPPORTED

ONE WORD INTEGERS

VITA ²

Zolli Page

Candidate for the Degree of

Doctor of Education

Thesis: A STUDY OF THE RELATIONSHIP OF PERCEIVED CLASSROOM CLIMATE
AS ESTABLISHED BY INSTRUCTOR BEHAVIORS AND ACHIEVEMENT IN A
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