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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE RELATIONSHIP OF CLASSROOM ENVIRONMENT ON STUDENTS' ACHIEVEMENT IN MID-MANAGEMENT COURSES

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THE RELATIONSHIP OF CLASSROOM ENVIRONMENT ON STUDENTS' ACHIEVEMENT IN MID-MANAGEMENT COURSES

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CHAPTER I

THE PROBLEM

Introduction

The challenge of the business education teacher is to contribute toward the facilitation of skill building and cognitive growth. This may be accomplished by a number of different procedures--directive or non-directive teaching methods, "open" or "closed" settings, materials, supplementary aids and other resources. The influence of the classroom environment is another area which has been receiving considerable attention recently. The importance of the environment as a tool to learning has been widely accepted by teachers (Anderson, 1968).

According to Anderson (1968), the classroom environment is a profile of measurable class dimensions such as cohesiveness, apathy, favoritism, and friction. Categorically, these dimensions can provide information concerning interpersonal relationships among students; relationships between

students and their teacher; relationships between students and both the subject studied and the method of learning; and most important the students' perceptions of the characteristics of the class.

The students' perception of their classroom environment and the relationship of classroom environment on achievement in mid-management courses was the focal point of this study.

Purpose of Study

The major purpose of this study was to investigate the relationship between mid-management students' perception of their class as a social group and their achievement in that class.

Statement of Problem

This study was an attempt to determine if there is a relationship between students' perception of the classroom environment and achievement in mid-management courses.

Specifically, the problems researched were:

1. Is there a relationship in the perception of the classroom environment between high achieving students and low achieving students?
2. Is there a relationship between the gender of students and their perception of the classroom environment?
3. Is there a relationship between day and evening students and their perception of the classroom environment?
4. Is there a relationship between the age of students and their perception of the classroom environment?

Hypotheses Tested

In this study the following hypotheses were tested:

Hypothesis 1. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students receiving disparate course grades.

Hypothesis 2. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students receiving disparate comprehensive final examination scores.

Hypothesis 3. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students possessing disparate overall grade point averages.

Hypothesis 4. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for male and female students.

Hypothesis 5. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for day and evening students.

Hypothesis 6. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students in disparate age groups.

Definition of Terms

For the purpose of this study, the following terms were defined:

Mid-Management Students--Students who were enrolled in a two-year business curriculum (62-64 credit hours) designed to provide knowledge or information pertinent for a middle management position in industry or commerce.

Achievement--Kerlinger (1973) stated, "Achievement is customarily defined operationally by citing a standardized test of achievement . . . by grade-point averages or by teacher judgments" (p. 42).

Perception--A student's awareness or intuitive judgment.

Classroom Environment or Climate--The state of affairs in the group with respect to dealing with feelings (Thelen, 1954, p. 227).

Groups--"A collection of organisms in which the existence of all (in their given relationships) is necessary to the satisfaction of certain individual needs in each" (Cattell, 1951, p. 169).

Group Dynamics--"This is defined as the study of influences acting on . . . the group structure" (Berne, 1966, p. 234).

Socialization--"The development in individuals of the commitments and capacities which are essential prerequisites of their future role-performance" (Parsons, 1959, p. 298).

Learning Environment Inventory (LEI)--An instrument designed to measure the social climate of a class (classroom environment) as perceived by the students within it (Anderson, 1973, p. 1).

Discriminant Function Analysis--A regression equation with a dependent variable that represents group membership (Kerlinger, 1973, p. 650).

Significance and Need for Study

Since much of formal and informal education takes place within a group, an analysis of social influence upon the individual's behavior should increase one's understanding of the factors affecting student learning in the classroom. A study of the class group is particularly important since, next to the family, school is considered one of the most focal socializing agencies (Parsons, 1959).

The established relationship of group characteristics to productivity in industry and commerce (McLarney and Berliner, 1970) indicates that a study of the characteristics and dynamics

of school class groups would be helpful for more effective educational diagnosis, and classroom planning.

The knowledge of classroom environments can be utilized to evaluate teaching effectiveness, and to provide feedback on curricula, courses, and various educational programs.

Limitations

1. This study was limited to a sample of 200 business students enrolled in mid-management courses at a large urban junior college in the southwest.

2. The Learning Environment Inventory, as a measuring tool, has had limited use. Although the instrument was considered valid and useful, the researcher recognized this as a limitation.

Nature and Sources of Data

In reviewing literature conducted in the area of classroom environment, information was sought from the following sources:

1. Books, journals, and doctoral studies relevant to group dynamics and classroom social climate.

2. Books and articles on educational statistics and research.

3. Raw data sheets completed by mid-management students who participated in the study.

4. The Learning Environment Inventory.

Analysis of Data

After the raw data were collected, they were coded and punched on cards for processing. The statistical tool for this study was a multivariate analysis, the Discriminant Function Analysis.

Procedure

1. The first step was to review literature in the area of group dynamics as it related to learning, and research studies in the area of classroom social climate as it related to influence on learning.

2. The second step was to examine tools which might measure the environment created in a classroom. The instrument selected was the Learning Environment Inventory devised by Dr. Gary J. Anderson in 1973. Permission to use the instrument was granted by Anderson. (See Appendix.)

3. The third step was to randomly select the sample to be tested. Four day classes and four evening classes from a mid-management instructional program at a large urban junior college were randomly selected from the 10 day and 10 evening classes in that program.

4. The fourth step was to administer the instrument to the students in the classes. In order to minimize any possible biases, the instrument was administered by the same individual to all sample groups. The individual was not associated with the college where the study was conducted or

with the design of the research. The instructions were given to the students in a prepared statement as to the procedures and objectives of the questionnaire.

5. The fifth step was to code the data for computer analysis.

6. The sixth step was to analyze the data generated by the study.

7. The seventh step was to prepare the research report.

Assumptions

It was assumed that course grades, comprehensive final examination scores or grades and overall grade point averages are valid measurements for academic progress (Perel and Vairo, 1973).

It was further assumed, through career interviews, that most students enrolled in mid-management courses seek middle level managerial positions upon completion of their training. Therefore, any information obtained which would improve the classroom social environment should benefit the students' learning.

Organization of Report

Chapter I includes the Introduction, Purpose of Study, Statement of Problem, Hypotheses Tested, Definition of Terms, Significance and Need for Study, Limitations, Nature and Sources of Data, Analysis of Data, Procedure, Assumptions,

and Organization of Report. The Review of Literature is presented in Chapter II. Chapter III gives the Methodology. The Results are presented in Chapter IV. The Summary, Conclusions, and Recommendations are presented in Chapter V.

CHAPTER II

REVIEW OF LITERATURE

The literature reviewed in this chapter was selected on the basis of its relevance to the present study. The literature was grouped into two general categories: Research Related to the Environmental Setting and Research Directly Related to the Present Study.

Research Related to the Environmental Setting

Group Dynamics

Since the first psychological laboratory was established in Leipzig, Germany almost 100 years ago, psychologists have been strongly inclined to put their hypotheses concerning groups to various tests. Prior to this period, testing had been confined to the individual; but in 1897, Triplett conducted the first investigation of socialization on individual performance. Triplett analyzed the records of bicycle races. From the findings of Triplett's investigation, it was possible to show that a rider's speed increased significantly when he was paced by another rider. According to Triplett, the presence of another bicycle rider "serves to liberate latent

energy not ordinarily available" (p. 533). This "dynamogenic" factor is an important item in explaining the difference in an individual's level of performance in an activity when it is done both in "isolation" and in a "group" setting.

Triplett's experiment and subsequent replications leave little doubt that an awareness of the presence or absence of other people is an important factor in an individual's performance. A solitary individual and the same individual in a group are two different psychological structures (Albanese, 1975).

Allport (1920) found that subjects produced more mental or verbal associations in groups than when isolated. The speed of associations in the group was also greater, especially in the beginning of the socialization phase. Allport further experimented with the influence of the group upon the thought processes in written arguments and found that more ideas were produced in the group than by individuals working alone. When the ideas were compared for their scholarly content, those of superior quality occurred more frequently in the individual worker's output than when workers performed as a group. While more words were used in the arguments of the group because the presence of others induced "a more conversational and expansive form of expression," the ideas of the group were of a lower logical order. Serious logical thinking was much more characteristic of the individual working alone. Allport's conclusion was that although group influence improved the quantity

of mental performance, work requiring concentrated and original thought is best performed in private.

Research has shown that group participation increases the speed of performance but decreases the quality and accuracy of performance. In many cases of group performance there tends to be an "evening effect," where the less capable individuals improve in a group and superior ones regress. In otherwords, the group becomes more homogeneous; and neither the individual nor the group has a separate existence. Each function depends upon the other; the group's behavior always takes place between or among individuals; and the behavior of individuals is determined by the structure of their interrelationship (Lewin, 1935).

While at the University of Iowa, Lewin, Lippitt, and White (1939) set out to investigate the effect on its members of small groups organized along "democratic," "authoritarian," and "laissez faire" patterns. The three groups were composed of ten-year-old boys. In the democratic group the leader did not order or direct and was "fact-minded" in his evaluation of the boys' activities. The boys for the most part worked out their own problems, but were free to consult the leader whenever they desired. In the authoritarian group, policies and activities were determined by the leader; and his evaluation of the boys' work was "personal." In the laissez faire group, the leader neither participated nor voluntarily gave suggestions; and the boys were given complete freedom to solve their problems in their own way.

The results in behavior and work in these groups were quite different. Where the results of the laissez faire group were negligible, the democratic group was highly productive; but the most striking difference was in the authoritarian group. It was demonstrated that the authoritarian atmosphere impaired initiative and independence and bred hostility and aggressiveness. The boys were self-centered, frustrated, and hostile to a much larger degree than those of either the democratic or laissez faire group. They tended, furthermore, to be submissive, lifeless, and apathetic; and bodily tensions were frequently manifested (Lewin et al., 1939).

Later when Lewin moved to the Massachusetts Institute of Technology, he began to apply his knowledge of group dynamics to industry. In one controlled experiment he was able to demonstrate that poor motivation, occasioned by the workers' resentment against authoritarian methods in a factory, was a very important factor in their failure to increase productivity. The authoritarian management was found to be the frustrating agent in production efficiency. When the workers were permitted to air their own views and make suggestions, they felt that they were participants in the decision-making process; and their motivation improved and production exceeded previous levels (Lewin, 1948).

Many studies (Bany and Johnson, 1964; Berne, 1966; Kounin, 1970) of group dynamics tend to overemphasize the influence of the group on the individual and to submerge the

individual's role in the group. In some instances this tendency has been carried so far as to make the individual appear inconsequential. Existing research does not support the claim that the group is almost always superior to the individual in solving problems, acquiring knowledge, and resolving social tensions. Research does not justify the claims made for "leaderless" groups, or for the assertion that, to be justified in a democratic society, leadership must always be passed around from person to person. It is unrealistic to minimize the role of the individual in the development of groups and the growth of human institutions. Group dynamics has not demonstrated that creativeness is largely a group phenomenon, although a strong case can be made for group dynamics in classroom learning (Bonner, 1959).

Social Climate of the Classroom

The class is recognized both by the school system and by the individual pupil as the place where the "business" of formal education takes place; and the most basic element about any classroom is the group interaction and action which have a direct influence on student learning (Parson, 1959, p. 297). Social interactions set the conditions under which learning occurs. High achievement in school is usually the socially approved way of getting commendation from other people or the way of withdrawing from social interaction or the feeling one gets from successful competition. This is all the result of

interactions produced by group dynamics in the classroom (Thelen, 1954, pp. 42-45).

Perkins (1951) stated: "Group climate and group learning are aspects of an interrelated and unified experience," and " . . . findings emphasize conclusively that an individual's learning and development cannot be treated as a series of discrete and unrelated experiences" (p. 119).

Mayer, a German educator, designed an investigation in which he tested students to determine whether, and if so, under what conditions the work of a group gave better results than students working alone. The students were representative of different abilities and temperament and the material on which they worked (mathematics and memory tests) was carefully chosen and familiar to them. The performance of the students in groups was, in general, superior to their work as individuals. This difference characterized not only the amount of time consumed in performing the task but the quality of the work performed (Bonner, 1959, p. 15).

Other German psychologists and educators have looked at the same issues. Neuman compared the retention of memorized materials of students when working alone and when working in a group. Neuman found that the majority of students preferred classroom work to individual work, and that most of those who preferred solitary work were, by his standards, somewhat maladjusted (Bonner, 1959).

Although the work of the German researchers was conducted years ago, the influence of the group upon the learning situation has never been doubted in modern educational theory and practice; but it is only recently that group dynamics have explicitly been recognized as basic and integral factors in the educational process.

Perhaps the greatest emphasis in applying group dynamics to education is on the development of democratic teaching in the classroom. The most vocal criticism by group dynamic exponents is that our schools give lip service to the democratic ideal, but largely ignore it in practice. According to Thelen (1954), the purpose of education is to educate youth to become skillful in democratic living. The findings of group dynamic research concerning the psychological structure of groups, the process of group change, decision-making, group leadership, learning and thinking in group, and teaching as guidance through self-directing groups have been utilized by educators.

Opposite to the traditional philosophy of education, which implicitly separated the individual and the group, the group-dynamic approach stresses their inseparability. That is, from the group-dynamic point of view the most important function of the school is to enable the student, by free participation in the group's activities, to find his place in the group (Bonner, 1959).

Thelen (1954) has theorized that classroom learning activity involves the following three types of processes:

A. Working with school subject matter, preferably within the content of problem solving.
B. Organizing social relations to maintain greatest support for participation in learning activities.
C. Discovering, formulating, and testing meanings of experience for one's self. (p. 15)

To implement these processes Thelen (1954) established the following five theoretical frameworks:

1. How can the understanding of these three processes in their relationship to classroom learning become part of the classroom culture and social climate?
2. How can the teacher and class diagnose which aspect should be central to activity at any given time?
3. How can shifts of focus on the three processes be accomplished without producing ambiguity and confusion?
4. How does the teacher guide the creation of needed activities?
5. How can the class be organized to carry out the needed activities? (pp. 51-62)

The basis behind the first question, "How can the understanding of these three processes in their relationship to classroom learning become part of the classroom culture and social climate?" is that the class and the teaching process, in operating together do so on the basis of shared expectancies about what is important, necessary, desirable and possible. Among the shared expectancies which make up the climate is the question as to whether or not the course can be concerned with problems and achievement. In planning activities, the following problems need to be understood, tested, and used as data: (1) The part played by the teacher and by the students. (2) The roles that may alter from

activity to activity. (3) The conclusions that individuals are drawing about themselves, the group, and their work (Thelen, 1954).

The expectation is that such understandings must be part of the total school environment. However, assuming that these expectations are not yet institutionalized in the school, the instructor has the task of incorporating these expectations into the group culture. The most expeditious method of incorporating these expectations into the group culture is for the teacher to make clear to the group why each activity is proposed (Thelen, 1954).

According to Thelen (1954), questions each class must understand for their academic development are:

(a) For problem solving:
What is the nature of the problem?
What factors are involved in a specific instance of the problem?
What will have to happen if the problem is to be solved?
What are the ways of getting these things to happen?
How can we judge which suggested way is the best in our situation?
How can we test whether the way we select really is effective?
How can we explain why it worked the way it did?

(b) For group relations:
What kinds of ideas or facts do we need now?
How shall we organize ourselves to get these needed ideas?
How can we put these ideas together to guide the group?
What provision do we need for special roles as chairman, group leader, etc.?
What factors stood in our way of working efficiently? (pp. 52-53)

Kounin (1970) stated that "A classroom teacher is not a tutor working with one student at a time. Even though he

may work with a single student at times, his main job is to work with a group of students" (p. 109).

The teacher by asking these questions and helping the group answer and discuss them gradually begins to develop the group. The best signs of group growth and development of the group environment is when the students themselves begin to pose these questions at the appropriate times. The greatest reward comes when the class adequately discusses suggestions and plans activities as a result of the answers it gets to its own questions (Thelen, 1954).

Thelen's (1954) second question, "How can the teacher and class diagnose which aspect should be central to activity at any given time?" suggests that the principal method of guiding a classroom group is through diagnosis of the problems and needs which the group is expressing as it works. Silberman (1970) stated that: "To suggest that learning evolve from the student's interests is not to propose an abdication of authority, only a change in the way it is exercised" (p. 209). Advance thinking can be helpful, too. A good lesson plan made the night before may imply good guesses about group development needs. That is, if the class is shown a film which is predicted by the teacher to be very stimulating, then the teacher is likely to plan a discussion period organized in such a way that the students can express their feelings of enthusiasm and their identifications with people or problems shown. This type of planning represents the process of

"prediction of need." It is a type of diagnosis-in-advance, and if the students are enthused as predicted, then the teacher can stay with the plan; but of course the teacher should have alternates of what to do in case they are not (Thelen, 1954).

The implications of diagnosis-as-you-go are: running diagnosis is required to assure the instructor that the plan should in fact be followed or to show him that it should be modified; and since the plan can never indicate all the details about what is to be done and how, decisions will have to be made on the spot as a result of diagnosis with the class (Thelen, 1954).

The objective of diagnosis is to enable psychologically sound or realistic choices to be made. The responsibility for securing wise choices--that is, choices which result in educative activity--is the teacher's responsibility (Bany and Johnson, 1964).

The process of diagnosis is both evaluative and explanatory. The teacher is concerned with how well the class is doing, and this is made known to him or to her by the feelings which arise in his automatic application of criteria for good operation. Thus the teacher generally can feel whether or not the class is interested in its task (Bany and Johnson, 1964).

If the class falls short of the teachers' criteria, it is a sign to him that there is some problem to be diagnosed and dealt with. Thus, if the conversation does not seem to be "adding up" and no one is able to summarize the discussion,

the teacher may realize that the problem the group is working on is not clearly defined, or that the role of the group is ambiguous, or some other compelling force is distracting the students so they cannot concentrate on the task. Here it may be necessary to change the focus from attempted problem solving to discovery by each individual of how he feels or how inquisitive he is about the task so the group can redefine its task in more significant terms (Marshall, 1972).

When a discussion becomes too academic, interest can often be regained by inviting personal reactions to the material being discussed. When the class seems apathetic and inhibited, then the instructor, through his "art of teaching," may try to put into words some fear or worry that may be troubling the group; and thus free the group to consider its concerns more objectively. When students are confused or frustrated, it may help to redefine the achievement problem. Too much dependency on the teacher for suggestions may often be overcome by dividing the class into working groups (Conant, 1964, p. 7).

Thelen's (1954) third question, "How can shifts of focus on the three processes be accomplished without producing ambiguity and confusion?", suggests that the technique through which the teacher harnesses the classroom energy into educative work is a set of understandings about how to shift the basic focus of activity in response to diagnosed needs for control.

To understand its activities as it shifts from one kind of focus to another, the class needs to have consciousness of itself as a group of individuals trying to work and learn together. The reason for shifting focus is that the group needs to do so; and it needs to do so because it has run into a problem which it cannot solve under its present mode of operation (Thelen, 1954).

The first requirement for avoiding confusion is to know why the change is made. This explanation does not need to be a clinical one; it merely involves explicit recognition that the way things are organized now does not give us the chance to really do what we most need to do. If students are exchanging personal experiences which are only loosely relevant to the discussion, the teacher may find it better to figure out how this can be done more efficiently than to worry about how to prevent or stop it. Presumably, there is a reason why the discussion has turned to experience telling. If the instructor knew the reason, he might then approach the real problem more intelligently.

An evaluative type of explanation is to point out the discrepancy between what the group is doing and what it said it was going to do. The purpose is to redefine the problem or to get back on the track if the digression represents avoidance rather than reformulation of the problem in more meaningful terms.

To avoid ambiguity and confusion when activity is shifted from one focus to another is simply that the teacher makes sure that the students have a satisfactory explanation.

Thelen's (1954) fourth question, "How does the teacher guide the creation of needed activities?" suggests that "The instructor controls the learning situation by controlling his own role; and his role is different in different types of activity, but there are concrete ways of managing classrooms" (Kounin, 1970, p. iv).

With regard to school achievement problems, the teacher is essentially the leader whose primary loyalty is to the community. His power has been less open to question than is the power of a factory foreman. Because his authority is unquestioned, he can afford to be cooperative and friendly. He knows he can get his way with regard to what is to be studied, so he has nothing to lose by talking it over with the group and explaining and developing the logic of the choices of topics (Kounin, 1970).

With regard to the group's requirements for cohesiveness, goal direction, and development of leadership, the teacher's role is basically consultative. He cannot decide who the natural leaders are to be, but he can help those who are capable of leadership at each time to discover such roles for themselves. He cannot legislate the degree of commitment the group will find toward the achievement tasks, but he can give them a chance to explore the question and develop a

group standard about it. The instructor cannot force the group to express creative and significant ideas, but he can help them see that ideas are useful to the group and that they are rewarded when they are expressed (Vakil, 1970).

With regard to the individual's requirements of personal satisfaction, the instructor again provides conditions and opportunities, but he does not demand any particular learning or behavioral change. He seldom has enough relevant information about the student's internal problems to make much of a guess about what will be upsetting, or threatening to individuals, although he can usually anticipate such reactions from the class as a whole with considerable accuracy. The kind of opportunity required here is for personal interaction between teacher and individual student, or among small groups (Thelen, 1954).

The appropriate activity, then, is whatever results from the teacher playing the proper role at the proper time; its creation is a natural process of interaction. The only behavior the teacher can control directly is his own; and he does this through diagnosing the class need and then shifting himself into the type of role needed from him to enable the class to meet its need. The members of the class meet its need. The members of the class must then shift their roles to accommodate the teacher; but if his diagnosis and operation is correct, the class will have high motivation and involvement in making the shifts in their own roles. If they are

unable to accommodate the teacher's change, then he would be advised to reconsider his diagnosis, timing, or skills (Thelen, 1954).

Thelen's (1954) final question, "How can the class be organized to carry out the needed activities?" suggests that students are affected by their perceptions of opportunity to meet certain personal needs; this is their interest.

Pertinent to these considerations is the central concern over who should work with whom and under what conditions. As Stock and Thelen stated, "The general assumption offered is that members will be likely to prefer others who satisfy their own needs and are likely to reject others who interfere with their needs" (Maccoby, 1961, p. 368). One way to think of the question of how to organize effort is in terms of how can the following people be put together, and under what circumstances should they be put together? People who will stimulate the best in each other, who possess among themselves the needed resources to avoid frustration and to keep their groups going, who have with each other the kind of relationship which best promotes exploration of personal meanings and therefore, the internalization or socialization of experience (Thelen, 1954).

Thelen (1954) lists the following general principles that are relevant to this problem:

(a) Subgroups composed of friends are likely to have more energy to spend in participating.
(b) Groups composed of friends are more likely to deal with whatever problem they need to, whether it is centered around school achievements or not.

(c) Individuals, when among friends, can express their real feelings easier, and are threatened less and supported more by the others. (p. 62).

The use of friends is advocated when there is difficulty, as in diagnosing what is wrong. On the other hand, the following generalizations can be made for the other side of the question:

(a) When members of the group get into conflict everyone tends to get involved.
(b) People need challenge and stimulation to cause them to think through their ideas.
(c) When a person is undecided about some issue, it helps to let him see people who are committed to the two sides of the problem. (Thelen, 1954, pp. 62-63).

The use of groups with some possibilities of friction is advocated in situations which require aggression and where taking things for granted might jeopardize success. Thus, after a tentative plan has been formulated, its possible "bugs" are more likely to be found by opponents than by friends (Thelen, 1949).

The amount of friction which can be tolerated depends upon possibilities of channeling aggression into work. If the task is clearly defined so that everyone can tell what is relevant, then aggression can be channeled by the group (Thelen, 1949).

Generally, the simplest way to express what is required of organized subgroups in most achievement related tasks, is that the members be well enough acquainted that they can communicate fairly readily; that there be enough range of temperament that they challenge each other; that they have among them

enough socialization skills so that they can work together; that they have enough resources and enthusiasm for achievement; and that they have a secure enough role in the total group that they do not waste much energy comparing themselves or belittling the other subgroups (Thelen, 1949).

In summarizing Thelen's (1954) discourse on social environments, the following basic assumptions can be drawn:

1. The purpose of the classroom is to change people as a result of their experiences.
2. Classroom experiencing is an active process of working with others for common goal direction.
3. Experience is educative and relevant to the extent it involves thinking about what one is doing, why he is doing it, and the general significance, usefulness, and applicability of the methods being used.
4. The control of learning is through the use of consciousness. While all experience may produce changes in a student, the part that is educative is the part that is understood through conscious thought processes.
5. Utilization of consciousness to guide experience and to improve the constructiveness of subsequent experience, requires that experience be seen as inquiry; and this includes such functions as explanation, experimentation, and test of the consequences of behavior.
6. The guidance of education requires that teachers strive at all times for the needed and, therefore, appropriate distribution of energy into these objectives: the defined and required school achievement, cooperation within the group, and the formulation of individualized meanings of experiences. (p. 67)

Research Directly Related to the Present Study

A study of student perceptions of campus environments was done by Gellor (1971). The instruments used were the College and University Environment Scales (CUES) developed by Pace and the Edwards Personality Inventory. Gellor found that the students' perception of a campus environment was

negatively related to individual academic performance. Gellor also found that negative perceivers tended to have passive personality traits. Also, the longer students stayed on the campus the lower they rated their college environment.

McGavin (1968), in an earlier study, measured the perceptions of incoming students and achievement at the University of Washington. At the end of the school year the students' scores from Pace's College and University Environment Scales and their cumulative grade point averages were correlated. McGavin found that significantly higher grades were achieved by female freshman students who had a compatible perception of their environment; but male students who had a low perception made significantly higher congruency scores than male freshmen who had a high perception.

A parallel study was conducted by Rogers (1968) at Indiana University. The relationship between a new student's perceptions and the changes in one's attitudes or intellectual maturity were studied. After testing freshman students at Eastern Illinois University, Rogers found that student expectations regarding the college environment were not shown to be related significantly to their improvement in intellectual maturity.

An instrument which is a "spin-off" from the CUES is the Perceived Environment Profile (PEP) developed by Rizzo (1967). The instrument was designed to measure the intended academic environment as perceived by the students. Rizzo's research

was conducted in a number of secondary schools in New Hampshire and Massachusetts. An analysis of variance yielded significant differences (.05) between the two groups. A discrepancy between the goals of the institutions and the students was suggested.

In a report to the Office of Education, Moore (1972) described the educational environment of 11,000 pupils from 110 schools throughout Oklahoma. The variables examined were: "Practicality," "Community," "Awareness," "Propriety," and "Scholarship." The instrument was the Elementary School Environment Survey. Moore's significant findings were: (1) schools in middle to high socioeconomic class settings have significantly more scholarly environment; (2) rural school students perceive the environment as more polite and considerate than do students attending urban schools; (3) self-contained classrooms differ significantly in the dimension of "Practicality;" and (4) educational environments do not differ significantly according to sex of the principal, age of the faculty, or enrollment size.

A number of studies examining the effects on achievement of two basic styles of teaching as perceived by students have been conducted. These styles are termed "democratic" and "authoritarian." Of 37 studies reviewed by Bar Yam (1968), six showed negative effects of "democratic" instruction, four showed positive effects, and 27 failed to show significant results of one over the other. Other studies produced similar

inconclusive results. The reason for this may be that these studies of students' perceptions of their environment failed to differentiate students into various types. Some students respond differently to instructional strategies. For example, in Wispe's (1951) study, eight psychology instructors were equally divided into two groups based on their "authoritarian" or "democratic" teaching styles. The final examination score was the evaluative criterion. The results showed that lower ability students favored "authoritative" teaching, while teaching style made little difference to high achieving students.

In another study it was found that with students of high intelligence a "democratic" teaching style, yielded higher achievement than did "authoritative" teaching, while average ability students were handicapped with the "democratic" method (Calvin, Hoffman, and Harden, 1957). The implication is that when bright students perceive their classroom environment as "democratic" they perform quite well; whereas, less bright students perform better when they perceive their classroom environment as more "authoritative."

According to Anderson (1968), research concerning students' perception of their classroom environment as affected by teaching styles point to the following hypotheses:

1. There is a climate-ability interaction such that students of differing ability perform better in different kinds of learning climates.
2. Students of low ability perform better in climates which are formal and "goal directed" with little "diversity" or "democratic" procedure.

3. Students of high ability perform better in classes perceived as "democratic" with more "diversity" and less "formality" and "goal direction."
4. There is no conclusive evidence of interactions between these climate properties and student sex. (p. 57)

Lott and Lott (1966) conducted a study on group cohesiveness and individual learning. Two hundred and six students enrolled in Spanish were divided into groups of high and low cohesiveness and above or below average mental ability. The subject matter used was a list of Spanish words; and criteria included tests of immediate learning, retention, relearning, and learning of new words. The findings showed that high achieving students who were in cohesive groups did reliably better than high achieving students in less cohesive groups. However, for low achieving students cohesiveness made no difference. Also cohesiveness made less difference to boys than to girls.

Anderson and Walberg (1968) found the dimension "disorganization" to be related to learning. The dimension was negatively correlated (-.43) with the pre-post class mean gains in achievement of 49 physics classes. There was also a low positive relationship (.22) between class "satisfaction" and gains in physics knowledge.

Morsh observed 10 classes in an Air Force school and found that another scale negatively related to achievement, "apathy." Morsh observed that "student slumps," "student yawns or stretches," and "student ignores instructor,"

correlated -.58 with measured student gains in subject knowledge. Additionally, group dynamicists have shown that the motivation of a group, and hence its productivity, is lowered if some members show an indifferent and neglectful attitude toward the task (Anderson, 1968, p. 66).

A dimension which has had limited attention is "friction." Walberg discovered "friction" to be negatively related (-.31) to gains on achievement in physics, but positively related (.30) with gains on understanding science (Anderson, 1968). Anderson found the dichotomy to be due to the two aspects of "friction"--substantive and affective. "Substantive friction is over ideas, whereas affective friction involves personalities" (p. 66).

Another study was conducted by Zajonc and Taylor on "difficulty." The level of difficulty was varied on both individuals and groups using reaction-time as the criterion. The subjects improved performance as the difficulty level increased. Also, if a group experienced much difficulty, individuals would rise to the occasion. As was expected, there was an optimum difficulty level where once that level was exceeded, discouragement and reduced efficiency resulted (Anderson, 1968, p. 67).

Concerning sex, Stanley found that females were more predictable than were males; and females seemed to be more sensitive to the influence of peers, teachers, and environment (Anderson, 1968, p. 72).

Probably the most complete study conducted on classroom social environments was done by Anderson (1968) while at Harvard University. Anderson's dependent variables were four tests--Pupil Activity Inventory, Science Process Inventory Test on Understanding Science, and Physics Achievement Test, plus student sex. With the use of the Learning Environment Inventory, Anderson found the following:

1. "Goal Direction" was significant ($p < .05$) with learning for high achieving females, whereas, with low achieving females there was a negative relationship. Goal Direction was not significant for males.

2. "Cohesiveness" also showed the same relationship. Anderson found that highly cohesive groups have powerful norms--to achieve and go on to college. Therefore, the more cohesive the classes, the more powerful the effect of this norm on learning. On the contrary, students of low ability find school difficult and probably establish low norms.

3. "Environment" was found to be significant ($p < .05$) for low achieving males but not significant for high achieving males or for females.

4. There were no significant relationships found for the dimensions of "Diversity," "Formality," "Speed," or "Democratic."

5. Anderson had hypothesized negative relationships between "Friction" and achievement. However, the findings indicated a positive relationship between females on the

understanding-type criteria, the Science Process Inventory and the Test on Understanding Science. Results were inconclusive on the other tests. There was a negative relationship with males.

6. The dimensions of "Favoritism," "Disorganization," and "Cliqueness" were mainly negatively related to learning, whereas, "Difficulty" and "Satisfaction" were both positively related. Anderson rationalized that the more difficult the class, the more a student gains.

7. Anderson had hypothesized an overall negative relationship on the "Apathy" scale and achievement. However, the findings indicated a relationship only for high achieving females. The low achieving females had a significant relationship between "Apathy" and learning gains.

Anderson's main point was that the classroom environment does affect learning and affects it differently depending on the students' characteristics; however, although there were significant relationships, causality had not been demonstrated (1968).

Summary

The Review of Literature has consisted of an extensive review of the literature relating to the relationship of the classroom environment and achievement. Research was reviewed relating to the influence of groups on individual performance and classroom learning.

Literature was also reviewed relating to the effects on learning and the physical environment. The primary research reviewed was the study conducted by Anderson. The conclusion was that classroom climate is related to learning depending on certain student characteristics. Although many studies have been done relating to classroom environment and achievement, no studies were found that investigated the problem of this research study.

CHAPTER III

METHODOLOGY

Research Design

The Learning Environment Inventory (LEI) was the measurement tool used in this study. The LEI was developed from the Group Dimensions Description Questionnaire (GDDQ), and the Classroom Climate Questionnaire (CCQ).

Hemphill and Westie (1950) developed an instrument called the Group Dimensions Description Questionnaire which was based on 14 hypothesized group dimensions or scales with item analysis being used to confirm the selection of items on each of the 14 scales. Four criteria were used by Hemphill (1954) in the selection of these dimensions. Each characteristic in each dimension was to:

> (a) be meaningful in a sociological or psychological framework.
> (b) be conceived as a continuum varying from the lowest to the highest degree.
> (c) refer to a "molar rather than a molecular property of a group."
> (d) be relatively independent of all other characteristics in the system. (p. 85)

The 14 dimensions generated from these criteria are presented in Table 1.

Statements secured from the responses of group members to open-ended questions about the nature of their groups, and from other writings in which groups were described, provided a pool of over 1,100 items which were used in developing the GDDQ. Hemphill (1954) had these items categorized by five judges according to the 14 group dimensions. Three hundred and fifty items, selected on the basis of high inter-judge agreement, were used to construct a preliminary form of the instrument (p. 87).

Two hundred individuals who were members of 35 different groups supplied ratings of their group on this instrument by agreeing or disagreeing on a five-point scale on each of 350 descriptive statements (Hemphill, 1954, p. 87). The items were then intercorrelated and again recategorized into the 14 aforementioned dimensions. The end result was the GDDQ which contained 150 statements.

The GDDQ's advantage over other group questionnaires is in its use of descriptive statements rather than a conglomeration of ill-defined and unrelated variables. The scales here are operationally defined and the items have face validity. Individual reliabilities for the GDDQ were obtained by correlating odd and even items on each scale and boosting to full-scale reliability with the Spearman-Brown formula. The corrected reliabilities ranged from .50 for a five-item scale to .92 for a scale of 13 items indicating high reliability (Anderson, 1968, p. 13).

TABLE 1

GROUP DIMENSIONS DESCRIPTION
QUESTIONNAIRE SCALES

Scale	Defined as the degree to which:
Autonomy	a group functions independently of other groups.
Control	a group regulates the behavior of individuals while they are functioning as group members.
Flexibility	a group's activities are marked by informal procedures rather than by adherence to established procedures.
Hedonic Tone	group membership is accompanied by a general feeling of pleasantness or agreeableness.
Homogeneity	members of a group are similar with respect to socially relevant characteristics.
Polarization	a group is oriented and works toward a single goal which is clear and specific to all.
Intimacy	group members are mutually acquainted with one another and are familiar with the personal details of one another's lives.
Participation	members of a group apply time and effort to group activities.
Potency	a group has primary significance for its members.
Stratification	a group orders its members into status heirarchies.
Viscidity	members of the group function as a unit.
Permeability	a group permits ready access to membership.
Stability	a group persists over a period of time with essentially the same characteristics.
Size	members of the group exist.

Source: Gary J. Anderson, "Effects of Classroom Social Climate on Individual Learning" (unpublished Ed.D. dissertation, Harvard University, 1968), p. 12.

The most important outcome of the GDDQ work was its demonstration that reliable and valid group descriptions could be obtained from the group members themselves.

The Classroom Climate Questionnaire is a "spin-off" of the GDDQ. Hemphill's GDDQ was primarily developed for adult groups but could be adapted for classroom use. Required revisions were performed and 80 items from the GDDQ were selected and altered for description of school classes (Walberg, 1966). Scale names, reliabilities and a sample of items of the CCQ as developed by Walberg are shown in Table 2.

In spite of initial success, the CCQ was not without its problems. A number of weak scales constituted its major shortcoming. Class mean reliabilities were inadequate for several of the scales. (See Table 2.) Also, 12 scales contained only two or three items which makes internal consistency almost impossible. Additionally, the CCQ scores were in no way a complete representation of classroom interaction. The CCQ had been derived completely from Hemphill's Group Dimensions Description Questionnaire (essentially an adult instrument); and although adapted for classroom use, it failed to measure a number of potentially important class dimensions--"competitiveness," "difficulty," "physical environment," and "speed." At that, it was a beginning; and since some of the scales were relatively good predictors of student learning despite their low reliabilities, further modification of the CCQ seemed appropriate.

TABLE 2

CLASSROOM CLIMATE QUESTIONNAIRE SCALES, SAMPLE ITEMS, AND RELIABILITIES

Scale	Sample Items	Reliabilities	
		Individual[a]	Class[b]
Subservience	The class is under outside pressure.	.57	.42
Speech Constraint	Only certain kinds of ideas may be expressed freely.	.41	.25
Strict Control	Students in the class work under close supervision	.51	.47
Formality	The class has rules to guide its activities.	.51	.49
Satisfaction	Personal dissatisfaction with the class is too small to be a problem.	.53	.40
Social Heterogeneity	Members of the class vary greatly in social background.	.79	.65
Interest Heterogeneity	The members of the class vary in amount of ambition.	.51	.11
Goal Diversity	The class is working toward many different goals.	.64	.56
Goal Direction	The class knows exactly what it has to get done.	.80	.41
Personal Intimacy	Certain students discuss personal affairs among themselves.	.58	.66
Intimacy	All students know each other very well.	.79	.75
Stratification	Work in the class is well divided among members.	.55	.69
Disorganization	There are long periods during which the class does nothing.	.55	.78

TABLE 2--Continued

Scale	Sample Items	Reliabilities Individual[a]	Class[b]
Status	Membership in the class gives members a feeling of superiority.	.68	.55
Alienation	Failure of the class would mean nothing to most members.	.75	.35
Democratic	Each member of the class has as much influence as any other member.	.79	-
Egalitarianism	The better students are granted special privileges.	.67	.60
Friction	Certain students in the class are responsible for petty quarrels.	.86	.66

[a]Alpha coefficient (Cronbach, 1951) based on data from 400 individuals.

[b]Intraclass correlation (Fisher, 1954) based on data from 49 classes.

Source: Gary J. Anderson, "Effects of Classroom Social Climate on Individual Learning" (unpublished Ed.D. dissertation, Harvard University, 1968), pp. 17-18.

The Learning Environment Inventory

The Learning Environment Inventory (LEI) is an instrument designed to measure the social climate or environment of learning of a class as perceived by the pupils within it. This tool is an expansion and improvement over the Classroom Climate Questionnaire which was an adaptation and improvement (for classroom use) over the Group Dimensions Description Questionnaire. The LEI can describe the nature of interpersonal relationships in the class as well as its structural characteristics (Anderson, 1968).

The aim of the LEI is to infer the relationships between the classroom dimensions and learning. Therefore the classroom characteristics should be measured late in the semester while the learning criteria represents measured change from the beginning to the end of the semester. The reason for giving the LEI late in the semester is that it is expected that after three months the classroom climate should be stabilized; and although subsequent daily variations may occur, the late semester scores are indicative of the type of environment acting on the learner throughout the year.

The development of the LEI was guided by considerable experience with the CCQ in research studies (Walberg, 1967). These studies showed that improvements in reliability and validity were essential; therefore, revisions in these two areas were the primary concerns.

In order to establish validity, only those scales of the CCQ which had predicted power were retained. The scales of "Subservience," "Speech Constraint," and "Status" were dropped because of their low correlations with the learning criteria. Also dropped was "Social Heterogeneity" because it measured a perceived characteristic of the pupils within the class rather than of the class itself.

Additionally, some correlated scales were merged. "Strict Control" and "Formality" became "Formality." Also, "Interest Heterogeneity" and "Goal Diversity" became "Diversity." This was done to keep the instrument reasonably short. Finally, three new scales were added--"Speed," "Difficulty," and "Environment." Anderson, about a year later added another scale to his Learning Environment Inventory, "Competitiveness" (Anderson, 1973).

The final instrument contains 15 scales. These scales as they developed from the GDDQ and the CCQ are shown in Table 3. The selection of these scales by Anderson (1968) were based on the following criteria:

1. Scales only previously identified as good predictors of learning.
2. Relevancy as to social psychological theory and research.
3. Concepts similar to useful theory and research in education.
4. Concepts intuitively judged as relevant to the classroom. (p. 22)

TABLE 3

DEVELOPMENT OF THE LEARNING ENVIRONMENT INVENTORY

Group Dimensions Description Questionnaire	Classroom Climate Questionnaire	Learning Environment Inventory
Autonomy	Subservience	(deleted)
Control	Speech Constraint	(deleted)
	Strict Control	Formality
Flexibility	Formality	
Hedonic Tone	Satisfaction	Satisfaction
Homogeneity	Social Heterogeneity	(deleted)
	Interest Heterogeneity	Diversity
Polarization	Goal Diversity	
	Goal Direction	Goal Direction
Intimacy	Personal Intimacy	Intimacy
	Intimacy	
Participation	Stratification	Cliqueness
	Disorganization	Disorganization
Potency	Status	(deleted)
	Alienation	Apathy
Stratification	Democratic	Democratic
	Egalitarianism	Favoritism
Viscidity	Friction	Friction
Permeability	(deleted)	Speed (added)
Stability	(deleted)	Difficulty (added)
Size	(deleted)	Environment (added)
		Competitiveness (added)

Source: Gary J. Anderson, "Effects of Classroom Social Climate on Individual Learning" (unpublished Ed.D. dissertation, Harvard University, 1968), pp. 23-24.

A rationale for each of the LEI scales is presented below:

1. Cohesiveness: Whenever several individuals interact for a period of time, a feeling of intimacy or cohesiveness may develop. This property separates members of the group from non-members. Group cohesiveness is of great importance to productivity, which can be reflected in achievement. This has been shown by group dynamicists (Allport, 1920). This scale has been shown to relate to three major class and course properties--small classes are more cohesive than are large classes particularly when the class contains fewer than 16 students; classes of teachers inexperienced with a new course are perceived as more cohesive than those taught by teachers familiar with the course; and classes in history and English were found to be more cohesive than those in the sciences. Class cohesiveness relates to learning criteria differentially depending upon the norms of the class. Cohesive classes sanction only goal directed behavior. If the group norm includes learning, cohesiveness contributes to increased learning. If the norm is non-learning, cohesiveness acts against those students who want to learn (Anderson, 1973).

2. Diversity: The extent to which the class provides for a diversity of student interests and activities is important to educators and curriculum makers. Is the class one

in which all must share common values and activities, or can different individuals pursue differing goals? (Anderson, 1968, p. 25)

3. Formality: The extent to which behavior within the class is guided by formal rules reveals something about the behavioral norms of the group. Large classes are considered more formal than small classes and the increase in formality is most prominent as the class size increases (Anderson, 1968, p. 26).

4. Speed: The rate of progress of the class should ideally be matched to the characteristics of individuals within it. The student's need for affiliation can best be met if the student feels that he is learning at the same rate as other students. The individual student's perception of how fast the teacher covers the work tells us something about the student, and the class mean should tell us something about how well the instructor is communicating (Anderson, 1968, p. 26).

5. Environment: The physical environment can influence the structure of the group. Studies have shown that geographical arrangement of homes affect the development of friendships and spatial positions are related to communication patterns. Seating patterns and other external factors are important items on learning (Steinzor, 1950).

6. Friction: Conflict is considered a most significant social psychological phenomenon. Energy expended

in conflict cannot be channelled in other directions and the emotional upset resulting from extensive or continued conflict can be expected to impair learning. This scale measures, from the students' viewpoint, three observational characteristics--disagreement, tension, and antagonism. This scale has high negative correlations with learning in early studies. However, in general, friction may be considered advantageous when the learning criterion includes comprehension of complex concepts and creativity (Anderson, 1970).

7. Goal Direction: Bany and Johnson (1964) consider group goals of vital importance to learning. The recognition of goals and their subsequent acceptance by the group serves to sanction only goal-oriented behavior and provides an expected role or norm for class members (p. 157). If the assumptions underlying behavioral objectives are correct, students in highly goal directed classes can be expected to reach the goal more often than students in classes where the goals are unspecified (Anderson, 1968, pp. 27-28).

8. Favoritism: Anderson feels this scale indicates whether some students have a low academic self concept. It is essentially a measure of negative affect, relating inequality perceived on the part of the student to his socialization and learning (Anderson, 1968, p. 28).

9. Difficulty: This scale was considered important for the same reasons as the "Speed" and it adds to the "depth-breadth" paradigm used by some educational theorists. Large classes

are perceived less difficult than are small ones according to Anderson and difficulty scores are highly related to measures of cognitive learning with students generally learning most in classes perceived as the most difficult (Anderson, 1968, pp. 28-29).

10. Apathy: This scale complements the "Cohesiveness" scale and indicates whether individuals within the class feel an affinity with class activities. It focuses on the group rather than the individual, whereas, on most classroom questionnaires the "Apathy" scale focuses on the individual student (Anderson, 1968, p. 29).

11. Democratic: A large number of studies on the authoritarian-democratic continuum have attempted to support or oppose "Democratic" classroom atmospheres (Anderson, 1959). However, many of these studies lacked a provision for the interaction of democratic procedure with other class properties; and a majority of them employed experimental manipulation of the independent variable and a use of extreme groups only. It is considered worthwhile to examine the democratic property in a natural setting to determine how this property affects students throughout its range.

12. Cliqueness: Subgroups or cliques within a class can lead to hostility among members of various parts of the class. These cliques offer protection to those who are failures in the group at large and provide alternate norms which presumably lead to less than optimal group productivity.

In some instances cliques can be positive in orientation and lead to increased learning for certain students (Anderson, 1970).

13. Satisfaction: Whether or not students "like" their class can be expected to affect their learning. If students dislike the subject, the teacher, or their classmates their emotions may result in less than optimal performance. Furthermore, because satisfaction with school is itself a goal of educators, relationships between this scale and the composition of the class may help shed light on the effects of such practices as homogeneous and heterogeneous groupings, sexual and racial integration. Satisfaction is negatively related to class size (Walberg, 1970).

14. Disorganization: In previous research this scale has demonstrated that high disorganization leads to a reduction in pupil learning (Walberg, 1969). Many administrators as well as researchers use this scale as a teacher effectiveness criterion. By including this dimension important differences in teacher behavior may be ascertained as systematic planning or slipshod teaching.

15. Competitiveness: This is a central concept in group dynamics. Studies have shown that there are degrees of competitiveness depending upon socio-economic status of the student body, subject areas, and geographical locations of schools (Anderson, 1973, p. 13).

The final items to each scale or dimension are listed in Table 4. The order in which each item appears on the LEI is listed to the left of the item in Table 4. (See Appendix.) The items were scattered in order to minimize the risk of a "response set." Also, the correlation of each item score with the score for its particular scale is presented in Table 4. These correlations are based on a sample of 464 students participating in a study conducted by Anderson (1967). Also, as shown in the Appendix, the method of response is on a four-point scale, thus eliminating a neutral response. This was expected to increase the amount of discrimination from the respondent.

Two reliability coefficients are shown in Table 4. The alpha coefficient is a measure of internal consistency and indicates the extent to which an individual respondent responds similarly for each item on the scale (Kerlinger, 1973). The intraclass correlation is a class coefficient indicating group reliability and is based on the ratio of between-class variance to within-class variance. It indicates both the extent to which pupils within the same class respond similarly and the extent to which the scale discriminates among classes (Fisher, 1950). Both coefficients were calculated by Anderson using a sample of 29 high school physics classes. It is interesting to point out that the mean individual reliability of the LEI is .74 in contrast to .63 for the Classroom Climate Questionnaire and .71 for the

TABLE 4

LEARNING ENVIRONMENT INVENTORY SCALES, ITEMS, AND RELIABILITIES

Item	Scale	Alpha Reliability	Intraclass Correlation	Correlation of Item with Scale
1.	*Cohesiveness*	.78	.82	
1.	Members of the class do favors for one another.			.42
18.	A student has the chance to get to know all other students in the class.			.66
32.	Members of the class are personal friends.			.55
56.	All students know each other very well.			.78
R58.	Students are not in close enough contact to develop likes or dislikes for one another.			.65
R71.	The class is made up of individuals who do not know each other well.			.76
91.	Each student knows the other members of the class by their first names.			.73
2.	Diversity	.58	.43	
4.	The class has students with many different interests.			.53
11.	Interests vary greatly within the group.			.39
34.	Some students are interested in completely different things than other students.			.61
37.	Class members tend to pursue different kinds of problems.			.52
72.	The class divides its efforts among several purposes.			.51
86.	The class is working toward many different goals.			.54
95.	Different students vary a great deal regarding which aspects of the class they are interested in.			.57
3.	Formality	.64	.82	
7.	Students who break the rules are penalized.			.50
16.	The class has rules to guide its activities.			.67
48.	Students are asked to follow strict rules.			.40
R59.	The class is rather informal and few rules are imposed.			.60
61.	There is a recognized right and wrong way of going about class activities.			.48
68.	All classroom procedures are well-established.			.54
81.	There is a set of rules for the students to follow.			.69
4.	Speed	.77	.71	
27.	The pace of the class is rushed.			.70
R73.	The class has plenty of time to cover the prescribed amount of work.			.77
R75.	Students do not have to hurry to finish their work.			.78
85.	There is little time for day-dreaming.			.41
87.	The class members feel rushed to finish their work.			.81
93.	The class has difficulty keeping up with its assigned work.			.68
102.	The course material is covered quickly.			.33
5.	Environment	.65	.76	
2.	The books and equipment students need or want are easily available to them in the classroom.			.51
12.	A good collection of books and magazines is available in the classroom for students to use.			.61
26.	The students would be proud to show the classroom to visitor.			.57
36.	The room is bright and comfortable.			.63
55.	There are displays around the room.			.50
R57.	The classroom is too crowded.			.53
90.	There is enough room for both individual and group work.			.64

TABLE 4--Continued

Item	Scale	Alpha Reliability	Intraclass Correlation	Correlation of Item with Scale
6.	Friction	.78	.77	
8.	There is constant bickering among class members.			.52
30.	Certain students have no respect for other students.			.69
44.	There are tensions among certain groups of students that tend to interfere with class activities.			.70
69.	Certain students in the class are responsible for petty quarrels.			.74
82.	Certain students don't like other students.			.66
88.	Certain students are considered uncooperative.			.65
103.	There is an undercurrent of feeling among students that tends to pull the class apart.			.60
7.	Goal Direction	.86	.71	
10.	The class knows exactly what it has to get done.			.70
R23.	The objectives of the class are not clearly recognized.			.76
R60.	Students have little idea of what the class is attempting to accomplish.			.78
65.	The objectives of the class are specific.			.76
67.	Each student knows the goals of the course.			.77
83.	The class realizes exactly how much work it is required to do.			.70
96.	Each student in the class has a clear idea of the class goals.			.76
8.	Favoritism	.77	.53	
9.	The better students' questions are more sympathetically answered than those of the average students.			.62
R14.	Every member of the class enjoys the same privileges.			.66
22.	The better students are granted special privileges.			.71
24.	Only the good students are given special projects.			.62
49.	The class is controlled by the actions of a few members who are favored.			.66
74.	Students who have past histories of being discipline problems are discriminated against.			.57
98.	Certain students are favored more than the rest.			.76
9.	Cliqueness	.74	.77	
5.	Certain students work only with their close friends.			.63
R20.	Students cooperate equally well with all class members.			.64
28.	Some students refuse to mix with the rest of the class.			.60
31.	Some groups of students work together regardless of what the rest of the class is doing.			.65
76.	Certain groups of friends tend to sit together.			.62
R97.	Most students cooperate equally with other class members.			.53
100.	Certain students stick together in small groups.			.70
10.	Satisfaction	.80	.74	
6.	The students enjoy their class work.			.66
17.	Personal dissatisfaction with the class is too small to be a problem.			.58
R21.	Many students are dissatisfied with much that the class does.			.67
R38.	There is considerable dissatisfaction with the work of the class.			.68
52.	The members look forward to coming to class meetings.			.68
63.	After the class, the students have a sense of satisfaction.			.75
79.	Students are well-satisfied with the work of the class.			.77

TABLE 4--Continued

Item	Scale	Alpha Reliability	Intraclass Correlation	Correlation of Item with Scale
11.	Disorganization	.81	.82	
3.	There are long periods during which the class does nothing.			.62
19.	The work of the class is frequently interrupted when some students have nothing to do.			.58
R33.	The class is well organized.			.80
40.	The class is disorganized.			.80
R45.	The class is well organized and efficient.			.74
70.	Many class members are confused during class meetings.			.58
94.	There is a great deal of confusion during class meetings.			.68
12.	Difficulty	.66	.84	
13.	The work of the class is difficult.			.48
46.	Students are constantly challenged.			.55
R53.	The subject studied requires no particular aptitude on the part of the students.			.58
66.	Students in the class tend to find the work hard to do.			.45
R78.	The subject presentation is too elementary for many students.			.56
R101.	Most students consider the subject-matter easy.			.60
104.	Many students in the school would have difficulty doing the advanced work of the class.			.60
13.	Apathy	.83	.79	
39.	Failure of the class would mean little to individual members.			.67
50.	Students don't care about the future of the class as a group.			.74
54.	Members of the class don't care what the class does.			.64
R84.	Students share a common concern for the success of the class.			.72
R89.	Most students sincerely want the class to be a success.			.71
92.	Failure of the class would mean nothing to most members.			.74
R99.	Students have a great concern for the progress of the class.			.72
14.	Democratic	.67	.54	
25.	Class decisions tend to be made by all the students.			.62
29.	Decisions affecting the class tend to be made democratically.			.53
R35.	Certain students have more influence on the class than others.			.57
R42.	Certain students impose their wishes on the whole class.			.50
51.	Each member of the class has as much influence as any other member.			.63
62.	What the class does is determined by all the students.			.49
R80.	A few members of the class have much greater influence than the other members.			.63
15.	Competitiveness	.78	.56	
15.	Most students want their work to be better than their friends' work.			.67
41.	Students compete to see who can do the best work.			.79
43.	A few of the class members always try to do better than the others.			.55
47.	Students feel left out unless they compete with their classmates.			.54
R64.	Most students cooperate rather than compete with one another.			.56
77.	There is much competition in the class.			.71
R105.	Students seldom compete with one another.			.74

Source: Gary J. Anderson, The Assessment of Learning Environments: A Manual for the Learning Environment Inventory and the My Class Inventory (Halifax, Nova Scotia, Canada: Atlantic Institute of Education, 1973), pp. 6-8.

Group Dimensions Description Questionnaire (Anderson, 1968, p. 39). Also, none of the LEI statements refers to the instructor. (See Table 4.) This was done intentionally in order to reduce the threat that the teacher was being evaluated. Not only is this instrument free of reference to the instructor, but it is also free of reference to the subject matter.

Choice of Statistical Methods

A problem in research is the selection of the proper statistic for the raw data gathered, particularly when semantic differential ratings such as the Likert scale are used. A common error is the temptation to use the greater efficiency, flexibility, and power of parametric statistics for ordinal scale data. Ordinal scale data are best characterized by rank ordering with no particular arithmetic values, which negates normal distribution statistics. However, in instances where the researcher wishes to combine responses from several different scale questions (105 on the LEI) into a single score, he may have few alternatives in assuming an interval scale (Martilla and Carney, 1975, p. 10) and in using parametric statistics. Attention can be called to the classic work of Likert (1932), "after assigning the numerical values to the different possible responses, the score for each individual is determined by finding the average or sum of the numerical values of the alternatives checked" (p. 42), thus establishing a summed score with equal values being assigned to the semantic

differential responses. As Guilford said, "If one is going to use a summation score, the Likert approach or any common item-analysis procedure is the one to follow" (Guilford, 1954, p. 462). Nunnally (1972) adds, "The simplest way to analyze the results of a scale is to add the numbers corresponding to the positions on the scale. Thus if a student marks, 'strongly agree' to the first statement, that is added to the corresponding numbers for the marks made on other statements" (p. 459). Anastasi (1968) follows this same line of reasoning. Anastasi stated that "Likert-type scales call for a graded response to each statement which are usually expressed in five categories: strongly agree, agree, undecided (this neutral scale was eliminated on the LEI), disagree, and strongly disagree. The scoring is from five to one respectively (four to one on the LEI). The sum of the item credits represent the individual's total score, which must be interpreted in terms of empirically established norms" (p. 486).

"It should be pointed out, however, that it is absurd to assume that by the addition of intervals that the important property of additivity the absolute sense was achieved. The important property . . . is that numerically equal distances stand for empirically equal distances in some aspect of objects" (Guilford, 1954, p. 14). But Torgerson (1958) summarized it best when he stated, "It should be noted that any particular scale may be a mixture of different kinds of measurement. For example, the ordinal characteristic may be determined fundamentally, and the interval

characteristic derived from laws relating the construct to other variables. Or both may be derived, or both fundamental" (p. 22). However, Kerlinger's (1973) remark is the most appropriate. Kerlinger stated that "The best procedure would seem to be to treat ordinal measurements as though they were interval measurements, but to be constantly alert to the possibility of gross inequality of intervals. It is unlikely that the researcher will be seriously led astray by heeding this advice, if he is knowledgeable and careful in applying it" (p. 441).

Another consideration which must be faced is the underlying assumption of normality of the samples. Fisher and Yates' (1957) method of Probit Analysis for testing this criterion was utilized. First, ranges of the total LEI scores were divided into 17 intervals with a frequency distribution. Frequency distributions in percentages and cumulative percentages were also determined. (See Table 5.) The Probit Values which corresponded with the cumulative frequencies were also entered. The plotted values in Figure 1 represent a reasonable straight line which justified the assumption that the raw data were drawn from an unbiased sample of a normal distribution.

Since this study dealt with 15 independent variables, the LEI scales, and six dependent variables--course grades, comprehensive final examination scores, grade point averages, student sex, day or evening students, and age of students--a

TABLE 5

PROBIT ANALYSIS

Intervals of LEI Scores	Midpoint	Frequency Count	Percentage Distribution	Cumulative Percentage	Probit Values
170-174	172	1	.6	100.2	8.70*
165-169	167	0	0	99.6	7.70
160-164	162	1	.6	99.6	7.70
155-159	157	0	0	99.6	7.32
150-154	152	2	1.2	99.0	7.32
145-149	147	1	.6	97.8	7.01
140-144	142	7	4.2	97.2	6.91
135-139	137	12	7.2	93.0	6.47
130-134	132	29	17.4	85.8	6.07
125-129	127	31	18.6	68.4	5.47
120-124	122	25	15.0	49.8	4.99
115-119	117	21	12.6	34.8	4.60
110-114	112	18	10.8	22.2	4.23
105-109	107	7	4.2	11.4	3.79
100-104	102	8	4.8	7.2	3.53
95-99	97	3	1.8	2.4	3.02
90-94	92	1	.6	.6	2.48

*Estimated.

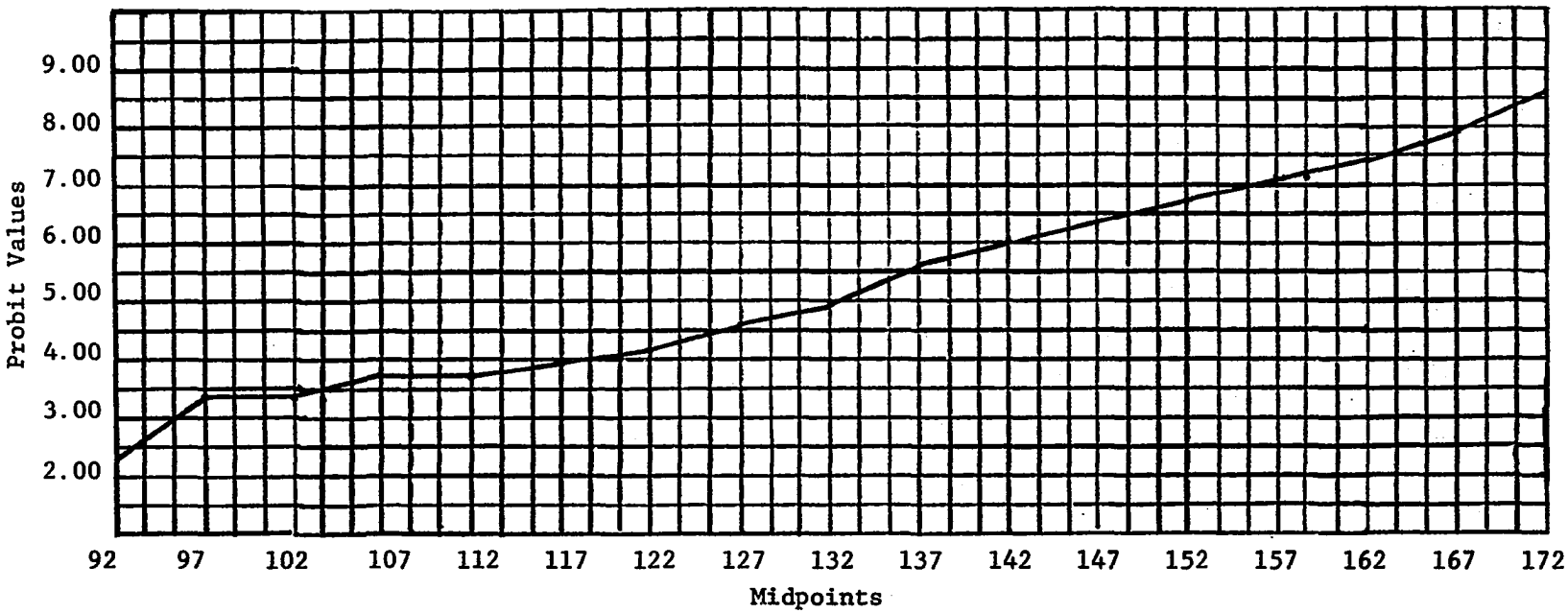

Figure 1. Correlation of Probit Values and midpoints of LEI interval scores.

multivariate analysis was used. After surveying a number of multivariate statistics--multiple regression analysis, multivariate analysis of variance, cannonical correlation, discriminant analysis, and factor analysis--it was decided that discriminant analysis would be the most effective tool for testing the hypotheses.

In discrimination analysis, a discriminant function is a regression equation with a dependent variable that represents group membership. It discriminates between members of the group. It tells us to which group each member belongs. In otherwords, when we have a number of independent variables (the LEI scales) and members of two or more groups (those that made A's, B's, C's, or D's in a course), the discriminant function gives the "best" prediction of the group membership of each member of the sample. The discriminant function assigns individuals to groups on the basis of their scores.

Based on each single variable as a predictor, the BMD07M Program distributed through the Health Science Computing Facility of the University of California at Los Angeles, will provide group means, standard deviations, F-values, and classification matrices. At each step of the program, one variable is selected and entered into the set of discriminating variables. The F-value changes at each step as the program re-evaluates and accounts for variance as each variable is entered in a step-wise manner. If the F-value becomes too

low, the variable is deleted. This procedure treats all variables as continuous variables and shows the interactions of variables.

Experimental Procedure

Dr. Gary Anderson, currently Co-Director at the Atlantic Institute of Education at Halifax, Nova Scotia, Canada supplied a revised copy of his Learning Environment Inventory for this study, of which over 200 copies were duplicated.

Eight mid-management classes were randomly selected and administered the LEI over a period of two weeks late in the semester. In order to avoid any tension or pressures, the researcher selected the period three weeks before final examination and well enough into the semester where the climate was sufficiently stabilized so the student could give objective responses. The period selected was from Monday, November 25, 1974 to Friday, December 5, 1974.

The eight classes were as follows:

Day Classes:	Principles of Marketing
	Principles of Management
	Personnel Management
	Small Business Management
Night Classes:	Principles of Marketing
	Principles of Marketing
	Principles of Management
	Principles of Management

Approximately 200 students were given the LEI questionnaire out of a universe of 1,200 in the Business Division.

Thirty-three responses were discarded because of incompleteness or errors. A maximum time of 40 minutes was permitted for the students to answer the questions. Each student was issued an LEI booklet, an answer sheet, and a No. 2 soft lead pencil. They were then given instructions on completing the LEI. The raw data was then coded and card punched for processing.

CHAPTER IV

RESULTS

The dependent measure used in this study was the students' course grade. The independent measure was the LEI.

There were 163 course grades obtained from the eight mid-management classes used in the study. A mean score was obtained for each of the 15 LEI measures for all students based on their grade in the course where they took the LEI. For example, the "A" students had a mean score of 5.80952 on "Cohesiveness" and a score of 20.45238 on "Diversity;" whereas, "D" students scored 6.68461 and 19.46153 on the same two variables. (See Table 6.) Standard deviations depict where about two-thirds of all scores fall. The standard deviation of 2.39143 for "Cohesiveness" in the "A" group indicates that about 68 per cent of these students scored between 3.41809 and 8.20095 on this variable. (See Table 7.)

An F test was then performed in order to evaluate the differences of the scores among the four "grade groups." In Table 8, "Apathy" was the only dimension found to be statistically significant.

TABLE 6

MEAN STUDENT RESPONSES TO LEI SCALES GROUPED BY COURSE GRADE CLASSIFICATION

	Variable	N:	A (42)	B (69)	C (39)	D (13)
1.	Cohesiveness		5.80952	6.07246	6.94872	6.38461
2.	Diversity		20.45238	19.44926	20.17947	19.46153
3.	Formality		13.61905	12.75362	13.35897	13.38461
4.	Speed		6.90476	7.15942	7.25641	7.92308
5.	Environment		14.61905	14.50725	14.71795	14.84615
6.	Friction		13.73809	13.79710	14.05128	14.69231
7.	Goal Direction		11.57143	10.37681	11.12820	11.53846
8.	Favoritism		7.11905	7.68116	8.41026	9.15385
9.	Cliqueness		6.92857	7.27536	6.61538	7.84615
10.	Satisfaction		9.69048	9.62319	9.89744	10.00000
11.	Disorganization		2.50000	3.43478	3.43590	2.84615
12.	Difficulty		3.88095	3.55072	3.30769	4.46154
13.	Apathy		1.09524	0.52174	-0.74359	0.61538
14.	Democratic		3.97619	3.79710	3.89744	2.53846
15.	Competitiveness		7.14286	7.37681	7.69231	8.61538

TABLE 7

STANDARD DEVIATIONS OF STUDENT RESPONSES TO LEI SCALES GROUPED BY COURSE GRADE CLASSIFICATION

	Variable	N:	A (42)	B (69)	C (39)	D (13)
1.	Cohesiveness		2.39143	2.14420	2.17581	2.36426
2.	Diversity		2.10924	2.17969	2.16274	2.98930
3.	Formality		2.39870	2.43989	2.08361	2.63117
4.	Speed		2.71229	2.78979	2.97991	3.20056
5.	Environment		2.95454	2.02646	2.25888	1.86396
6.	Friction		2.83754	2.67658	2.61522	2.56205
7.	Goal Direction		2.71529	3.37420	3.28616	3.15212
8.	Favoritism		2.45150	2.56957	3.36168	3.84807
9.	Cliqueness		2.36223	1.93940	2.26664	2.33973
10.	Satisfaction		3.12728	2.65739	2.39291	2.38048
11.	Disorganization		2.81328	2.94297	3.24276	3.21056
12.	Difficulty		2.86443	2.29792	2.63732	2.40192
13.	Apathy		3.19151	2.83677	2.64294	2.87339
14.	Democratic		1.99374	1.81156	2.34851	3.43063
15.	Competitiveness		2.44522	2.87535	2.30735	2.14237

TABLE 8

SIGNIFICANCE OF LEI SCALES IN DISCRIMINATING BETWEEN STUDENTS GROUPED BY COURSE GRADE CLASSIFICATION

	Variable	F-Value
1.	Cohesiveness	1.9743
2.	Diversity	2.1680
3.	Formality	1.3371
4.	Speed	.4357
5.	Environment	.1159
6.	Friction	.4976
7.	Goal Direction	1.4725
8.	Favoritism	2.3874
9.	Cliqueness	1.3962
10.	Satisfaction	.1312
11.	Disorganization	1.0228
12.	Difficulty	.8267
13.	Apathy	2.9034*
14.	Democratic	1.5955
15.	Competitiveness	1.1949

*$p < .05$ (df = 3/159)

The next procedure was to select and to enter the variables in a stepwise manner into the BMD07M program. The F-values change at each step. As each variable is entered and evaluated, the program prints out a classification matrix. For example, the first classification matrix was for "Apathy." (See Table 9.) This indicates that the dimension of "Apathy" correctly classified students into their respective categories only at a percentage of 33.7. This is determined simply by adding the "matched" groups and dividing by the total: 24 + 11 + 20 + 0 = 55 divided by 163 = 33.7. This process is repeated for each of the 15 variables.

As each variable is entered, the Correct Per Cent Classification changes representing the impact that each scale has upon the other in correctly classifying the students into their respective grade categories.

After all variables have been entered, the Final Classification Matrix reproduced in Table 10 indicates a Correct Per Cent Classification of only 49.1 for the dependent measure of course grades.

There were 167 final examination scores obtained. Somewhat paralleling the section on course grades, final examination scores were grouped into four categories--90%-100%, 80%-89%, 70%-79%, and 50%-69%. (See Tables 11 and 12.)

TABLE 9

COURSE GRADE CLASSIFICATION MATRIX FOR "APATHY"

Course Grades	A	B	C	D	Total
A	24	4	14	0	42
B	29	11	29	0	69
C	13	6	20	0	39
D	6	2	5	0	13
Totals	72	23	68	0	163

TABLE 10

FINAL CLASSIFICATION MATRIX FOR COURSE GRADES
AFTER LEI SCALES AND F-VALUES ENTERED

Course Grades	A	B	C	D	Total
A	18	12	7	5	42
B	14	28	16	11	69
C	3	7	26	3	39
D	2	2	1	8	13
Totals	37	49	50	27	163

TABLE 11

MEAN STUDENT RESPONSES TO LEI SCALES GROUPED BY COMPREHENSIVE FINAL EXAMINATION SCORES

	Variable	N:	90%-100% (27)	80%-89% (48)	70%-79% (47)	50%-69% (45)
1.	Cohesiveness		5.96296	5.87500	6.51064	6.40000
2.	Diversity		20.14815	19.62500	19.82977	20.00000
3.	Formality		13.74074	12.93750	13.27660	13.13333
4.	Speed		6.85185	7.54167	6.89362	7.26667
5.	Environment		15.11111	14.54167	14.19149	14.64444
6.	Friction		13.22222	13.70833	14.23404	14.20000
7.	Goal Direction		11.81481	11.31250	10.25532	10.86667
8.	Favoritism		7.51852	7.58333	7.78723	8.44444
9.	Cliqueness		6.70370	7.35417	7.31915	6.82222
10.	Satisfaction		10.51852	9.95833	9.21277	9.48889
11.	Disorganization		2.11111	3.02083	3.59574	3.51111
12.	Difficulty		3.74074	4.02083	3.65957	3.33333
13.	Apathy		0.62963	0.75000	0.21277	-0.02222
14.	Democratic		3.96296	3.66667	3.40425	3.86667
15.	Competitiveness		6.81481	7.14583	7.57447	8.22222

TABLE 12

STANDARD DEVIATIONS OF STUDENT RESPONSES TO LEI SCALES GROUPED BY COMPREHENSIVE FINAL EXAMINATION SCORES

	Variable	N: 90%-100% (27)	80%-89% (48)	70%-79% (47)	50%-69% (45)
1.	Cohesiveness	1.89090	2.66278	2.05227	2.31005
2.	Diversity	2.24814	2.73374	1.72348	2.21564
3.	Formality	1.97275	2.58807	2.36553	2.33160
4.	Speed	2.42905	3.28087	2.68840	2.59720
5.	Environment	2.66506	2.50920	2.21299	2.13366
6.	Friction	2.51661	2.93879	2.52132	2.59019
7.	Goal Direction	2.49672	3.14984	3.52301	3.08662
8.	Favoritism	2.62195	3.10683	2.75788	2.90419
9.	Cliqueness	2.53915	2.09852	1.79500	2.36728
10.	Satisfaction	2.66560	2.53451	2.76574	2.67668
11.	Disorganization	2.73627	2.66170	3.11837	3.19531
12.	Difficulty	2.56594	2.80947	2.38907	2.47716
13.	Apathy	3.17621	3.26489	2.73413	2.63273
14.	Democratic	2.00924	2.24398	2.19346	2.32183
15.	Competitiveness	2.74614	3.03166	2.20419	2.21450

The F-values in Table 13 did not show any statistical significance among any of the variables. Although not statistically significant, "Competitiveness" did have a high F-value indicating that there may have been a feeling of competition among the respondents.

The Final Classification Matrix in Table 14 depicts a Correct Per Cent Classification of only 34.7 for Comprehensive Final Examination Scores. This figure is not significantly different from Course Grades. The point is, irrespective of the students' course grades or their final examination scores, there was no difference in the students' perception of their classroom environments.

There were 161 grade point averages made available. As in the two previous cases, students were grouped into four categories based on achievement. In this section, students were placed into their respective groups on the basis of overall grade point averages for all college work attempted. (See Tables 15 and 16.)

The F-values in Table 17 show two variables, "Cohesiveness" and "Democratic" as statistically significant. This can be interpreted that students with low overall grade point averages did not see their classroom social climates as being "Democratic" or "Cohesiveness" as did students who had a grade point average between 3.00 and 4.00.

TABLE 13

SIGNIFICANCE OF LEI SCALES IN DISCRIMINATING BETWEEN STUDENTS GROUPED BY COMPREHENSIVE FINAL EXAMINATION SCORES

	Variable	F-Value
1.	Cohesiveness	.8204
2.	Diversity	.3776
3.	Formality	.6928
4.	Speed	.5638
5.	Environment	.8945
6.	Friction	1.0998
7.	Goal Direction	1.6577
8.	Favoritism	.9009
9.	Cliqueness	.9228
10.	Satisfaction	1.6213
11.	Disorganization	1.7204
12.	Difficulty	.5607
13.	Apathy	.6477
14.	Democratic	.4941
15.	Competitiveness	2.1598

(df = 3/163)

TABLE 14

FINAL CLASSIFICATION MATRIX FOR COMPREHENSIVE FINAL EXAMINATION SCORES AFTER LEI SCALES AND F-VALUES ENTERED

Scores	90%-100%	80%-89%	70%-79%	50%-69%	Total
90%-100%	11	7	2	7	27
80%-89%	11	15	12	10	48
70%-79%	6	8	18	15	47
50%-69%	9	5	17	14	45
Totals	37	35	49	46	167

TABLE 15

MEAN STUDENT RESPONSES TO LEI SCALES
GROUPED BY GRADE POINT AVERAGES

	Variable	N:	3.50-4.00 (22)	3.00-3.49 (54)	2.50-2.99 (60)	2.00-2.49 (25)
1.	Cohesiveness		5.77273	5.53704	6.98333	6.32000
2.	Diversity		19.95454	19.62962	20.20000	19.51999
3.	Formality		13.13636	13.16667	13.40000	13.32000
4.	Speed		6.86364	6.87037	7.65000	6.72000
5.	Environment		13.77273	14.31481	14.91667	14.92000
6.	Friction		13.81818	13.74074	14.08333	13.76000
7.	Goal Direction		11.00000	10.51852	11.18333	11.52000
8.	Favoritism		8.27273	7.57407	7.93333	7.52000
9.	Cliqueness		7.09091	6.77778	7.33333	7.44000
10.	Satisfaction		9.63636	9.88889	9.60000	9.92000
11.	Disorganization		3.40909	3.00000	3.21667	2.84000
12.	Difficulty		3.31818	3.57407	3.96667	3.64000
13.	Apathy		0.54545	0.81481	0.40000	-1.00000
14.	Democratic		4.13636	4.27778	3.11667	3.40000
15.	Competitiveness		7.40909	7.07407	7.68333	8.20000

TABLE 16

STANDARD DEVIATIONS OF STUDENT RESPONSES TO LEI SCALES GROUPED BY GRADE POINT AVERAGES

	Variable	N:	3.50-4.00 (22)	3.00-3.49 (54)	2.50-2.99 (60)	2.00-2.49 (25)
1.	Cohesiveness		1.82396	1.85017	2.60046	2.41039
2.	Diversity		1.88925	2.37356	2.24590	2.14320
3.	Formality		2.18861	2.31279	2.59202	2.24944
4.	Speed		1.48950	2.71297	3.25119	2.44131
5.	Environment		2.11416	2.36980	2.60567	1.99833
6.	Friction		2.23897	3.03553	2.58608	2.53771
7.	Goal Direction		3.63842	3.37995	3.20217	2.48529
8.	Favoritism		2.94686	2.73068	3.03016	2.50200
9.	Cliqueness		1.97385	2.15149	2.14449	2.58328
10.	Satisfaction		3.07904	2.81951	2.68832	1.97737
11.	Disorganization		3.67305	2.97789	2.99202	2.37487
12.	Difficulty		1.80966	2.45412	2.66786	2.84136
13.	Apathy		2.38502	2.97203	3.24271	2.34521
14.	Democratic		2.27398	1.81624	2.20239	2.66145
15.	Competitiveness		3.01834	2.44062	2.71524	2.21735

TABLE 17

SIGNIFICANCE OF LEI SCALES IN DISCRIMINATING BETWEEN STUDENTS GROUPED BY GRADE POINT AVERAGES

	Variable	F-Value
1.	Cohesiveness	4.2931*
2.	Diversity	.8622
3.	Formality	.1186
4.	Speed	1.1142
5.	Environment	1.6358
6.	Friction	.1818
7.	Goal Direction	.6801
8.	Favoritism	.4409
9.	Cliqueness	.8013
10.	Satisfaction	.1559
11.	Disorganization	.1893
12.	Difficulty	.4397
13.	Apathy	2.2733
14.	Democratic	3.1745*
15.	Competitiveness	1.1932

*$p < .05$ (df = 3/159)

In spite of the fact that two variables were found to be significant, the Final Classification Matrix for Grade Point Averages (Table 18) indicated a Correct Per Cent Classification of 46.0. Although this figure is higher than the Correct Per Cent Classification for Comprehensive Final Examination Scores, the percentage of 46.0 and 49.1 for Course Grades represents the fact that less than half of the time will the students, on the basis of achievement, perceive their classroom environments differently.

Although mid-management courses are male oriented, the percentage of women enrolling in these programs has been steadily rising in the last few years. Of the sample of 166 in this category, 21 were females. Tables 19 and 20 present the means and standard deviations of the two sexes.

The F-values in Table 21 show one dramatic development. The variable, "Competitiveness," is quite significant. Referring back to Table 19, the Mean Student Responses for males was significantly higher than that for females. This indicates that males are more competitive or that they perceive their environment as being more competitive than females. Two other variables, "Satisfaction" and "Formality," (although not statistically significant) did have mean scores between males and females to indicate that females perceived their classes with less "Formality" and with less "Satisfaction."

TABLE 18

FINAL CLASSIFICATION MATRIX FOR GRADE POINT AVERAGES AFTER LEI SCALES AND F-VALUES ENTERED

Grade Point Averages	3.50-4.00	3.00-3.49	2.50-2.99	2.00-2.49	Total
3.50-4.00	11	5	3	3	22
3.00-3.49	13	25	5	11	54
2.50-2.99	9	13	26	12	60
2.00-2.49	6	2	5	12	25
Totals	39	45	39	38	161

TABLE 19

MEAN STUDENT RESPONSES TO LEI SCALES
GROUPED BY STUDENT SEX

	Variable	N:	Males (145)	Females (21)	Grand Mean (166)
1.	Cohesiveness		6.30345	5.38095	6.18675
2.	Diversity		19.88965	19.76190	19.87349
3.	Formality		13.34483	12.28571	13.21084
4.	Speed		7.25517	6.66667	7.18072
5.	Environment		14.59310	14.33333	14.56024
6.	Friction		14.02759	13.14286	13.91566
7.	Goal Direction		10.95862	11.04762	10.96988
8.	Favoritism		7.92414	7.61905	7.88554
9.	Cliqueness		7.11034	7.14286	7.11446
10.	Satisfaction		9.86897	8.57143	9.70482
11.	Disorganization		3.14483	3.52381	3.19277
12.	Difficulty		3.77241	3.04762	3.68072
13.	Apathy		0.48966	-0.33333	0.38554
14.	Democratic		3.72414	3.42857	3.68675
15.	Competitiveness		7.72414	5.85714	7.48795

TABLE 20

STANDARD DEVIATIONS OF STUDENT RESPONSES TO LEI SCALES GROUPED BY STUDENT SEX

Variable	N:	Males (145)	Females (21)
1. Cohesiveness		2.31036	1.85677
2. Diversity		2.22084	2.54764
3. Formality		2.34335	2.36945
4. Speed		2.86689	2.35230
5. Environment		2.45371	1.62275
6. Friction		2.68209	2.55510
7. Goal Direction		2.92942	4.64193
8. Favoritism		2.90611	2.67350
9. Cliqueness		2.16702	2.19740
10. Satisfaction		2.38703	4.09355
11. Disorganization		2.85037	3.73656
12. Difficulty		2.57859	2.41818
13. Apathy		2.92050	3.02214
14. Democratic		2.15857	2.58014
15. Competitiveness		2.44232	3.00476

TABLE 21

SIGNIFICANCE OF LEI SCALES IN DISCRIMINATING BETWEEN STUDENTS GROUPED BY STUDENT SEX

	Variable	F-Value
1.	Cohesiveness	3.0564
2.	Diversity	.0584
3.	Formality	3.7368
4.	Speed	.8050
5.	Environment	.2207
6.	Friction	2.0187
7.	Goal Direction	.0143
8.	Favoritism	.2060
9.	Cliqueness	.0041
10.	Satisfaction	4.3826
11.	Disorganization	.2982
12.	Difficulty	1.4708
13.	Apathy	1.4441
14.	Democratic	.3268
15.	Competitiveness	10.0873*

*$p < .05$ (df = 1/164)

An even more dramatic presentation is the Final Classification Matrix for Student Sex. This matrix gives a highly significant percentage, comparatively speaking, of 75.3. (See Table 22.) The interpretation here is that three-fourths of the time males perceive their classroom environments differently than do females.

Out of a sample of 166 students, 105 were enrolled in day classes. Tables 23 and 24 provide the mean scores and the standard deviations for this dependent measure. The F-values depicted in Table 25 present five significant variables--"Satisfaction," "Disorganization," "Goal Direction," "Friction," and "Formality." The analysis shows that day students are more "Satisfied" and perceive their classes as more "Goal Directed" than evening students. The evening students felt their classes were more "Disorganized," had more "Friction," and were less "Formal."

The Final Classification Matrix for Day or Evening Students also was significant with a percentage of 70.5. This indicates that there is a difference in the perceptions of the classroom environments between Day and Evening Students. (See Table 26.)

The Age of Students was categorized into teens, twenties, thirties, and forty and over. The mean scores and standard deviations are found in Tables 27 and 28. The F-values in Table 29 show three significant variables--"Satisfaction," "Formality," and "Diversity."

TABLE 22

FINAL CLASSIFICATION MATRIX FOR STUDENT SEX
AFTER LEI SCALES AND F-VALUES ENTERED

Student Sex	Male	Female	Total
Male	111	34	148
Female	7	14	28
Totals	118	48	166

Note. The percentage for Correct Per Cent Classification for Student Sex was a significant 75.3.

TABLE 23

MEAN STUDENT RESPONSES TO LEI SCALES GROUPED BY DAY OR EVENING ENROLLMENT

	Variable	N: Day (105)	Evening (61)	Grand Mean (166)
1.	Cohesiveness	6.10476	6.32787	6.18675
2.	Diversity	19.78094	20.03278	19.87349
3.	Formality	13.49524	12.72131	13.21084
4.	Speed	7.24762	7.06557	7.18072
5.	Environment	14.68571	14.34426	14.56024
6.	Friction	13.50476	14.62295	13.91566
7.	Goal Direction	11.59048	9.90164	10.96988
8.	Favoritism	7.63809	8.31147	7.88554
9.	Cliqueness	7.16190	7.03279	7.11446
10.	Satisfaction	10.35238	8.59016	9.70482
11.	Disorganization	2.56190	4.27869	3.19277
12.	Difficulty	3.93333	3.24590	3.68072
13.	Apathy	0.30476	0.52459	0.38554
14.	Democratic	3.62857	3.78688	3.68675
15.	Competitiveness	7.47619	7.50820	7.48795

TABLE 24

STANDARD DEVIATIONS OF STUDENT RESPONSES TO LEI SCALES GROUPED BY DAY OR EVENING ENROLLMENT

Variable	N: Day (105)	Evening (61)
1. Cohesiveness	2.34898	2.15035
2. Diversity	2.47673	1.82544
3. Formality	2.18439	2.59570
4. Speed	2.68821	3.02140
5. Environment	2.33003	2.42132
6. Friction	2.57995	2.70901
7. Goal Direction	2.51033	3.87600
8. Favoritism	2.78775	2.98630
9. Cliqueness	2.05277	2.35914
10. Satisfaction	2.12122	3.15898
11. Disorganization	2.34078	3.57831
12. Difficulty	2.50869	2.61823
13. Apathy	2.91916	2.98666
14. Democratic	2.25429	2.14565
15. Competitiveness	2.73190	2.33539

TABLE 25

SIGNIFICANCE OF LEI SCALES IN DISCRIMINATING BETWEEN STUDENTS GROUPED BY DAY OR EVENING ENROLLMENT

	Variable	F-Value
1.	Cohesiveness	.3699
2.	Diversity	.4789
3.	Formality	4.2088*
4.	Speed	.1614
5.	Environment	.8050
6.	Friction	6.9859*
7.	Goal Direction	11.5931*
8.	Favoritism	2.1359
9.	Cliqueness	.1366
10.	Satisfaction	18.4217*
11.	Disorganization	13.9379*
12.	Difficulty	2.8056
13.	Apathy	.2151
14.	Democratic	.1970
15.	Competitiveness	.0059

*$p < .05$ (df = 1/164)

TABLE 26

FINAL CLASSIFICATION MATRIX FOR DAY OR EVENING ENROLLMENT AFTER LEI SCALES AND F-VALUES ENTERED

Enrollment	Day	Evening	Total
Day	77	28	105
Evening	21	40	61
Totals	98	68	166

Note. The Correct Per Cent Classification for Day or Evening Students was a significant 70.5.

TABLE 27

MEAN STUDENT RESPONSES TO LEI SCALES
GROUPED BY AGE OF STUDENTS

Variable	N:	Teens (23)	Twenties (75)	Thirties (32)	Forty & Over (32)
1.	Cohesiveness	6.43478	6.32000	6.84375	5.46875
2.	Diversity	20.08694	20.43999	19.65625	18.96875
3.	Formality	12.00000	13.13333	13.21875	14.12500
4.	Speed	7.21739	7.36000	7.56250	6.34375
5.	Environment	15.00000	14.80000	14.18750	14.15625
6.	Friction	14.21739	14.22667	13.96875	13.03125
7.	Goal Direction	11.65217	10.90667	10.37500	11.15625
8.	Favoritism	7.52174	8.14667	7.65625	7.40625
9.	Cliqueness	6.78261	7.38667	7.15625	6.65625
10.	Satisfaction	10.08696	9.45333	8.78125	11.03125
11.	Disorganization	3.04348	3.33333	3.65625	2.21875
12.	Difficulty	3.43478	3.46667	4.00000	3.71875
13.	Apathy	-0.26087	0.97333	-0.21875	0.21875
14.	Democratic	3.73913	3.69333	3.56250	3.93750
15.	Competitiveness	7.60870	7.30667	8.03125	7.21875

TABLE 28

STANDARD DEVIATIONS OF STUDENT RESPONSES TO LEI SCALES GROUPED BY AGE OF STUDENTS

	Variable	N: Teens (23)	Twenties (75)	Thirties (32)	Forty & Over (32)
1.	Cohesiveness	2.64276	2.38893	1.72476	2.16994
2.	Diversity	2.72885	1.90475	2.26629	2.26451
3.	Formality	2.13201	2.38991	2.58699	1.84478
4.	Speed	2.59293	3.15645	1.94998	2.88051
5.	Environment	1.88294	2.56799	1.83931	2.57919
6.	Friction	2.06610	2.94807	1.76862	3.04254
7.	Goal Direction	2.53357	3.39383	2.93751	3.43707
8.	Favoritism	2.50217	3.37194	2.20862	2.63793
9.	Cliqueness	1.70444	2.21110	2.11155	2.54773
10.	Satisfaction	1.78155	2.79619	2.68489	2.58387
11.	Disorganization	2.22544	3.12068	2.94694	3.19004
12.	Difficulty	2.55532	2.73778	1.84915	2.70286
13.	Apathy	2.13663	3.28786	2.23944	3.15956
14.	Democratic	1.68462	2.38787	2.36830	1.94998
15.	Competitiveness	2.44464	2.83306	2.25022	2.56193

TABLE 29

SIGNIFICANCE OF LEI SCALES IN DISCRIMINATING BETWEEN STUDENTS GROUPED BY AGE

	Variable	F-Value
1.	Cohesiveness	2.0629
2.	Diversity	3.6495*
3.	Formality	3.8325*
4.	Speed	1.2337
5.	Environment	1.1026
6.	Friction	1.6155
7.	Goal Direction	.7578
8.	Favoritism	.6409
9.	Cliqueness	1.0230
10.	Satisfaction	4.4741*
11.	Disorganization	1.4412
12.	Difficulty	.3824
13.	Apathy	1.8505
14.	Democratic	.1607
15.	Competitiveness	.7051

*$p < .05$ (df = 3/158)

TABLE 30

FINAL CLASSIFICATION MATRIX FOR AGE OF STUDENTS AFTER LEI SCALES AND F-VALUES ENTERED

Age of Students	Teens	Twenties	Thirties	Forty & Over	Total
Teens	14	3	3	3	23
Twenties	17	31	18	9	75
Thirties	3	5	16	8	32
Forty & Over	1	6	2	23	32
Totals	35	45	39	43	162

In examining Table 27, students in their teens and forty and over appear more "Satisfied." The forty and over group perceive their classes as more "Formal," and the twenty year old group sees more "Diversity" in their classroom environment.

Table 30 presents the Final Classification Matrix of Age of Students. The result here is similar to the results on achievement. The Correct Per Cent Classification was 52.2. The interpretation is that only about one-half of the time will the students on the basis of age perceive their classroom environments differently.

In this study the following hypotheses were tested:

Hypothesis 1. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students receiving disparate course grades. Since the differences were not significant, this hypothesis was not supported. (See Table 10.)

Hypothesis 2. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students receiving disparate comprehensive final examination scores. Since the differences were not significant, this hypothesis was not supported. (See Table 14.)

Hypothesis 3. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students possessing disparate overall

grade point averages. Since the difference was not significant, this hypothesis was not supported. (See Table 18.)

Hypothesis 4. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for male and female students. The differences were significant; therefore this hypothesis was supported. (See Table 22.)

Hypothesis 5. Perceptions of the classroom climate, as measured by the Learning Environment Inventory are significantly different for day and evening students. The differences were significant; therefore this hypothesis was supported. (See Table 26.)

Hypothesis 6. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for students in disparate age groups. Since the differences were not significant, this hypothesis was not supported. (See Table 30.)

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to give the summary, the conclusions, and the recommendations. The conclusions were drawn from the data collected from a large urban junior college in the southwest.

Summary

Restatement of Problem

This study was an attempt to determine if there is a relationship between students' perceptions of the classroom environment and achievement in mid-management courses. The specific problems investigated were as follows:

1. Is there a relationship in the perception of the classroom environment between high achieving students and low achieving students?
2. Is there a relationship between the gender of students and their perception of the classroom environment?
3. Is there a relationship between day and evening students and their perception of the classroom environment?

4. Is there a relationship between the age of students and their perception of the classroom environment?

Procedure

The procedure followed in this study consisted of the following seven major steps:

1. The first step was to review literature in the area of group dynamics as it related to learning, and research studies in the area of classroom social climate as it related to influence on learning.
2. The second step was to examine tools which might measure the environment created in a classroom. The instrument selected was the Learning Environment Inventory devised by Dr. Gary J. Anderson in 1973. Permission to use the instrument was granted by Anderson.
3. The third step was to randomly select the sample to be tested. Four day classes and four evening classes from a mid-management instructional program at a large urban junior college were randomly selected from the 10 day and 10 evening classes in that program.
4. The fourth step was to administer the instrument to the students in the classes. In order to minimize any possible biases, the instrument was administered by the same individual to all

sample groups. The individual was not associated with the college where the study was conducted or with the design of the research. The instructions were given to the students in a prepared statement as to the procedures and objectives of the questionnaire.

5. The fifth step was to code the data for computer analysis.
6. The sixth step was to analyze the data generated by the study. The data were subjected to a multivariate statistical analysis, the Discriminant Function Analysis (BMD07M Program).
7. The seventh and final step was to prepare the research report.

Findings

Based on an analysis of the test data, the major findings were:

1. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are not significantly different for students receiving disparate course grades.
2. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are not significantly different for students receiving disparate comprehensive final examination scores.

3. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are not significantly different for students possessing disparate overall grade point averages.
4. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are significantly different for male and female students.
5. Perceptions of the classroom climate, as measured by the Learning Environment Inventory are significantly different for day and evening students.
6. Perceptions of the classroom climate, as measured by the Learning Environment Inventory, are not significantly different for students in disparate age groups.

Conclusions

The conclusions drawn from this study indicate that environment is not a factor in achievement. High achievers will probably be high achievers regardless of the conditions of their classroom climate.

However, from the results obtained when comparing male and female students' perceptions of the classroom climate, it was concluded that male and female students did not perceive their classes in the same manner. The dimension, "competitiveness" showed a significant difference as perceived by male and female students. Male students in business subjects, particularly mid-management courses, are

probably more serious and view their male counterparts as competitors for job opportunities. On the other hand, female students enrolled in mid-management courses are primarily fulfilling program requirements.

Also, it was concluded that day students were more "satisfied" and found their classes were more "goal directed" than did evening students. A rationale for this could be that most evening students were employed during the day; and consequently, when they came to class they showed less interest. This attitude was also reflected in the "friction" scale where the evening students' mean score was higher than the mean score for the day students.

Another conclusion was that the age of the students did not appear to be a factor in classroom perception.

Recommendations

It is recommended that a study be made comparing single and married students' perceptions of their classroom environment and achievement.

It is recommended that a study be made relating to national origin or race of students' perceptions of their classroom environment and achievement.

Since there is a large number of veterans attending colleges and universities, it is further recommended that a study be made relating to veterans' perceptions of their classroom environment and achievement.

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APPENDIX

ATLANTIC INSTITUTE OF EDUCATION

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Office of the Director

8 May 1975

Mr. John T. Samaras
3704 Dow Drive
Oklahoma City
Okla, 73116

Dear Mr. Samaras:

Further to your letter of May 5th, I am very pleased that you found the LEI and other articles interesting and useful. You are certainly free to use them in any way you see fit. However, I would be pleased to receive copies of any results you may obtain for my files.

Yours sincerely

Gary J. Anderson
Co-Director

GJA/bo

LEARNING ENVIRONMENT INVENTORY*

DIRECTIONS

The purpose of the questions in this booklet is to find out what your class is like. This is not a "test." You are asked to give your honest, frank opinions about the class which you are now attending.

Record your answer to each of the questions on the answer sheet provided. Please make no marks on the booklet itself. Answer every question.

In answering each question go through the following steps:

1. Read the statement carefully.

2. Think about how well the statement describes your class (the one you are now in).

3. Find the number on the answer sheet that corresponds to the statement you are considering.

4. Blacken one space only on the answer sheet according to the following instructions:

   If you strongly disagree with the statement, blacken space 1.

   If you disagree with the statement, blacken space 2.

   If you agree with the statement, blacken space 3.

   If you strongly agree with the statement, blacken space 4.

5. You will have approximately 40 minutes to complete the 105 questions in the booklet. Be sure the number on the answer sheet corresponds to the number of the statement being answered in the booklet.

---

*Source: Gary J. Anderson, The Assessment of Learning Environments: A Manual for the Learning Environment Inventory and the My Class Inventory (Halifax, Nova Scotia, Canada: Atlantic Institute of Education, 1973), pp. 6-8.

		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	Members of the class do favours for one another.	1	2	3	4
2.	The books and equipment students need or want are easily available to them in the classroom.	1	2	3	4
3.	There are long periods during which the class does nothing.	1	2	3	4
4.	The class has students with many different interests.	1	2	3	4
5.	Certain students work only with their close friends.	1	2	3	4
6.	The students enjoy their class work.	1	2	3	4
7.	Students who break the rules are penalized.	1	2	3	4
8.	There is constant bickering among class members.	1	2	3	4
9.	The better students' questions are more sympathetically answered than those of the average students.	1	2	3	4
10.	The class knows exactly what it has to get done.	1	2	3	4
11.	Interests vary greatly within the group.	1	2	3	4
12.	A good collection of books and magazines is available in the classroom for students to use.	1	2	3	4
13.	The work of the class is difficult.	1	2	3	4
14.	Every member of the class enjoys the same privileges.	1	2	3	4
15.	Most students want their work to be better than their friends' work.	1	2	3	4
16.	The class has rules to guide its activities.	1	2	3	4
17.	Personal dissatisfaction with the class is too small to be a problem.	1	2	3	4
18.	A student has the chance to get to know all other students in the class.	1	2	3	4
19.	The work of the class is frequently interrupted when some students have nothing to do.	1	2	3	4
20.	Students cooperate equally with all class members.	1	2	3	4
21.	Many students are dissatisfied with much that the class does.	1	2	3	4
22.	The better students are granted special privileges.	1	2	3	4
23.	The objectives of the class are not clearly recognized.	1	2	3	4
24.	Only the good students are given special projects.	1	2	3	4
25.	Class decisions tend to be made by all the students.	1	2	3	4
26.	The students would be proud to show the classroom to a visitor.	1	2	3	4
27.	The pace of the class is rushed.	1	2	3	4
28.	Some students refuse to mix with the rest of the class.	1	2	3	4
29.	Decisions affecting the class tend to be made democratically.	1	2	3	4
30.	Certain students have no respect for other students.	1	2	3	4
31.	Some groups of students work together regardless of what the rest of the class is doing.	1	2	3	4
32.	Members of the class are personal friends.	1	2	3	4
33.	The class is well organized.	1	2	3	4
34.	Some students are interested in completely different things than other students.	1	2	3	4
35.	Certain students have more influence on the class than others.	1	2	3	4
36.	The room is bright and comfortable.	1	2	3	4
37.	Class members tend to pursue different kinds of problems.	1	2	3	4
38.	There is considerable dissatisfaction with the work of the class.	1	2	3	4
39.	Failure of the class would mean little to individual members.	1	2	3	4
40.	The class is disorganized.	1	2	3	4
41.	Students compete to see who can do the best work.	1	2	3	4
42.	Certain students impose their wishes on the whole class.	1	2	3	4
43.	A few of the class members always try to do better than the others.	1	2	3	4
44.	There are tensions among certain groups of students that tend to interfere with class activities.	1	2	3	4
45.	The class is well-organized and efficient.	1	2	3	4
46.	Students are constantly challenged.	1	2	3	4
47.	Students feel left out unless they compete with their classmates.	1	2	3	4
48.	Students are asked to follow strict rules.	1	2	3	4
49.	The class is controlled by the actions of a few members who are favoured.	1	2	3	4
50.	Students don't care about the future of the class as a group.	1	2	3	4
51.	Each member of the class has as much influence as any other member.	1	2	3	4
52.	The members look forward to coming to class meetings.	1	2	3	4

		Strongly Disagree	Disagree	Agree	Strongly Agree
53.	The subject studied requires no particular aptitude on the part of the students.	1	2	3	4
54.	Members of the class don't care what the class does.	1	2	3	4
55.	There are displays around the room.	1	2	3	4
56.	All students know each other very well.	1	2	3	4
57.	The classroom is too crowded.	1	2	3	4
58.	Students are not in close enough contact to develop likes or dislikes for one another.	1	2	3	4
59.	The class is rather informal and few rules are imposed.	1	2	3	4
60.	Students have little idea of what the class is attempting to accomplish.	1	2	3	4
61.	There is a recognized right and wrong way of going about class activities.	1	2	3	4
62.	What the class does is determined by all the students.	1	2	3	4
63.	After the class, the students have a sense of satisfaction.	1	2	3	4
64.	Most students cooperate rather than compete with one another.	1	2	3	4
65.	The objectives of the class are specific.	1	2	3	4
66.	Students in the class tend to find the work hard to do.	1	2	3	4
67.	Each student knows the goals of the course.	1	2	3	4
68.	All classroom procedures are well-established.	1	2	3	4
69.	Certain students in the class are responsible for petty quarrels.	1	2	3	4
70.	Many class members are confused by what goes on in class.	1	2	3	4
71.	The class is made up of individuals who do not know each other well.	1	2	3	4
72.	The class divides its efforts among several purposes.	1	2	3	4
73.	The class has plenty of time to cover the prescribed amount of work.	1	2	3	4
74.	Students who have past histories of being discipline problems are discriminated against.	1	2	3	4
75.	Students do not have to hurry to finish their work.	1	2	3	4
76.	Certain groups of friends tend to sit together.	1	2	3	4
77.	There is much competition in the class.	1	2	3	4
78.	The subject presentation is too elementary for many students.	1	2	3	4
79.	Students are well-satisfied with the work of the class.	1	2	3	4
80.	A few members of the class have much greater influence than the other members.	1	2	3	4
81.	There is a set of rules for the students to follow.	1	2	3	4
82.	Certain students don't like other students.	1	2	3	4
83.	The class realizes exactly how much work it has to do.	1	2	3	4
84.	Students share a common concern for the success of the class.	1	2	3	4
85.	There is little time for day-dreaming.	1	2	3	4
86.	The class is working toward many different goals.	1	2	3	4
87.	The class members feel rushed to finish their work.	1	2	3	4
88.	Certain students are considered uncooperative.	1	2	3	4
89.	Most students sincerely want the class to be a success.	1	2	3	4
90.	There is enough room for both individual and group work.	1	2	3	4
91.	Each student knows the other members of the class by their first names.	1	2	3	4
92.	Failure of the class would mean nothing to most members.	1	2	3	4
93.	The class has difficulty keeping up with its assigned work.	1	2	3	4
94.	There is a great deal of confusion during class meetings.	1	2	3	4
95.	Different students vary a great deal regarding which aspect of the class they are interested in.	1	2	3	4
96.	Each student in the class has a clear idea of the class goals.	1	2	3	4
97.	Most students cooperate equally with other class members.	1	2	3	4
98.	Certain students are favoured more than the rest.	1	2	3	4
99.	Students have a great concern for the progress of the class.	1	2	3	4
100.	Certain students stick together in small groups.	1	2	3	4
101.	Most students consider the subject-matter easy.	1	2	3	4
102.	The course material is covered quickly.	1	2	3	4
103.	There is an undercurrent of feeling among students that tends to pull the class apart.	1	2	3	4
104.	Many students in the school would have difficulty doing the advanced work of the class.	1	2	3	4
105.	Students seldom compete with one another.	1	2	3	4