Relationship of perceived classroom social climate and course performance in computer literacy classes

Jolyne Lockwood Ghanatabadi
Iowa State University

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Relationship of perceived classroom social climate and course performance in computer literacy classes

Ghanatabadi, Jolyne Lockwood, Ph.D.

Iowa State University, 1991
Relationship of perceived classroom social climate and course performance in computer literacy classes

by

Jolyne Lockwood Ghanatabadi

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of the Requirement for the Degree of DOCTOR OF PHILOSOPHY

Department: Professional Studies in Education Major: Education (Adult and Extension Education)

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

For the Department

Signature was redacted for privacy.

For the Education Major

Signature was redacted for privacy.

For the Graduate College

Iowa State University
Ames, Iowa
1991
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CHAPTER I
INTRODUCTION
Background for the Study

Education in America has traditionally been a school-based, youth-oriented process. Today, learning is a lifelong endeavor. Cross (1981, 1986) attributes this to three factors: 1) demographic changes (e.g., increased leisure time, professional advancement, and personal achievement), 2) social change (e.g., changing roles of women, better educated general populace, career demands), and 3) technological advances (e.g., changing technology required further education).

The National Center for Education Statistics reports total enrollment in higher education rose 3.4% to a record of nearly 14 million in the fall of 1990. This is the largest year-to-year increase since a 4.6% jump in the fall of 1980. Females comprised 55% of the total enrollment. Registration growth has occurred despite a decade-long decline in the 18-24 age group. The reasons given for the continuing growth are: 1) the increasing percentage of this age group attending college and 2) a greater number of older adults enrolling in courses.

The report also stated, that community colleges accounted for most of the increase with a gain of 7%. Four year colleges and universities rose only 2%.
Approximately 43 percent of the nation's undergraduates and 51 percent of all first-time entering freshmen enrolled in college attend a community college (El-Khawas, 1988; Fjeldstad, 1990). The average age of students enrolled has been steadily rising to around 27-28 (Cohen & Brawer, 1989).

Students who attend a community college have characteristics which are usually different from those who attend other colleges and universities. A majority come from the lower one-half of high school classes, from a variety of social and economic backgrounds, and have academic backgrounds which may be deficient (Cohen and Brawer, 1989). Students also come with a variety of life experiences and apprehensions about attending a college due to previous negative experiences (Cross, 1981, 1986). All of these factors together provide a challenge to the community college to provide a climate for learning which will result in maximizing the learning process.

Experiences students have in the classroom can enhance or impede learning. It is therefore important to identify how students feel about their classroom experiences. One way to do this is to look at the classroom social climate.

Within a classroom setting, Moos (1979) has identified three discrete domains which influence the classroom social climate. 1) The relationship domain, which includes the degree of involvement, cohesion, and support in the setting. 2) The personal growth and goal orientation domain consisting
of the basic goals of the environment. 3) The systems maintenance and change domain comprising the amount of orderliness, clarity of expectations, regulation or control, and innovation present in the classroom.

Research studies involving classroom social climate have been conducted primarily on the elementary and secondary level (Fraser, 1986; Darkenwald, 1987) with only a few studies being conducted in higher education. Because of the characteristic diversity which exists in community college students, it is vital to identify the classroom social factors which enhance both traditional and nontraditional students' performance and increases retention.

Statement of Problem

Many educators believe the classroom provides a place for student personal and academic growth, and that classrooms have distinct atmospheres or climates which mediate growth. Creating a classroom climate to maximize personal growth and learning is a continuing challenge today, and one which higher education cannot ignore.

Classroom social climate is defined as the personality of a setting or environment (Moos, 1987). The classroom is a social system which includes teacher behavior, teacher-student interaction and student interaction.
Research studies have examined the interaction of the classroom social climate with a variety of variables. The findings of these studies indicate that the social climate of a classroom can either enhance or impede achievement. However, many studies have been conducted at the elementary and secondary level, and only a limited number conducted in higher educational institutions (Fraser, 1986; Darkenwald 1987).

A research void currently exists on the community college level in the area of classroom social climate perceptions.

The purpose of this study was 1) to assess the perceptions of the classroom social climate by both students and instructors to identify if they were congruent, 2) to identify if factors such as gender, campus, day or evening/Saturday class influences classroom perceptions, and 3) to examine whether there was a relationship between students' perception of the classroom social climate and course absenteeism and final course grades.

Theoretical Framework

The relationship between classroom social climate and learning is an area of research which began twenty years ago with the work of Rudolf Moos and Herbert Walberg (Fraser, 1986). Walberg (1970) stated that the variance in student performance is attributable to the aptitude of the learner and
the learning environment, leaving only a small part to be accounted for by instructional variables and possibly the interaction between the three factors.

The theoretical framework underpinning this study is the Model of the Determinants of Classroom Climate developed by Rudolph Moos (1979). The Classroom Environment Scale developed by Moos and Trickett (1974) is used to measure the classroom social climate which is comprised of five separate interlocking variables (Moos, 1979, pp. 160-161):

School and Classroom Context—This includes the type of school (public or private, urban, suburban, rural); educational program (traditional, vocational, alternative); and class subject matter.

Physical and Architectural Features—Included are number of classroom buildings in school, design of classroom and arrangement of student and teacher desks.

Organizational Factors—This encompasses school size, faculty/student ratio (class size), average salary level, and affluence or wealth.

Teacher Characteristics—Includes gender, years of teacher experience, educational attainment, philosophy of teaching, etc.

Aggregate Student Characteristics—Entails age, ability level, socioeconomic background, gender, educational attainment, female/male class ratio, etc.

These factors influence each other and combine in their effects to produce an environmental press or social environment.

Classroom environments exhibit three patterns common to all social environments: 1) relationship patterns assesses the
degree of involvement, cohesion, and support in the setting; 2) personal growth and goal orientation appraises the basic goals of the environment; and 3) system maintenance and change patterns measures the amount of orderliness, clarity of expectations, regulation or control, and innovation present in the environment (Moos, 1979).

These three major patterns are further broken down into nine subsets. The relationship domain includes involvement, affiliation and teacher support. The personal growth domain contains task orientation and competition. System maintenance and change consists of order and organization, rule clarity, teacher control, and innovation (Moos, 1979). A more thorough explanation of this model is in Chapter II.

Research Questions

1. Are students' and instructors' perceptions of the classroom social climate congruent on all nine subscales of the Classroom Environment Scale?

2. Are day students' and evening/Saturday students' perceptions of the classroom social climate congruent?

3. Do students in classes on the Ankeny and Urban campuses perceive the classroom social climate the same?

4. Does gender affect the perception of the classroom social climate?
5. Is there any relationship between students' perception of the classroom social climate, absenteeism and final course grade?

6. Can the number of class absences be predicted according to students' scores on the Classroom Environment Scale and students' age?

7. Can course grade be predicted according to students' scores on the Classroom Environment Scale and students' age?

Assumptions

The following assumptions have been made for the purpose of this study:

1. Students and instructors provide a reliable source of information on perceptions of the classroom social climate.

2. The characteristics of both students and their instructor influence the classroom social climate.

3. Students are enrolled in the course to either meet a program requirement for graduation or for personal growth.

Definition of Terms

Classroom social climate: The ways in which interpersonal relationships help to shape human behavior, or simply stated as the personality of the classroom (Moos, 1979). The three sets of variables which contribute to the
classroom social climate are: relationship, personal growth or goal orientation, and system maintenance and change.

1. Relationship variables include affective aspects of student-student and teacher-student interactions which assess the extent to which students and teachers support and help each other and the degree to which they are involved in the class and its' activities.

2. Personal growth or goal orientation variables relate to specific goals of the classroom environment by measuring the emphasis on task orientation and competition within the classroom.

3. Systems maintenance and change variables involve aspects of rules and regulations of the classroom and teaching innovations. These variables relate to keeping the classroom functioning in an orderly, clear, and coherent manner and the degree of variety, novelty, and change in the class milieu.

Hypotheses and Conjectures

This study provides data on students' and instructors' perceptions of the classroom social climate as it relates to day or evening/Saturday class, campus location, gender, absenteeism, final course grade, and students' characteristics in computer literacy classes at the Ankeny and Urban campuses of the Des Moines Area Community College. The hypotheses were based upon conjectures which the researcher developed from the literature.

Conjecture 1

People who have more authority and responsibility in a setting tend to see the setting more positive.
Hypothesis 1: There will be a significant (p < .05) incongruity between instructors and students on the nine CES subscores.

Conjecture 2

Perception of the classroom social climate may be influenced by factors involving time class is offered, location of class, and gender of students.

Hypothesis 2: There will be no significant difference (p < .05) on the nine CES subscores between classes conducted during the day and evening/Saturday classes.

Hypothesis 3: There will be no significant difference (p < .05) in students’ scores on the Classroom Environment Scale between the two campuses.

Hypothesis 4: Females will perceive the classroom social climate (p < .05) to be more Affiliative and characterized by a greater degree of Involvement and Teacher Support and lower in Task Orientation than male students on the Classroom Environment Scale.

Conjecture 3

Students choose to participate in learning activities when they feel comfortable and challenged within the classroom and in return have lower absenteeism rates and receive higher course grades.
Hypothesis 5: Classes with higher grade averages are positively related (p < .05) to the CES subscales of Involvement, Affiliation, and Teacher Support and negatively (p < .05) related to Competition and Teacher Control.

Hypothesis 6: Classes with higher absentee rates are positively related to Competition and Teacher Control (p < .05) on the CES subscales and negatively (p < .05) related to Involvement, Affiliation, and Teacher Support.

Hypothesis 7: There is a significant predictive (p < .05) relationship between student scores on the Classroom Environment Scale, student age, and absentee rate.

Hypothesis 8: There is a significant predictive (p < .05) relationship between student scores on the Classroom Environment Scale, student age and final course grade.

Instrumentation

The Classroom Environment Scale developed by Moos & Trickett in 1974 is a measure of the social environment or climate of the classroom. The CES is a 90-item paper and pencil, self-report instrument used to gather student and teacher perceptions of the classroom social climate. The scale focuses on teacher-student, student-student relationships, and on the organizational structure of a classroom (Moos & Trickett, 1974). There are three forms:
Real Form, Ideal Form, and Expectations Form. This study will use the Real Form.

The Classroom Environment Scale by Moos and Trickett (1974) was chosen for this study because it has been used extensively in previous research to collect data from classroom participants and is theory based. This instrument has been used in research studies in higher education institutions, even though it was designed to be used in junior and senior high school. The researcher was not able to identify a reliable and valid instrument to assess the classroom social environments in higher education.

Sample

The study involved all students and their instructor in COMS181—Introduction to Computer Literacy course during the 1991 spring semester (25 sections) at the Ankeny and Urban Campuses of the Des Moines Area Community College. This is a credit course which serves as a foundation for computer programming majors as well as a required or elective course for several other majors throughout the college. The course is also taken by people for personal or professional growth.

Data Gathering Procedures

The Classroom Environment Scale Real Form by Moos and Trickett (1974) was used to measure student-teacher relationship, student-student relationships, and classroom
organizational structure. The instrument was administered by the researcher or an associate during the seventh week of a fifteen-week class to all students attending COMS181-Introduction to Computer Literacy and their instructor on the Ankeny and Urban Campuses of the Des Moines Area Community College. The rational for waiting until the seventh week to administer the survey was to give the class an opportunity to develop a classroom social climate.

A demographics survey prepared by the researcher was administered at the same time as the Classroom Environment Scale to each student and instructor.

Attendance records were kept by the instructor starting with the tenth day of the semester. The tenth day was used because the first two weeks of a class traditionally result in students adding or dropping classes. DMACC does not have an attendance policy, and student attendance/absenteeism cannot be used as a factor in determining final course grade. There was no differentiation made between excused and unexcused absences.

Final course grades of subjects were obtained at the end of the semester from final course grade sheets provided by the instructors.
Data Analysis

To test hypothesis 1 a t-test for dependent samples was applied. For hypotheses 2 and 3 a t-test for independent samples was utilized. Hypothesis 4 was tested using a t-test for dependent samples. A correlation technique was used for Hypotheses 5 and 6. A multiple regression technique was used for Hypotheses 7 and 8.

Limitation of the Study

The study is limited to students enrolled on the Ankeny and Urban Campuses of the Des Moines Area Community College in the course COMS181—Introduction to Computer Literacy. DMACC is a comprehensive community college and the third largest higher education institution in the state of Iowa and the largest community college. The Ankeny Campus is ten miles from Des Moines, Iowa’s state capitol. The Urban Campus is located in downtown Des Moines. The average student age during the 1990-91 school year was 28.

The findings may not relate to other community colleges or institutions of higher education whose characteristics are not similar to Des Moines Area Community College. Also, findings may not be relevant to other course subjects.

Only students who were in attendance on the day the CES was administered were participants in the study. Participation was voluntary with four students refraining.
There was not perfect attendance in all of the classes. However, the manual which accompanies the CES (Moos, 1987, p. 21) suggests that if you have 20 people or fewer you should try to include as many as possible, or if the setting has 21–40 participants a 50 percent random sample is sufficient.

There was no attempt to survey the students who were absent. The rationale was the instrument was to be completed during class time. Instructors were not willing to give up a second class period, plus there was no way to ensure that the students who were absent the first time would be there when the instrument was readministered.

The Classroom Environment Scale was designed to be used in junior and senior high school classrooms, but has been used in several research studies in higher education. Fraser (1986) and Darkenwald (1987) have stated that research regarding classroom social environment has been limited in post-secondary environments due to a lack of a suitable, reliable, and practical instrumentation.

This researcher realizes that there are other factors which may influence the variables of classroom climate perceptions, class absenteeism and final course grade than those addressed in this study. The researcher does not deem these to be unimportant, only not within the scope of the study.
Significance of the Study

The main purpose of the study is to identify what factors involving teacher-student relationships, student-student relationships, and organizational structure of a classroom will result in students staying in class and succeeding. By identifying these factors, community colleges will have information which can assist instructors in designing computer literacy classroom social environments which are conducive to learning. This, in turn, will encourage student growth in achievement and understanding, and the realization that learning is a lifelong process.
CHAPTER II
LITERATURE REVIEW

Introduction

The purpose of this study is to assess the perceptions of the classroom social climate by both students and instructors and to identify if factors such as gender, campus, day or evening/Saturday class influence classroom perceptions. Also, to examine whether there is a relationship between students' classroom social climate perception and course absenteeism and final course grade. This chapter will address theory and research related to classroom social climate, course absenteeism and final course grade.

There is no agreement as to exactly what constitutes a classroom social climate (Artes, 1987; Peterson et al., 1986). There is some agreement, however, that climate is a group phenomenon involving something about consensus in perception, and that it concerns those aspects of the psychological, social and/or physical environment which affect behavior (Artes, 1987). Moos (1976, 1979, 1980) defines classroom climate as the ways in which interpersonal relationships help to shape human behavior, or simply stated as the personality of the classroom. Factors which are included when studying classroom climate are: interpersonal relationships among pupils, relationships between pupils and their teacher,
relationships between pupils and both the subject studied and
method of learning, teaching style, student characteristics, and
structural characteristics (Walberg and Anderson, 1968; Moos, 1979; Fraser, 1986). The following terms have been
found to be used interchangeably in the literature: classroom
environment, classroom climate, classroom social climate, and
psychosocial environment. The researcher will be using the
term classroom social climate during this study.

There are several reasons why educators study classroom
social climate:

1. Studies have shown that classroom climate is related to
student achievement as well as how students behave and
feel about school, themselves, and others.

2. How students and teachers view the climate that surrounds
them often are different.

3. The existence of a climate that most persons find
satisfying is a reasonable end in itself. Next to the
family, the school is one of the most important
socializing agencies.

4. There is evidence that classroom and school climate can
be changed.

5. It is useful in evaluating curricula. There is some
evidence that climate differentiates between curricula
even when achievement does not (Artes, 1987, pp. 1-2).

Theoretical Models

The theoretical models and concepts which have provided a
framework for classroom climate studies come from social
psychology and relate individual needs to social structural
variables (Nielsen and Kirk, 1974; Anderson & Walberg, 1974).
Levin's Field Theory (1936), Murray's Need-Press Model (1938), Getzels and Thelen's Classroom as a Social System Model (1960), and Moos Model of Determinants of Classroom Climate (1976, 1979) form the basis for research in classroom climate.

Levin's Field Theory (1936) describes behavior as a function of the interaction of individuals with their environment. His often cited formula $B=f(P,E)$ is referred to frequently in the literature. Behavior ($B$) is a function of interaction between the person ($P$) and his immediate psychological environment ($E$).

Following Levin's thinking, Murray (1938) saw individual behavior as a product of the person's relationship to their environment. Under his Needs-Press Model, individuals react differently to the characteristics of the environment according to the nature of their needs. Also, the external demands and influences of a social setting can either support or retard the satisfaction of needs. The term "needs" refers to characteristics of individuals which include drive, motivation, goals, etc. "Press" is a label for stimulus, treatment, or process variables.

An important contribution of Murray's work was providing a basis for measuring person and environment in logically related terms. He explained congruence between individuals and environment as related to personal needs and the environmental press in which that need is fulfilled. If the
press or environment allows a goal to be achieved via certain behaviors, the need is resolved in the environment and they are said to be congruent.

Getzels and Thelen's Classroom as a Social System Model holds that in school classes, personality needs, role expectations and classroom climate interact to predict group behavior and learning outcomes. This suggests that in a classroom, personality needs and role expectations interact to form a climate in which group behavior and individual learning could be predicted.

The Learning Environment Inventory (LEI) by Anderson & Walberg (1974) and Fraser, Anderson, and Walberg, (1982) designed for secondary schools to measure classroom climate was based upon Getzels and Thelen's theory of the classroom as a social unit.

Moos' model expanded upon the work of Lewin's (1935) Field Theory that an individual's behavior is strongly influenced by his/her environment and both the environment and its interaction with personal characteristics of the individual are strong determinants of human behavior and Murray's (1938) Needs-Press model. He believed that the classroom is a "dynamic social system that includes not only teacher behavior and teacher-student interaction, but also student-student interaction (Moos, 1979, p. 138)."
Moos' work added to the theoretical framework by including the influence environmental factors have on individuals to make effective and ineffective behavior responses in particular social settings. This is based upon 15 years of research on 10 different social environments which include work groups, prisons, psychiatric treatment settings, families, military, college living groups, and secondary classrooms.

Moos (1979) developed a conceptual framework (Figure 1) to focus on the interrelationships among five sets of classroom characteristics and on their relationship to classroom social climate. His model suggests that the overall school and classroom context can affect classroom climate directly or indirectly through their effect on architectural characteristics, organizational characteristics, teacher characteristics, and aggregate student factors.

Architectural characteristics can affect social climate directly or indirectly through their effect on organizational characteristics, teacher characteristics, and student characteristics.

Organizational characteristics can affect classroom climate directly and indirectly through their effect on teacher and student characteristics. Teacher characteristics can affect the classroom climate directly and indirectly
through their influence on aggregate student characteristics. Aggregate student variables can also influence social climate directly.

A definition of terms in the model are as follows:

School and Classroom Context—This includes the type of school (public or private, urban, suburban, rural); educational program (traditional, vocational, alternative); and class subject matter.

Physical and Architectural Features—Included are number of classroom buildings in school, design of classroom and arrangement of student and teacher desks.

Organizational Factors—This encompasses school size, faculty/student ratio (class size), average salary level, and affluence or wealth.
Teacher Characteristics—Includes gender, years of teaching experience, educational attainment, philosophy of teaching, etc.

Aggregate Student Characteristics—Entails age, ability level, socioeconomic background, gender, educational attainment, female/male class ratio, etc.

Based upon this conceptual framework, Moos identified three domains of social environment dimensions which can be used to characterize varied settings. These dimensions and the subscales under each dimension are shown in Table 1.

With each subscale characteristic there is an expected, ideal, and a real (perceived) level (Moos, 1979). All three of these levels can exert an influence on the congruence of the individual with the environment. For example, the individual may expect that they will have no say in determining class activities, may hope for an ideal setting of where they may have considerable input into the activities of the class, and encounter a real environment of having minimal influence on planning class activities. According to Moos, each level will have an important influence on the congruence the learner experiences in the classroom.

The importance of personality factors, individual differences, and preferred learning styles are also considered by Moos in his theory. Individuals try to create a balance between themselves and their environments. Individual differences cause people to react in ways which Moos terms "differential change" (e.g., dropping out, choosing
Table 1. Classroom Environment Subscale Descriptions (Moos, 1979, p. 141).

<table>
<thead>
<tr>
<th>SUBSCALE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RELATIONSHIP DIMENSIONS:</strong></td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>Extent to which students are attentive and interested in class activities and participate in discussions.</td>
</tr>
<tr>
<td>Affiliation</td>
<td>Student friendships and the extent to which students help each other and enjoy working together.</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>Help, interest, trust, and friendship the teacher shows towards students.</td>
</tr>
<tr>
<td><strong>PERSONAL GROWTH/GOAL ORIENTATION DIMENSIONS:</strong></td>
<td></td>
</tr>
<tr>
<td>Task Orientation</td>
<td>Importance of completing planned activities and sticking to the subject matter.</td>
</tr>
<tr>
<td>Competition</td>
<td>Emphasis placed on students competing with each other for grades and recognition, and the difficulty of achieving good grades.</td>
</tr>
<tr>
<td><strong>SYSTEM MAINTENANCE AND CHANGE DIMENSIONS:</strong></td>
<td></td>
</tr>
<tr>
<td>Order/Organization</td>
<td>Emphasis on students behaving in an orderly manner and on the organization of assignments and class activities.</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>Emphasis on establishing and following a clear set of rules and on students knowing what the consequences will be if they do not follow them.</td>
</tr>
<tr>
<td>Teacher Control</td>
<td>How strictly the teacher enforces rules and severity of punishment for rule infractions.</td>
</tr>
<tr>
<td>Innovation</td>
<td>How much students contribute to planning class activities, and the number of unusual and varying activities planned by the teacher.</td>
</tr>
</tbody>
</table>
alternatives to satisfy needs). These differential change reactions can be viewed as responses to different personality types or learning styles to environmental press. They may result from an incongruence between individual characteristics and the learning environment.

These dimensions and subscales were used by Moos and Trickett (1973, 1987) to develop the Classroom Environment Scales (CES) designed for junior and senior high schools to measure classroom climate. The CES is currently the most widely-used measure of classroom environment in high school classes (Walberg and Moos, 1980; Fraser, 1986). The instrument has also been used in higher education environments. Moos' dimensions are used frequently by researchers when comparing scales from different instruments designed to assess classroom climate.

This study utilized the CES Real Form to assess the classroom social climate in a community college computer literacy classes to identify if the perceptions of students and instructors are congruent on all nine subscales and what effect classroom climate perception has on class absenteeism and final course grade.

Classroom Climate Research

The two most popular procedures for assessing the classroom climate are observational systems and questionnaire
surveys. In addition to the actual instrumentation, the researcher must consider the degree of inference to be made from the data that are collected, which affects the level of inference that is demanded from the respondents or subjects (Nielsen & Kirk, 1974). Observational research was well established by the early 1960s whereas perception research was not prevalent in the literature until the mid 1960s (Chavez, 1984). Murray's Need Press Model uses the term "alpha press" in observation research to measure the environment as assessed by a detached observer. He uses the term "beta press" to describe perception research—the perceived environment of milieu inhabitants.

Advantages of student perception measures of classroom climate as compared to observational techniques are:

1. Paper and pencil perception measures are more economical than classroom observation techniques which involve the expense of trained outside observers.

2. Perception measures are based on students' experiences over many lessons, while observational data usually are restricted to a very small number of lessons.

3. Perception measures involve the pooled judgment of all students in a class, whereas observation techniques typically involve only a single observer.

4. Students' perceptions, because they are the determinants of student behavior more so than the real situations, can be more important than observed behaviors.

5. Perception measures of classroom environment typically have been found to account for considerably more variance in student learning outcomes than have directly observed variables (Walberg & Haertel, 1980; Fraser & Walberg, 1981).
Moos (1979) points out that students are a good source of information about a class because they have encountered a variety of learning environments, attended a class for several hours, and have enough time to form accurate impressions about the classroom milieu.

In fact, most of the research studies conducted on classroom environment in school settings are based upon the work of Moos, who is considered to be the leading researcher in this area (Darkenwald, 1989; Artes, 1987; Fraser, 1986).

It has only been during the past twenty years studies involving classroom social climate perceptions have been conducted. These studies have involved primary and secondary schools with only a limited number of studies conducted in higher education outside of Beer (1986), Darkenwald (1987), De Young (1977), Fraser, Treagust, and Dennis (1984), Genn (1975), Marcelo (1988), Sweeney (1988), and Sullivan (1989). The use of student perception of the actual classroom environment as predictor variables in several different countries has established a consistent relationship between the nature of the classroom environment and various cognitive and affective outcomes. (Fraser, Treagust, Dennis, 1986; Walberg, 1969).

Fraser (1986) identified five instruments which have been widely used in assessing classroom environments. The instruments are:
1. Learning Environment Inventory (LEI) by Fraser, Anderson, and Walberg designed for secondary schools based upon Getzels and Thelen's Classroom as a Social System Model.

2. Classroom Environment Scale (CES) by Moos and Trickett designed for junior and senior high schools is based upon Murray's Need-Press Model and Moos' Determinants of Classroom Climates.

3. Individualized Classroom Environment Questionnaire (ICEQ) by Fraser designed for secondary schools. The instrument was designed based upon recent individualized curriculum material, teachers' interviews, and Moos' Dimensions of Social Environments.

4. My Class Inventory (MCI) by Fraser, Anderson, and Walberg designed for primary schools is a simplification of the LEI.

5. College and University Classroom Environment Inventory (CUCEI) for use in small groups and seminars designed by Fraser, Treagust, and Dennis for college and university classrooms. The CUCEI is not suitable for use in lecture or laboratory classes and is designed based on the LEI, CES, and ICEQ.

Each of the instruments contain scales to measure different psychosocial environment classroom dimensions which have been identified by Moos (1974, 1976, 1979). The three basic types of dimensions are: 1) relationship dimension which identifies the nature and intensity of personal relationships within the environment and the extent to which people are involved in the environment and support and help each other, 2) personal development dimension which assesses the basic directions along which personal growth and self-enhancement tend to occur, and 3) system maintenance and system change dimension which involves the extent to which the
environment is orderly, clear in expectations, maintains control and is responsive to change.

Fraser (1986, p. 15) prepared the table shown in Table 2 to give an overview of scales contained in the five popular classroom environment instruments using Moos' three dimensions (relationship, personal development, system maintenance and system change) for classification.

In all except the MCI, which is designed for use in primary schools, all three of Moos' dimensions are used (relationship, personal development, and system maintenance and change).

This literature review will address research which has been conducted using perception measures involving classroom climate and will not cover observation research studies because the intent of the study is to use perception measures. As explained in this section, perception measures are currently preferred over observation measures. Also included are research studies involving the relationship between grades and absenteeism.

Included are research studies which were conducted on the secondary and higher education level. Secondary research studies are being included because of the lack of studies completed in higher education. A summary of these studies follows.
Table 2. Overview of five popular classroom environment scales Fraser, 1986, p. 15)

<table>
<thead>
<tr>
<th>INSTRUMENT LEVEL</th>
<th>ITEMS PER SCALE</th>
<th>RELATIONSHIP DIMENSIONS</th>
<th>PERSONAL DEVELOPMENT DIMENSIONS</th>
<th>SYSTEM MAINTENANCE &amp; CHANGE DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Environment Inventory (LEI)</td>
<td>7</td>
<td>Cohesiveness</td>
<td>Speed</td>
<td>Diversity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friction</td>
<td>Difficulty</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Favoritism</td>
<td>Competitiveness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cliqueness</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Apathy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Environment Scale (CES)</td>
<td>10</td>
<td>Involvement</td>
<td>Task Orientation</td>
<td>Order &amp; Organization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Affiliation</td>
<td>Competition</td>
<td>Rule Clarity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teacher Support</td>
<td></td>
<td>Teacher Control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Innovation</td>
</tr>
<tr>
<td>Individual Classroom Environment Questionnaire (ICEQ)</td>
<td>10</td>
<td>Personalization</td>
<td>Independence</td>
<td>Differentiation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Investigation</td>
</tr>
<tr>
<td>My Class Inventory (MCI)</td>
<td>Pri. 6-9</td>
<td>Cohesiveness</td>
<td>Difficulty</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Satisfaction</td>
<td>Competitiveness</td>
<td></td>
</tr>
<tr>
<td>College University Classroom Environment Inventory (CUECI)</td>
<td>College</td>
<td>7</td>
<td>Personalization</td>
<td>Task Orientation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Involvement</td>
<td>Innovation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student</td>
<td>Individualization</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cohesiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Satisfaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Satisfaction, absenteeism, & grades

Fraser, Treagust & Dennis (1984) conducted studies to identify what aspects of the classroom climate tend to be linked to student satisfaction. They surveyed 127 higher education students in ten classes using the College and University Classroom Environment Inventory (Actual and Preferred) and reported student satisfaction was highest in classes which were perceived as having high levels of student involvement in class discussions and activities, class activities were clear and well organized, and the teacher planned new, unusual class activities, teaching techniques and assignments.

Kolb and Fry (1975) identified which students learning styles may be especially important in influencing classroom environment preferences. Students who have different learning styles all may be satisfied with a particular class but for quite different reasons. Convergent thinkers generally preferred more order and structure and did not like open-ended peer discussions and group autonomy. Divergent thinkers reported open-ended unstructured homework papers and self-diagnostic activities to be helpful, and least preferred course requirements and peer interactions in class. Accommodators preferred a lack of structure, a high amount of peer interaction, and no authority figure, whereas Assimilators were most dissatisfied with just these areas, but
found activities requiring some conformity to directions or rules helpful.

De Young (1977) added the component of attendance to satisfaction. Using 59 college students in an undergraduate social science class, he investigated whether classroom climate closely approaching an "ideal" one would facilitate better course appreciation, involvement, and attendance. Students completed the Classroom Environment Scale Actual and Ideal Forms. Significantly greater appreciation of class functioning, class content, overall course appreciation and greater class attendance was identified when there was an improved congruence between real and ideal classroom climates. The study suggests social climate methodology can be a useful tool in helping an instructor understand the organizational dynamics of his/her class from the students' viewpoint.

Grades and classroom satisfaction were investigated by Sweeney (1988) to identify in what manner, and to what extent does the degree of congruence between students and teachers on one or a combination of variables (personality type, learning style, and perception of classroom environments) predict and explain student grade and satisfaction. A total of 38 students in a police academy and 4 instructors completed the Myers-Briggs (Form G), Kolb's Learning Style Inventory, and the Classroom Environment Scale (Real, Ideal, and Expected). The findings were person/environment congruence sometimes has
an impact on classroom outcomes, and that other factors such as motivation and intelligence must also be considered in assessing congruence and person/environment congruence as an ongoing process involving the creation of environments which maximize goal achievement.

Bowman's (1989) study explored the perceptions of classroom social environment of pre-adult and adult students to determine if the age integration had any effect on classroom social environment or academic achievement at a large suburban community college. The major finding was that academic achievement was highest in predominantly adult classrooms, next in mixed-age classrooms, and lowest in predominantly pre-adult classrooms.

Moos and Moos (1978) questioned if absences had any relationship to class grades. Both student and teacher perceptions were measured. Five of the nine subscales of the Classroom Environment Scale were used in the study. Students perceived classes with higher average final grades to be higher on all three relationship dimensions (involvement, affiliation, and teacher support) and on rule clarity, but lower on teacher control. Classes students saw as high in competition and teacher control and which teachers saw as low in teacher support had higher student absenteeism.
Perception congruency

Moos and Trickett (1974) questioned if students and teachers agree on the characteristics of an "ideal" classroom. The Classroom Environment Scale (Ideal Form) was administered to 608 students and 42 teachers in two high schools. They found students and teachers tend to agree on the characteristics of "ideal" class settings, except teachers want more emphasis on task orientation and rule clarity than students do. There was considerable variation among students and teachers in their conception of "ideal" learning environments in areas of task orientation (the extent to which it is important to complete activities planned and to stay on the subject matter), competition (emphasis placed on students competing with each other for grades and recognition), order and organization (emphasis on students behaving in an orderly, quiet and polite manner, and on the overall organization of classroom activities), and teacher control (the number of rules, how strictly rules are enforced, and how severely rule infractions are punished). The conclusion drawn from the study was different students want and presumably need different types of classroom environments.

Congruency research has also included differences between male and female perceptions and student and teacher perceptions of the actual and ideal classroom climate. Beer (1986) surveyed 439 adult students in a New Jersey community
college using the Adult Classroom Environment Scale. Four subscales (affiliation, involvement, teacher support, and task orientation) out of seven were used to examine perceptions of classroom social environment of returning adult students in a higher education setting to identify if differences existed between male and female students. It was hypothesized women adult students would perceive the classroom social environment to be more affiliative and characterized by a greater degree of involvement and teacher support than would male students. Men would also perceive the class to be more task oriented.

It was discovered that gender does play a difference in classroom perception. Men perceived the class to be more task oriented than women. Women perceived the class to be higher on affiliation and involvement than men. In the area of teacher support, there was found to be no significant difference between men and women. Age and the proportion of women in class did not affect perceptions, but the type of class and sex of instructor did under certain conditions.

Sullivan (1989), Darkenwald (1987), Moos & Trickett (1974) all completed studies to identify if students' and teachers' perceptions of the classroom social climate were congruent. The first two studies used the Adult Classroom Environment Scale by Darkenwald and the third the Classroom Environment Scale by Moos. In all three studies it was
discovered the classroom climate perceptions of the students and the teachers were not congruent.

Sullivan's (1989) study divided the 56 community college classes which took the ACES into a control and experimental group. The experimental group teachers received the findings of the ACES. Assuming if there was not congruency, that the teacher would make modifications to the course so that the students and their perception of the classroom would be more in agreement. After re-administering the ACES at the end of the course, it was identified there was no significant change from the previous scores obtained on the ACES. Based upon post hoc interviews with the teachers, it was learned the teachers did not use the information. It was the first time for many of the teachers to teach the course and they did not have time to utilize the information which was given to them by the researcher.

In Darkenwald's (1987) study, students in special credit classes for adults in a community college, an evening MBA program at a state university, and a community adult school completed the ACES Actual and Ideal forms and the teacher the ACES Actual form. When the means of the seven subscales were graphed, the student ideal was highest, then teacher actual, and last student actual. The subscales of affiliation and teacher support indicated the teachers perceived these dimensions as more characteristic of their classroom than did
students. Looking at other variables of age, gender, and education attainment it was discovered there was no significant relationship between age and classroom climate perceptions. The higher the level of formal education, the higher the score on each scale. Females perceived most dimensions of the actual classroom environment as being slightly negatively correlated.

Moos and Trickett (1974) also found the perceptions of high school students and teachers of an actual classroom climate were not in agreement. Like Darkenwald's study when graphed, teachers' actual mean subscale scores were higher than students' actual. When contrasting students' and teachers' perceptions of their actual and ideal class settings, students and teachers want much more emphasis on involvement, affiliation, teacher support, order and organization, and innovation than they have currently in their classes. When comparing students' perceptions of actual and ideal classroom climate, task orientation, competition, and teacher control were lower for ideal than what actually existed in the classroom. The real-ideal discrepancies for teachers are similar to those shown by students. The exceptions are teachers want more task orientation and teacher control than currently exists, whereas students want somewhat less.
When comparing selected items on the actual and ideal forms, it was discovered over 90 percent of the students would like a teacher who focuses on what students want to talk about, whereas only 57 percent felt this was true of their actual teacher. In regards to how class time is spent, 50 percent of the students felt they had little to say, whereas 85 percent want to help determine what happens in class.

Course persistence

Darkenwald and Gavin (1984) and Seivwright (1988) explored the relationship which classroom climate has with dropout and attrition. Both studies used the Classroom Environment Scale. Darkenwald and Gavin explored the relationship of dropout behavior to the social ecology of the classroom in GED classrooms. It was hypothesized adult dropouts, when compared to persisters, would exhibit a greater degree of discrepancy between initial expectations and actual experiences of the classroom social environment. The study failed to provide unequivocal support for the research hypothesis. Persisters in contrast to dropouts exhibited a statistically significant discrepancy score on the dimension of rule clarity (emphasis on clear rules, on students knowing the consequences for breaking rules, and on the teacher dealing consistently with students who break rules) thus contradicting the assumption that only dropouts would manifest
significant discrepancies. There was a statistically significant discrepancy among dropouts compared to persisters in the area of affiliation (extent to which students help each other, get to know each other easily and enjoy working together). Dropouts expected a classroom characterized by less social involvement and friendship with other students. Persisters, unlike dropouts, found rule clarity in the actual classroom to be significantly below what they had anticipated. Persisters seemed to prefer a classroom social environment characterized by greater emphasis on establishing and following a clear set of rules or expectations for student behavior.

Attrition in community college introductory accounting courses was the basis for a study by Seivwright (1988). The purpose of the research was to identify if there is a relationship between 1) motivational orientation and persistence status, 2) motivational orientation and perceptions of ideal classroom environment, 3) to compare classroom environment perceptual incongruity of dropouts and persisters, and 4) to determine the relationship between motivational orientation classroom perceptual incongruity and persistence status. It was reported that withdrawal from class could not be adequately explained by looking at motivational orientation and classroom environment perceptual incongruity. The reason identified for dropping classes was
related to conflicts with students' non-academic responsibilities.

**Achievement**

To identify the effects of classroom climate on attitude and achievement, Talton (1983) used a locally developed instrument with 1,456 tenth grade biology students. It was found that classroom climate is strongly related to attitude, but weakly associated with achievement. Attitude played an important role in mediating the influence of classroom environment on achievement.

Whether classroom climate has any influence on examination results was a question addressed by Walberg and Anderson (1972). The Learning Environment Index was given to 1,600 10th and 11th grade students in 64 classes in Montreal. Test results in eight subject areas (three science and five other courses) were used as dependent variables. Multiple regression techniques showed that the dimensions in the LEI accounted for 51% of examination achievement variance beyond that attributable to general ability. The environment-achievement relationship was found to be consistent across classes of different mean general ability, and almost constant across subject areas.

Whether the attitude of a teacher towards their students relates to the learning environment of the class, and in turn,
to the academic achievement of the students in the class was a question addressed by Bhushan (1985). The Learning Environment Inventory (LEI) was used in this study with 414 secondary school classes. If a teacher believes in strict discipline, the classroom will be formal and there will be fewer cliques in the class, and there is a possibility of increased learning in certain subject areas. If the students in the class feel the teacher is covering the material too fast, the faster the speed perception the lower the student achievement. When the teacher specifies clearly the objectives of the course, more students reached those objectives. The more a class is perceived as being disorganized, the lower the achievement level. As students have more freedom in doing learning activities, the students' learning also increases. If a student likes the subject, teacher, and classmates the greater the learning.

Subject matter

The relationship between high school subject matter and classroom climate were addressed by Anderson (1971) and Hearn & Moos (1978). The first study investigated if there is any relationship between a teacher’s gender and course content. Whereas, the second study used Holland’s occupational classification to explore the relationship between subject matter and classroom climate perceptions.
Anderson (1971) hypothesized classes in more actively prone school subjects (science, math and language) would be viewed as containing more disorganization with more interpersonal friction among classmates, cliqueness and a greater diversity of learning experiences than in humanity classes. Also, science classes would be perceived to be harder than humanity classes. The gender of the teacher was found to have no statistical significant effect on classroom climate. Math classes were seen as higher on friction, favoritism, difficulty, disorganization and cliqueness and lower on formality and goal direction. Science classes were perceived as more formal and fast-moving with less friction, favoritism, cliqueness and disorganization. Humanity classes were paced and easy when compared to classes in science and math. French classes were perceived as higher on goal direction with lower levels of friction and disorganization than other classes.

Hearn and Moos (1978) explored the relationship between high school subject matter and classroom climate perceptions. Holland’s occupational classifications were used to assign classes to types (realistic, investigative, social, conventional, enterprising, and artistic). The CES was used to measure classroom climate. Students perceived artistic type classes as emphasizing innovation and de-emphasized competition, rule clarity and teacher control. Investigative
classes emphasized task orientation and teacher control and de-emphasized involvement, affiliation and innovation.

**Grades & absenteeism research**

Studies conducted at high school and in higher education regarding the relationship between absenteeism and grades have produced conflicting results (Rozelle, 1968; McCutcheon, 1988). The outcomes varied from a positive relationship to no relationship to a negative relationship.

McCutcheon (1988, 1989) conducted studies regarding class absenteeism and academic performance at a community college. In one study she concluded that there was a negative relationship between absenteeism and course grade. This was especially true when the students were of traditional college age. In a second study she examined whether absenteeism in a single class could be used as a predictor of future college performance. The results suggested absenteeism may be viewed as a stable trait which has good, long-term, predictive power.

Kooker (1976) questioned whether a change in class attendance policies at a university resulted in a change in grade distribution. He compared the letter grade distribution of students enrolled in experimental psychology classes when an attendance policy was in effect to when there was no attendance policy. Significant differences in grade distribution before and after the introduction of the new
absence policy were found. It was concluded irregular attendance can affect performance.

Rozelle (1968) investigated the relationship between grades and attendance in secondary schools. The question the study asked was, "In secondary schools does poor attendance cause subsequent lower grades or do low grades cause subsequent poor attendance?" The findings were not conclusive in confirming or refuting the prediction, but tended to favor the assumption the direction of causation is from prior absences to lower grades.

In a study conducted by Cauley (1988) on the high school level, it was reported that attending class is an important requirement for success in school. Also, a student cannot benefit totally from an educational program if he/she does not attend class regularly, and excessive absenteeism indirectly disrupts the education of regularly attending classmates as teachers try to reteach the missed subject matter.

There have been no consistent findings as to whether there is a relationship between grades and attendance/absenteeism. Therefore, other variables must be examined to identify their relationship to course grades and attendance. This study explored students' perception of the classroom social climate to identify if there is any relationship between either absenteeism, grades, or in combination.
Conclusions

The goal of any educational institution is to maximize learning for all students who attend, regardless of their abilities and background. One way schools are addressing this issue is to identify what factors take place in a classroom which can enhance learning. One of these factors is to examine the role classroom social climate plays in the learning process.

The research summarized in this chapter has identified that what takes place in a school classroom can influence student satisfaction, persistence, and achievement.

As educators, it is necessary for us to understand the implications of these findings and make changes in our classrooms in order to better serve our students regardless of the educational level being served.

The theoretical framework of Rudolph Moos, whose work is based upon Lewin’s Field Theory and Murray’s Need/Press Model, has formed the basis for several studies involving classroom social climate. Moos is considered to be the leading researcher in this field (Artes, 1987; Darkenwald, 1989; Fraser, 1986). Moos’ Model of the Determinants of Classroom Climate was the basis for this study.

Much of the research conducted regarding classroom social climate has taken place on the elementary and secondary level.
There have been only limited studies conducted in higher education, especially in community colleges.

This study will add to the theoretical framework of classroom social climate in community colleges by assessing the perception of the classroom social climate by both students and instructors and to identify if factors such as gender, campus, day or night/Saturday class influences classroom perception. Also, to examine relationships between students' classroom social climate perception and course absenteeism and final course grade.
CHAPTER III
METHODOLOGY

This chapter explains the procedures used to examine the effects of classroom social climate perceptions of students and instructors and if there is any relationship between students' perceptions and course absenteeism and final course grade. The study was based upon Moos' Model of the Determinants of Classroom Climate and used Moos' and Trickett's Classroom Environment Scale to gather data on perceptions of the classroom social climate. Demographic data were also collected to identify if they had any effects on classroom perception, absenteeism and performance.

This chapter is organized into seven subsections:

1. Design of study
2. Sample
3. Participants in the study
4. Instrumentation
5. Data gathering
6. Data analysis
7. Summary

Design of Study

The study involved all students enrolled in COMS181--Introduction to Computer Literacy on the Ankeny and Urban campuses of the Des Moines Area Community College during the
1991 spring semester and their instructor. Data collected were as follows: 1) demographic information for both students and instructors, 2) the nine subscale scores from the Classroom Environment Scale which was given to both students and instructors, 3) attendance records of all students for the semester, and 4) final course grades for all students.

It was hypothesized that students' perception of the classroom social climate would influence their attendance and final course grade. It was also hypothesized that classroom perception would not differentiate between the different classes based upon classroom context, contextual factors, and student gender.

No attempt was made to have students who were absent the day the Classroom Environment Scale and demographic survey were administered to complete the instruments. The rationale was that since the major purpose of this study was to assess the classroom social climate, it was imperative for uniformity that the surveys be completed in the classrooms by the students and instructors at the same time during the seventh week of the class.

There was also no attempt to distinguish between excused and unexcused absences during the semester. No follow-up of students who dropped the course after the CES was administered was conducted because it was beyond the scope of this study.
Sample

The participants for this study were all students in attendance the day the survey instruments were administered in COMS181-Introduction to Computer Literacy on the Ankeny and Urban campuses of the Des Moines Area Community College during the 1991 spring semester and their instructors. There were a total of 25 classes in the study, with the class size ranging from 14-26 with the average being 20 students. The day the instruments were administered the class size ranged from 9-21 with an average of 16 students. Classes in the study were conducted during the day, evening, and on Saturday mornings. This is a three-credit course which meets four hours a week and serves as a foundation for computer programming majors as well as a required or elective course for several other majors throughout the college. The course is also taken by people for personal or professional growth.

Instructors were both full-time contracted faculty (N=6) and adjunct faculty (N=10). There were 11 male instructors and 5 female instructors in the study. Five of the full-time contracted instructors taught more then one class.

Participants in the Study

The participants in the study were students enrolled (25 sections, N=393) in COMS181-Introduction to Computer Literacy on two of the four campuses of the Des Moines Area Community
College and their instructors (N=16). DMACC has four campuses. The two campuses used in the study are in an urban setting and are larger and more homogeneous than the other two campuses, which are small and in a rural environment. The Ankeny Campus represented 57% of the students surveyed and the Urban Campus 43%. Both student and instructor participation were voluntary. Only four people refused to participate in the study.

Female students comprised 55% of the sample. Most of the students were single (56%) and had no children (60%). The educational background of the students were as follows: 8% GED, 67% a high school diploma, 12% a vocational certificate/diploma, 5% a two-year college degree, 6% a bachelors degree, and 1% had received a post graduate degree. The largest age group were students 19 years of age (14%). The sample consisted of 49% who were 24 years of age or younger.

The employment status of the students regarding number of hours worked in a week ranged from none to over 40 hours. There were 23% who were not employed and 20% who worked 36-40 hours per week.

A majority of the students (54%) were taking the course as an elective, were full-time students (54%), and enrolled for the first time (34%) at DMACC. The highest percent
attended classes during both the morning and afternoon (28%), with 26% attending only at night.

The current occupational goals of the students were; desire to complete an occupational program (46%); complete a liberal arts program (25%); and to take courses, but not complete a program at DMACC (29%).

Of the sixteen instructors, five were female. One instructor had a two-year college degree, seven had a bachelors, seven had masters, and one had a Ph. D. A majority (63%) were adjunct faculty. Years of teaching experience at the post-secondary level ranged from 1 to 23 years, with 10 years (25%) being the most frequent. Actual work experience in the data processing field ranged from 1 to 25 years with 10 years (18%) being the most frequent.

A summary of the demographic data for both students and instructors can be found in Appendix B and Appendix C.

Instrumentation

Instrumentation used in this study included the Classroom Environment Scale Real Form developed by Moos and Trickett in 1974, and demographic data pertinent to the hypotheses. The CES was a purchased instrument from Consulting Psychologist Press, Inc. in Palo Alto, California. The CES was selected for use in this study because it has been widely used in assessing the classroom climate in educational settings and
has undergone testing to insure validity and reliability. The CES’s theoretical foundation is based on Murray’s (1938) concept of needs press.

The CES has been used in research studies in higher education institutions, even though it was designed to be used in junior and senior high school environments. The researcher was not able to identify a reliable and valid instrument to assess the classroom social environments in higher education.

The CES is a 90-item paper and pencil, self-report instrument used to gather student and teacher perceptions of the classroom social climate. The scale focuses on teacher-student, student-student relationships, and on classroom organizational structure (Moos & Trickett, 1974). It also assesses the impact which student and teacher characteristics, organizational factors, physical features and subject matter has on the classroom climate. There are three forms: Real Form, Ideal Form, and Expectations Form. This study used the Real Form.

The Classroom Environment Scale by Moos and Trickett (1974) was chosen for this study because it has been used extensively in previous research to collect data from classroom participants and is theory based.

The CES was developed initially using 242 items based upon classroom observations and interviews with students, teachers, and administrators. After using several forms in 71
high school classrooms, items were dropped that did not correlate sufficiently with others on their assigned subscales, correlated too highly with other subscales, or did not differentiate classrooms. Eighty of the 90 final items correlated .40 or above with their subscale, 87 items differentiated among classrooms at the .05 level, and 74 items were characteristic of nonextreme classrooms.

The CES Real Form was standardized on students from 382 classrooms and teachers from 295 classrooms from 218 general high schools, 97 vocational high schools, 40 alternative and/private high schools and 27 junior high schools.

The Classroom Environment Scale consists of nine subscales that address three major domains of the social climate. Using the Kuder-Richardson Formula-20, subscale internal consistency calculated for 22 classrooms (N=465) range from .67 to .86 with six of the subscales being above .80. Average item to subscale correlations range around .50. Subscale intercorrelations range from .00 to .49 with the mean = .27 and approximately one third were over .40 suggesting that some of the scales are measuring distinct aspects of classroom environments while others are somewhat related.

Construct validity has been demonstrated in a number of studies that found strong CES subscale associations with classroom observation and teacher interview data. The nine subscales, when related to the three dimensions, have found
the items to cluster on three to six factors (*Tenth Mental Measurement Yearbook*, 1989).

Six week subscale test/retest reliability for groups ranges from an upper level of \( r = .86 \) for Teacher control to a lower level of \( r = .72 \) for Competition. On individual scores test/retest reliabilities range from a low of \( r = .72 \) on Rule Clarity to a high of \( r = .90 \) for Innovation (Moos & Trickett, 1987).

Demographic data were also collected from the students and instructors involved in the study by instruments designed by the researcher and are found in Appendix D and Appendix E.

Data Gathering

The researcher was provided class lists for all COMS181—Introduction to Computer Literacy classes offered during the spring 1991 semester on both the Ankeny and Urban campuses of the Des Moines Area Community College.

A memo was sent to each of the instructors prior to the beginning of the semester explaining 1) the study, 2) role of instructor in the study, and 3) how data would be collected. See Appendix G for a copy of the memo. A personal contact was also made by the researcher to each instructor since all participation was voluntary to ascertain their willingness to participate and to answer any questions.
Each instructor started keeping class attendance beginning the tenth day of the semester. The first two weeks of class traditionally result in students adding or dropping classes. There was no differentiation made for excused and unexcused absences. Also, a student’s attendance can not be used in computing their final grade.

The Classroom Environment Scale Real Form by Moos and Trickett (1974) was administered by the researcher or an associate to all students in attendance during the seventh week of a fifteen-week class in COMS181—Introduction to Computer Literacy and their instructor on the Ankeny and Urban campuses of the Des Moines Area Community College. By waiting until the seventh week it allowed the class an opportunity to develop a classroom social climate. At the same time, a demographic survey was administered to each student and instructor. The statement to participants explaining the study is found in Appendix H.

At the end of the semester, instructors submitted their final course grade sheet showing grade and the number of absences during the semester for each student.

Data Analysis

Statistical analyses were applied to all of the data which were collected. The statistical tests used were t-test
for independent samples, t-test for dependent samples, correlation, and multiple regression. The Statistical Package for the Social Sciences (SPSS-X) was used to analyze the data.

To test hypothesis 1, a t-test for dependent samples (paired-t) was used. The function of this test was to identify if the nine subscale scores obtained from the Classroom Environment Scale, which was completed by students and instructors, were congruent.

A paired-t compares the sample means of two variables with each other and tests the significance of the difference between the means. In this case it compared the students' mean subscores (N=25 sections) with instructors' mean subscores (N=25 sections) for each of the nine scales on the Classroom Environment Scale.

To test hypotheses 2 and 3, a t-test for independent samples was utilized. Hypothesis 2 compared the mean subscale scores on the CES between day (N=16 sections) and evening/Saturday (N=9 sections) students. Hypothesis 3 compared the means by campus location. There were 14 sections on the Ankeny Campus and 9 sections on the Urban Campus.

Hypothesis 4 tested whether CES subscores differed by student gender. A t-test for dependent samples (paired-t) was used.

To test Hypotheses 5 & 6, a correlation technique was used. Correlation indicates the degree of relationship
between two variables. The size of the correlation coefficient is affected by the homogeneity of the scores on the variables. A correlated coefficient can take on any value between -1.0 and +1.0. A plus sign indicates a positive relationship, and a minus sign a negative relationship. If there is no relationship between variables, the correlation coefficient is zero.

Multiple regression techniques were used for hypotheses 7 and 8. In multiple regression a single criterion variable and multiple predictor variables are used. The criterion variables were absentee rate and final course grade. The predictor variables were the nine CES subscale scores and student age.

Summary

This chapter has outlined the methods and procedures followed in carrying out this research project and in collecting and analyzing the data.

The data analyses involved the use of t-tests for dependent and independent samples, correlation, and multiple regression techniques to examine if there is a relationship between factors such as gender, campus, day or night/Saturday class and classroom social climate. Also, if there is any relationship between students' CES subscale scores and course absenteeism and final course grade.
CHAPTER IV
DATA ANALYSIS

Introduction

The purpose of the chapter is to present the findings of this research project. The study examined students' and instructors' perceptions of the classroom social climate, students' course absenteeism, and students' final course grade to identify if there are any interrelationships.

Participants in this study were students and instructors in the 25 sections of COMS181—Introduction to Computer Literacy during the 1991 spring semester at the Ankeny and Urban campuses at the Des Moines Area Community College. Data collected during the study were demographic information, Classroom Environment Scale subscores, course absenteeism, and final course grades.

Demographic Data

Students

The population surveyed consisted of 25 sections, 14 (N=224 students) were on the Ankeny campus and 11 (N=170 students) on the Urban campus. Fifty-five percent of the respondents were female. Forty-nine percent of the students were between the ages of 17 and 24. A majority of the respondents (56%) were single, highest educational level was a GED/high school diploma (76%), and were enrolled as full-time
students (54%). Only 23% were not employed while enrolled in the course.

Fifty-four percent of the students were taking the course as an elective. Fifty-four percent were enrolled as full-time students with 12 credits or more. The educational goals of participants were to complete an occupational program (46%), complete a liberal arts program (25%), take courses and not complete a program (29%). See Appendix B for a complete listing of student demographic data.

Instructors

There were 16 instructors for the 25 sections, of which 11 were male and five female. Ten were adjunct faculty and six were full-time contracted faculty. All instructors were between the ages of 32 and 55 with 50% having at least a masters degree or higher. They all had prior teaching experience and had work experience in the area of computers. See Appendix C for a complete listing of instructor demographic data.

Hypothesis 1

There will be a significant (p < .05) incongruity between instructors and students on the nine CES subscores.

To test this hypothesis a t-test for dependent samples (t-test pairs) was used. For each of the 25 sections, the students' mean scores were calculated for each of the nine
Classroom Environment subscales. Scores for each scale ranged from 0-10. These were then paired with the instructors' CES scores. The standard deviation of students was based upon the means for the class. The results are shown in Table 3.

There was a statistically significant difference in the following subscales: Involvement, Affiliation, and Teacher Control. In all of these subscales the means were higher for students than teachers. Innovation was the only subscale in which the mean score was higher for instructors than students, but it was not statistically significant. Figure 2 shows a line graph plotting the means for both students' and instructors' CES subscale scores.

Moos and Trickett (1987, p. 11) have published norms for business and technical classes for the Classroom Environment Scale. Appendix I shows both the norms and the corresponding findings from this study. However, these norms may not be consistent with adult learning theory or the findings in this research study.

Since only three of the nine CES subscales were found to be significantly different, the hypothesis stating there will be a significant incongruity between instructors and students on the CES is not corroborated.
Table 3. T-test pairs for students' and instructors' means on the Classroom Environment Scale (N=25 sections)

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Mean</th>
<th>Mean</th>
<th>SD</th>
<th>SD</th>
<th>T-Value</th>
<th>One-Tail Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Student</td>
<td>Instructor</td>
<td>Student</td>
<td>Instructor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>7.408</td>
<td>6.560</td>
<td>.811</td>
<td>2.274</td>
<td>1.96</td>
<td>.031*</td>
</tr>
<tr>
<td>Affiliation</td>
<td>6.331</td>
<td>5.280</td>
<td>.862</td>
<td>2.670</td>
<td>1.84</td>
<td>.039*</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>8.035</td>
<td>7.960</td>
<td>.918</td>
<td>1.541</td>
<td>.28</td>
<td>.390</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>7.993</td>
<td>7.680</td>
<td>.774</td>
<td>1.930</td>
<td>.76</td>
<td>.228</td>
</tr>
<tr>
<td>Competition</td>
<td>5.176</td>
<td>4.760</td>
<td>.548</td>
<td>1.451</td>
<td>1.37</td>
<td>.091</td>
</tr>
<tr>
<td>Order &amp; Organization</td>
<td>8.438</td>
<td>8.080</td>
<td>.952</td>
<td>1.605</td>
<td>1.08</td>
<td>.146</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>7.370</td>
<td>6.920</td>
<td>.884</td>
<td>2.482</td>
<td>.86</td>
<td>.199</td>
</tr>
<tr>
<td>Teacher Control</td>
<td>3.882</td>
<td>2.800</td>
<td>.721</td>
<td>2.000</td>
<td>2.66</td>
<td>.007**</td>
</tr>
<tr>
<td>Innovation</td>
<td>5.048</td>
<td>5.240</td>
<td>.800</td>
<td>1.739</td>
<td>-.52</td>
<td>.304</td>
</tr>
</tbody>
</table>

* Significant at the .05 level.
** Significant at the .01 level.
Hypothesis 2

There will be no significant difference \((p < .05)\) on the nine CES subscores between classes conducted during the day and evening/Saturday classes.

There were 16 day classes, 7 evening classes, and two Saturday classes. A t-test for independent samples (t-test groups) was used to test this hypothesis with the results shown in Table 4. The statistic to test if the two population variances are equal is the F value. If the F value is
Table 4. T-test groups for Classroom Environment Scale means of day and evening/Saturday classes (N=16 day; N=9 evening/Saturday)

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Mean</th>
<th>Pooled Variance</th>
<th>Separate Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Night/</td>
<td>F-</td>
<td>2-Tail</td>
</tr>
<tr>
<td>Involvement</td>
<td>7.186 7.803</td>
<td>1.21</td>
<td>.715</td>
</tr>
<tr>
<td>Affiliation</td>
<td>6.439 6.140</td>
<td>5.12</td>
<td>.007</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>7.794 8.462</td>
<td>1.31</td>
<td>.726</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>8.026 7.936</td>
<td>2.91</td>
<td>.071</td>
</tr>
<tr>
<td>Competition</td>
<td>5.400 4.777</td>
<td>1.86</td>
<td>.286</td>
</tr>
<tr>
<td>Order &amp; Organization</td>
<td>8.266 8.745</td>
<td>1.69</td>
<td>.461</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>7.384 7.344</td>
<td>1.73</td>
<td>.438</td>
</tr>
<tr>
<td>Teacher Control</td>
<td>4.021 3.633</td>
<td>1.08</td>
<td>.960</td>
</tr>
<tr>
<td>Innovation</td>
<td>5.052 5.041</td>
<td>1.03</td>
<td>.917</td>
</tr>
</tbody>
</table>

* Significant at .05 level.
** Significant at .01 level.
significant, the assumption the population variances are equal is rejected and the separate variance t-test for means is used instead of the pooled variance t-test.

The Affiliation subscale F value was significant; therefore, the separate estimate of variance was used for this subscale. A significant difference was shown in the Competition subscale. An examination of the means reveals day students felt there was more competition in day classes than students in the evening/Saturday classes.

In summary, when comparing all nine subscales of the Classroom Environment Scale between day and evening/Saturday classes there was a significant difference in only one of the subscale mean scores. Therefore, the hypothesis that day and evening/Saturday classes will perceive the classroom social climate the same is rejected.

Hypothesis 3

There will be no significant difference (p < .05) in scores on the Classroom Environment Scale between the two campuses.

Of the 25 sections, 14 were on the Ankeny campus and 11 were on the Urban campus with day and evening/Saturday classes being conducted on both campuses. The t-test for independent samples (t-test groups) was used to test this hypothesis. See Table 5 for results.
Table 5. T-test groups by campus on the Classroom Environment Scale (N=14 sections Ankeny Campus; N=11 sections Urban Campus)

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Mean Ankeny</th>
<th>Mean Urban</th>
<th>F-Value</th>
<th>2-Tail Prob.</th>
<th>2-Tail Pooled Variance T-Value</th>
<th>2-Tail Separate Variance T-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>7.343</td>
<td>7.490</td>
<td>5.36</td>
<td>.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliation</td>
<td>6.530</td>
<td>6.078</td>
<td>1.60</td>
<td>.419</td>
<td>1.32</td>
<td>.200</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>8.128</td>
<td>7.916</td>
<td>2.22</td>
<td>.211</td>
<td>.57</td>
<td>.577</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>7.832</td>
<td>8.198</td>
<td>1.14</td>
<td>.812</td>
<td>-1.18</td>
<td>.249</td>
</tr>
<tr>
<td>Competition</td>
<td>4.910</td>
<td>5.514</td>
<td>1.30</td>
<td>.692</td>
<td>-3.22</td>
<td>.004**</td>
</tr>
<tr>
<td>Order &amp; Organization</td>
<td>8.380</td>
<td>8.514</td>
<td>1.90</td>
<td>.277</td>
<td>- .34</td>
<td>.735</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>7.199</td>
<td>7.587</td>
<td>1.31</td>
<td>.678</td>
<td>-1.09</td>
<td>.286</td>
</tr>
<tr>
<td>Teacher Control</td>
<td>3.942</td>
<td>3.805</td>
<td>1.17</td>
<td>.775</td>
<td>.46</td>
<td>.648</td>
</tr>
<tr>
<td>Innovation</td>
<td>5.354</td>
<td>4.659</td>
<td>2.76</td>
<td>.114</td>
<td>2.35</td>
<td>.028*</td>
</tr>
</tbody>
</table>

* Significant at .05 level.
** Significant at .01 level.
The statistic to test if the two population variances are equal is the F value. If the F value is significant, the assumption of population variances being equal is rejected and the separate variance t-test for means is used instead of the pooled variance t-test. The subscale of Involvement was significant; therefore, the separate estimate of variance was used for that subscale. The subscale means of Innovation and Competition were found to be significantly different. An examination of the means between the two groups indicates the Ankeny campus students perceived their classes higher in the area of innovation while the Urban campus students felt a higher degree of competition than Ankeny students.

A crosstabulation showed that at the Ankeny campus there were 59% traditional students and 41% nontraditional students. The Urban Campus had 37% traditional students and 63% nontraditional students.

In summary, when comparing all nine scales of the Classroom Environment Scale by Campus, there was a significant difference in some of the subscale mean scores. Therefore, the hypothesis there will be no difference in classroom social climate perception between classes conducted on the two campuses is rejected.
Hypothesis 4

Females will perceive the classroom social climate (p < .05) to be more Affiliative and characterized by a greater degree of Involvement and Teacher Support and lower Task Orientation than male students on the CES.

To test this hypothesis a t-test for dependent samples was used. The means for females and males for each of the 25 sections were calculated. There were 216 females and 177 males. The results are shown in Table 6.

The subscales of Involvement and Teacher Support were found to be significant. Females did perceive these two areas to be higher than males. There was no significant difference found for the CES subscales of Affiliation and Task Orientation. Therefore, the hypothesis is partially supported.

Hypothesis 5

Classes with higher grade averages are positively related (p < .05) to the CES subscales of Involvement, Affiliation, and Teacher Support and negatively (p < .05) related to Competition and Teacher Control.

Pearson Product Moment Correlation Coefficients were used to test this hypothesis. The mean grade and the mean subscale score on the CES for each section was used in the analysis. Mean class grades ranged from 2.2 to 3.333 with an average of
Table 6. T-test pairs for Classroom Environment Scale by gender (N=25 sections)

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Mean Females</th>
<th>Mean Males</th>
<th>SD Females</th>
<th>SD Males</th>
<th>T-Value</th>
<th>One-Tail Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>7.705</td>
<td>7.227</td>
<td>.880</td>
<td>1.195</td>
<td>1.71</td>
<td>.050*</td>
</tr>
<tr>
<td>Affiliation</td>
<td>6.410</td>
<td>6.184</td>
<td>1.131</td>
<td>1.005</td>
<td>.81</td>
<td>.213</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>8.261</td>
<td>7.934</td>
<td>.958</td>
<td>.978</td>
<td>1.76</td>
<td>.046*</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>8.103</td>
<td>7.880</td>
<td>.881</td>
<td>.881</td>
<td>1.51</td>
<td>.072</td>
</tr>
<tr>
<td>Competition</td>
<td>5.167</td>
<td>5.110</td>
<td>.638</td>
<td>.688</td>
<td>.38</td>
<td>.355</td>
</tr>
<tr>
<td>Order &amp; Organization</td>
<td>8.443</td>
<td>8.473</td>
<td>.969</td>
<td>1.091</td>
<td>- .19</td>
<td>.427</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>7.467</td>
<td>7.317</td>
<td>.953</td>
<td>1.200</td>
<td>.57</td>
<td>.288</td>
</tr>
<tr>
<td>Teacher Control</td>
<td>3.775</td>
<td>4.102</td>
<td>.928</td>
<td>1.043</td>
<td>-1.36</td>
<td>.094</td>
</tr>
<tr>
<td>Innovation</td>
<td>5.032</td>
<td>5.125</td>
<td>1.062</td>
<td>.929</td>
<td>- .50</td>
<td>.312</td>
</tr>
</tbody>
</table>

* Significant at .05 level.
2.951. The scale used was: A=4 points, B=3 points, C=2 points, D=1 point, F=0 points.

Table 7 shows the correlation coefficients. All coefficients indicate a low correlation. The subscales of Involvement (.2580) and Teacher Support (.4652) show a positive correlation. A negative correlation is indicated for Affiliation (-.1217). It was hypothesized that all three scales would show a positive correlation. Teacher support was the only subscale which was significant.

Table 7. Correlation for grades and selected CES subscores

<table>
<thead>
<tr>
<th></th>
<th>Involvement</th>
<th>Affiliation</th>
<th>Teacher Support</th>
<th>Competition</th>
<th>Teacher Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>.2580</td>
<td>-.1217</td>
<td>.4652**</td>
<td>-.0676</td>
<td>.0751</td>
</tr>
</tbody>
</table>

**Significant at .01 level.

Competition (-.0676) was found to be negatively correlated, and Teacher Control (.0751) was positively related. A negative correlation was hypothesized for both subscales.

An examination of the remaining CES subscales which were not incorporated in the hypothesis, showed a positive correlation with the subscale of Order and Organization having a significant positive correlation of .4247.
In summary, the hypothesis that the subscales of Involvement, Affiliation, and Teacher Support are positively related to higher average class grade and Competition and Teacher Control are negatively related is falsified.

Hypothesis 6

Classes with higher absentee rates are positively related to Competition and Teacher Control (p < .05) on the CES subscales and negatively (p < .05) related to Involvement, Affiliation, and Teacher Support.

Pearson Product Moment Correlation Coefficients were used to test this hypothesis. For each of the 25 sections the mean absentee rate was calculated which had a range from 2.588 to 21.231 hours with an average of 7.704 hours missed per student. The maximum number of class hours were 60.

Table 8 shows the correlations. Both Competition (-.2793) and Teacher Control (-.1431) were negatively correlated to absenteeism, but were not significant. It was hypothesized they would be positively correlated.

Involvement (-.1611) and Teacher Support (-.1030) were negatively correlated while Affiliation (.0720) was positively correlated, but were not significant. All three scales were hypothesized to be negatively correlated to absenteeism.
Table 8. Correlation for absenteeism and selected CES subscores

<table>
<thead>
<tr>
<th>Involvement</th>
<th>Affiliation</th>
<th>Teacher Support</th>
<th>Competition</th>
<th>Teacher Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>-.1611</td>
<td>.0720</td>
<td>-.1030</td>
<td>-.2793</td>
</tr>
</tbody>
</table>

An examination of the remaining CES subscales not indicated in the hypothesis, showed that they all had a negative correlation except for the scale of Innovation which was positive. The scale of Rule Clarity had a significant negative correlation of -.4170.

This hypothesis is not supported.

Hypothesis 7

There is a significant predictive (p < .05) relationship between student scores on the Classroom Environment Scale, student age, and absentee rate.

A multiple regression technique was used to test this hypothesis. Table 9 shows the analysis of variance and Table 10 contains the results of the multiple regression. Using stepwise selection of the independent variables, the best predictor variables were age and the CES subscale of
Competition. However, these two variables accounted for only 5.5% of the variance. Therefore, to increase predictability, other variables may need to be included.

Table 9. Analysis of variance for absenteeism as a dependent variable and the CES and student age as independent variables

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>ADJUSTED R SQUARE</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>1861.258</td>
<td>930.629</td>
<td>.055</td>
<td>11.469**</td>
</tr>
<tr>
<td>Residual</td>
<td>359</td>
<td>291303.716</td>
<td>81.144</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Significant at the .01 level.

Hypothesis 8

There is a significant predictive (p < .05) relationship between student scores on the Classroom Environment Scale, student age, and final course grade.

A multiple regression technique was used to test this hypothesis. Using stepwise selection of the independent variables, the best predictor variables were age and the CES subscales of Order and Organization, Affiliation, and Teacher Support. However, these four variables accounted for only 8.1% of the variance as shown in Table 11 and Table 12. Therefore, this seems hardly sufficient to place any importance on the CES and student age in predicting final course grade.
### Table 10. Stepwise multiple regression for dependent variable of absenteeism with CES and age

<table>
<thead>
<tr>
<th>Independent</th>
<th>B Raw</th>
<th>B Standardized</th>
<th>Adjusted R2</th>
<th>R2 Increment</th>
<th>T-Value</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.212</td>
<td>-.209</td>
<td>.040</td>
<td>-4.084</td>
<td>.000**</td>
<td></td>
</tr>
<tr>
<td>Competition</td>
<td>-.789</td>
<td>-.131</td>
<td>.055</td>
<td>.015</td>
<td>-2.562</td>
<td>.011*</td>
</tr>
</tbody>
</table>

* Significant at the .05 level.
** Significant at the .01 level.
Table 11. Analysis of variance for final course grade as a dependent variable and CES subscores and age as independent variables

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>R SQUARE</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>41.367</td>
<td>10.342</td>
<td>.081</td>
<td>8.968**</td>
</tr>
<tr>
<td>Residual</td>
<td>358</td>
<td>412.837</td>
<td>1.165</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Significant at the .01 level.

Unplanned Post Hoc Analyses

Traditional vs nontraditional students

After looking at the findings, the researcher wondered if the CES subscale scores would differentiate between traditional and nontraditional students. A t-test for independent samples was used to test if the means of traditional age students (24 and under N=192) and nontraditional age students (25 and over N=196) were equal on all nine subscales of the CES. Five of the nine subscales as shown in Table 13 were found to be significantly different. They were Involvement, Teacher Support, Task Orientation, Order and Organization, and Rule Clarity.

Grades, absenteeism, CES, & other variables

Age and the CES subscores were used as predictor variables to identify if they could be used to predict student absentee rate and final course grade in two of the hypotheses. The
Table 12. Stepwise multiple regression for dependent variable of grade with CES and age

<table>
<thead>
<tr>
<th>Independent</th>
<th>B Raw</th>
<th>B Standardized</th>
<th>Adjusted R²</th>
<th>R² Increment</th>
<th>T-Value</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.022</td>
<td>.178</td>
<td>.045</td>
<td>.013</td>
<td>3.441</td>
<td>.001**</td>
</tr>
<tr>
<td>Order &amp; Organization</td>
<td>.072</td>
<td>.114</td>
<td>.058</td>
<td>.013</td>
<td>2.160</td>
<td>.031*</td>
</tr>
<tr>
<td>Affiliation</td>
<td>-.073</td>
<td>-.157</td>
<td>.072</td>
<td>.014</td>
<td>-2.988</td>
<td>.003**</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>.075</td>
<td>.035</td>
<td>.081</td>
<td>.009</td>
<td>2.129</td>
<td>.034**</td>
</tr>
</tbody>
</table>

* Significant at the .05 level.
** Significant at the .01 level.
Table 13. T-test groups by traditional (N=192) and nontraditional (N=196) age students

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Mean Trad.</th>
<th>Mean Non-Trad.</th>
<th>F-Value</th>
<th>2-Tail Prob.</th>
<th>Pooled Variance</th>
<th>Separate Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>7.343</td>
<td>7.490</td>
<td>5.36</td>
<td>.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIinvolvement</td>
<td>6.979</td>
<td>7.852</td>
<td>1.41</td>
<td>.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliation</td>
<td>6.380</td>
<td>6.184</td>
<td>1.12</td>
<td>.438</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Support</td>
<td>7.682</td>
<td>8.434</td>
<td>1.63</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Orientation</td>
<td>7.766</td>
<td>8.199</td>
<td>1.29</td>
<td>.080</td>
<td>-2.55</td>
<td>.011**</td>
</tr>
<tr>
<td>Competition</td>
<td>5.073</td>
<td>5.189</td>
<td>1.13</td>
<td>.403</td>
<td>-.75</td>
<td>.456</td>
</tr>
<tr>
<td>Order &amp; Organization</td>
<td>8.219</td>
<td>8.730</td>
<td>1.73</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>6.781</td>
<td>7.913</td>
<td>1.47</td>
<td>.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Control</td>
<td>3.771</td>
<td>3.975</td>
<td>1.24</td>
<td>.132</td>
<td>-.89</td>
<td>.373</td>
</tr>
<tr>
<td>Innovation</td>
<td>5.063</td>
<td>4.944</td>
<td>1.13</td>
<td>.393</td>
<td>.61</td>
<td>.545</td>
</tr>
</tbody>
</table>

** Significant at .01 level.
findings indicated that there was a weak relationship. The researcher wondered if other predictor variables were added, how they would influence the criterion variables of absenteeism and final course grade.

As shown in Table 14, a multiple-regression technique using the inclusive method was applied to enter the predictor variables of age, gender, classification (full- or part-time student), course grade or absenteeism rate, and CES subscores with the criterion variables of student grade and absentee

Table 14. Inclusive multiple regression for dependent variable of grade with age, gender, classification, absenteeism, and CES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation Coefficient</th>
<th>Multiple Correlation</th>
<th>R²</th>
<th>R² Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.215</td>
<td>.215</td>
<td>.046</td>
<td>---</td>
</tr>
<tr>
<td>Gender</td>
<td>-.086</td>
<td>.227</td>
<td>.052</td>
<td>.006</td>
</tr>
<tr>
<td>Classification</td>
<td>.085</td>
<td>.227</td>
<td>.052</td>
<td>.000</td>
</tr>
<tr>
<td>Absenteeism</td>
<td>-.598</td>
<td>.607</td>
<td>.368</td>
<td>.316</td>
</tr>
<tr>
<td>Order &amp; Organ.</td>
<td>.159</td>
<td>.613</td>
<td>.376</td>
<td>.008</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>.139</td>
<td>.616</td>
<td>.379</td>
<td>.003</td>
</tr>
<tr>
<td>Affiliation</td>
<td>-.123</td>
<td>.636</td>
<td>.404</td>
<td>.025</td>
</tr>
<tr>
<td>Involvement</td>
<td>.071</td>
<td>.637</td>
<td>.406</td>
<td>.002</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>.038</td>
<td>.640</td>
<td>.409</td>
<td>.003</td>
</tr>
<tr>
<td>Competition</td>
<td>.033</td>
<td>.640</td>
<td>.410</td>
<td>.001</td>
</tr>
<tr>
<td>Task Orient.</td>
<td>.032</td>
<td>.641</td>
<td>.411</td>
<td>.001</td>
</tr>
<tr>
<td>Teacher Control</td>
<td>-.011</td>
<td>.643</td>
<td>.414</td>
<td>.003</td>
</tr>
<tr>
<td>Innovation</td>
<td>.011</td>
<td>.646</td>
<td>.417</td>
<td>.003</td>
</tr>
</tbody>
</table>
rate. When grade was used as the dependent variable, 42% of the variance in student grade could be explained by the variance of the combined predictor variables. Absenteeism accounted for 32% of the variance, with the other variables accounting for the other 10%.

When absentee rate was the dependent variable, 40% of the variance could be attributed to the predictor variables as shown in Table 15. Thirty-two percent was attributed to course grade.

Table 15. Inclusive multiple regression for dependent variable of absenteeism with age, gender, classification, grade, and CES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation Coefficient</th>
<th>Multiple Correlation</th>
<th>$R^2$</th>
<th>$R^2$ Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.209</td>
<td>.209</td>
<td>.044</td>
<td>---</td>
</tr>
<tr>
<td>Gender</td>
<td>.050</td>
<td>.213</td>
<td>.045</td>
<td>.001</td>
</tr>
<tr>
<td>Classification</td>
<td>-.082</td>
<td>.213</td>
<td>.045</td>
<td>.000</td>
</tr>
<tr>
<td>Grade</td>
<td>-.598</td>
<td>.603</td>
<td>.364</td>
<td>.319</td>
</tr>
<tr>
<td>Competition</td>
<td>-.127</td>
<td>.613</td>
<td>.376</td>
<td>.012</td>
</tr>
<tr>
<td>Order &amp; Organ.</td>
<td>-.105</td>
<td>.614</td>
<td>.376</td>
<td>.000</td>
</tr>
<tr>
<td>Innovation</td>
<td>.083</td>
<td>.618</td>
<td>.382</td>
<td>.006</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>-.083</td>
<td>.619</td>
<td>.384</td>
<td>.002</td>
</tr>
<tr>
<td>Involvement</td>
<td>-.089</td>
<td>.620</td>
<td>.385</td>
<td>.001</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>-.068</td>
<td>.621</td>
<td>.385</td>
<td>.000</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>-.065</td>
<td>.621</td>
<td>.385</td>
<td>.000</td>
</tr>
<tr>
<td>Teacher Control</td>
<td>.056</td>
<td>.624</td>
<td>.389</td>
<td>.004</td>
</tr>
<tr>
<td>Affiliation</td>
<td>-.004</td>
<td>.631</td>
<td>.398</td>
<td>.009</td>
</tr>
</tbody>
</table>
Class meeting frequency

The classes in the study met for a total of four hours each week. The frequency of class meetings varied from one to four times a week. The study compared day classes which met from two to four times a week, with evening/Saturday classes which met one time a week. Competition was the subscale which was found significantly different. It was decided to see if there was any difference based upon the number of class sessions per week.

A one-way analysis of variance (ANOVA) was applied using the class meeting frequency (One N=9; Two N=4; Three N=2; Four N=10) during the week and each student subscale score instead of the class mean. Due to the small number of sections which met three times a week, they were included with the classes that met two times a week. The subscales of Involvement, Teacher Support, Competition, and Order and Organization were found to be significant as shown in Table 16. The Scheffe post hoc comparison test was used to identify which groups were significantly different. On all four scales the classes which met three to four times a week were significantly different from the ones which met once a week. For the scales of Order and Organization and Teacher Support, classes that met four times a week were different from those meeting once, twice, or three times a week.
Table 16. Oneway analysis of variance for Classroom Environment Scale and course frequency

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F-Ratio</th>
<th>F-Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>Between</td>
<td>36.386</td>
<td>2</td>
<td>18.193</td>
<td>4.521</td>
<td>.012*</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>1,569.339</td>
<td>390</td>
<td>4.024</td>
<td>.386</td>
<td>.339</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,605.725</td>
<td>392</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Support</td>
<td>Between</td>
<td>52.377</td>
<td>2</td>
<td>26.188</td>
<td>8.389</td>
<td>.000**</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>1,217.501</td>
<td>390</td>
<td>3.122</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,269.878</td>
<td>392</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competition</td>
<td>Between</td>
<td>31.916</td>
<td>2</td>
<td>15.958</td>
<td>7.071</td>
<td>.001*</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>880.105</td>
<td>390</td>
<td>2.257</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>912.020</td>
<td>392</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Order &amp; Organization</td>
<td>Between</td>
<td>38.785</td>
<td>2</td>
<td>19.393</td>
<td>7.376</td>
<td>.000**</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>1,025.388</td>
<td>390</td>
<td>2.629</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,064.173</td>
<td>392</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at .05 level.
** Significant at .01 level.
Summary

This chapter has presented the findings of the statistical analyses used to test each of the eight hypotheses plus unplanned post hoc analyses. The findings only partially supported the hypotheses and raised questions for further exploration. Chapter V will discuss the implications of the findings in further detail.

Hypothesis 1 stated there would be a significant incongruity between instructors and students on the nine CES subscores. The three subscales of Involvement, Affiliation, and Teacher Control were found to be significant.

Day students felt there was more competition in their classes than evening/Saturday students. Hypothesis 2 predicted there would be no difference in perception between day and evening/Saturday classes.

Hypothesis 3 predicted there would be no difference in perception between the two campuses. The CES subscales of Innovation and Competition were found to be different between the two campuses.

Gender did influence perception of the classroom social climate, but only partially supported hypothesis 4. The CES subscales of Involvement and Teacher Support were perceived to be significantly different by females than males. However, there was no significant difference found in the subscales of Affiliation and Task Orientation.
Hypothesis 5 predicted on the CES subscales of Involvement, Affiliation, and Teacher Support there would be a positive relationship to higher class grade average, while Competition and Teacher Control would be negatively related. A negative correlation was found for Affiliation, while Teacher Control indicated a positive correlation. Therefore, the hypothesis was not fully supported.

Class absenteeism and the CES subscales of Competition and Teacher Control were predicted to be positively related while Involvement, Affiliation, and Teacher Support were predicted to be negatively related in Hypothesis 6. Competition and Teacher Control were found to be negatively related, instead of positively related. Affiliation was positively correlated, instead of negatively correlated. The hypothesis was only partially supported.

Hypotheses 7 and 8 were attempting to build a model to predict student absenteeism and final course grade based upon the nine CES subscales and student age. Age and the CES subscale of Competition were the best predictors for absentee rate, but only accounted for 5.5% of the variance.

Age, and the CES subscales of Order & Organization, Affiliation, and Teacher Support were the best predictors for final course grade, but only accounted for 8.1% of the variance. Therefore, the CES and age seems hardly sufficient
to place any consequential value in predicting absenteeism and final course grade.

On the unplanned post hoc tests, it showed that traditional and nontraditional students are not congruent on the CES. The five subscales of Involvement, Teacher Support, Task Orientation, Order and Organization, and Rule Control were significantly different.

Course frequency also showed some incongruencies. Courses which met four times a week were found to be significantly different than courses which meet one to three times a week on the four CES subscales of Involvement, Teacher Support, Competition, and Order and Organization.

When a multiple regression technique using the inclusive method was used with each of the criterion variables of absentee rate and course grade and the predictor variables of age, gender, classification, and CES; it was found that 32% of the variance attributed to absenteeism was accounted for by course grade. Absenteeism accounted for 32% of the variance when grade was the dependent variable.

The next chapter is a discussion of the results and implications for further research.
CHAPTER V
DISCUSSION, FUTURE RESEARCH, & SUMMARY

Background on the Research Project

One of the goals of any educational institution is to provide a climate for learning which maximizes student development and growth. It is the instructor's role in the classroom to establish and maintain a climate in which students can learn. The students in the classroom also have an influence on the classroom climate. Thus, students and their instructor together create a classroom climate which can influence whether learning is maximized or limited.

The Classroom Environment Scale by Moos and Trickett was designed to assess the classroom social climate and to provide a profile of the "perceived" classroom climate. This study used the CES Real Form to assess the classroom social climate to ascertain the role climate played in course performance. The theoretical framework for the development of the CES was based upon Moos' Model of Determinants of Classroom Climate (1976), which has it's foundation in Lewin's Field Theory (1936) and Murray's Need-Press Model (1938).

The population used in the study were all 25 sections of COMS181-Introduction to Computer Literacy classes held on two campuses of the Des Moines Area Community College. There were 393 usable student CES instruments and 25 instructor CES
instruments. Student withdrawals from class after the CES was completed resulted in a full data set for 363 students (CES, demographic data, course attendance, and final course grade).

The three conjectures which formed the basis for this study were: 1) People who have more authority and responsibility in a setting tend to see the setting more positive. 2) Perceptions of the classroom social climate may be influenced by factors involving the time class is offered, location of class, and gender of students. 3) Students choose to participate in learning activities when they feel comfortable and challenged within the classroom and in return have lower absentee rates and receive higher course grades.

The data gathered were statistically analyzed to test the eight hypotheses. The statistical procedures used were t-test, correlation, and multiple regression.

Summary and Discussion of the Results

None of the eight hypotheses in the study were fully supported. The findings in most cases were the reverse of previous research. For example, students' perceptions of the classroom social climate were more favorable than their instructors', with the exception of the CES subscale of Innovation. A discussion of the findings are in the sections that follow.
Comparison of students' and instructors' perceptions

People who have more authority and responsibility normally see the setting more positive than people with less authority. In a classroom, the instructor is traditionally seen as having the most authority. It was therefore hypothesized, instructors' and students' scores on the nine CES subscales would not be congruent and that instructors would see the classroom social climate more positive than students.

Students' and instructors' perceptions of the classroom social climate were not congruent. They were in agreement however on the following subscales of the CES:

1. Teacher Support—the amount of help and friendship the teacher provides students, how much the instructor talks openly with students, and is interested in their ideas.

2. Order and Organization—students behaving in an orderly and polite manner and the organization of classroom assignments and activities.

3. Competition—how much students compete with each other for recognition and grades and difficulty of achieving good grades.

4. Task Orientation—the completing of planned activities and staying on the subject matter.

5. Rule Clarity—the establishing and following a clear set of rules and the extent to which the instructor is consistent in dealing with students who do not follow the rules.

6. Innovation—the extent to which students contribute to planning classroom activities, the instructor uses a variety of teaching techniques, and creative thinking is encouraged.
The instructors and students were not congruent on the following CES subscales:

1. Involvement—the extent to which students participate in discussions and are attentive and interested in class activities.

2. Affiliation—the level of student friendships as demonstrated by getting to know each other, helping each other with homework, and working together.

3. Teacher Control—how strict the instructor is in enforcing rules and severity of punishment for breaking the rules.

Prior research by Moos (1979), Darkenwald (1987), and Fisher and Fraser (1983) indicated that the mean scores for each subscale were generally higher for teachers than students. In this study, the students' mean scores were all higher than instructors' with the exception of the Innovation subscale. Also, norms provided with the CES (Moos, 1987, p. 11) for business and technical classes indicate that the teachers' CES mean subscores were all higher than their students, with the exception of Teacher Control.

The differences found could be attributed to student age, that the CES was designed to be used in secondary schools, or that instructors lacked sensitivity to the students in their classrooms.

A post-hoc analysis was conducted to identify if there were any differences in classroom perceptions on the CES based upon whether the student was a traditional (24 years of age or younger) or a nontraditional student (25 years of age or
older). Five of the nine subscales were found to be significantly different (Involvement, Teacher Support, Task Orientation, Order and Organization, and Rule Clarity). The nontraditional students saw more emphasis in the classroom on these factors than traditional students.

Roelfs (1975) compared older (22 and over) with younger students in a community college using data from the Cooperative Institutional Research Program. He found that older students expressed more satisfaction with their classes and their instructors than younger students.

However, in Darkenwald's (1987) and Beer's (1986) studies, they found that classroom social climate perceptions did not vary based upon the age of the student.

Why the findings in this study are contrary to previous studies requires further investigation.

**Situational factors**

Perceptions of the classroom social climate may be influenced by factors involving the time class is offered, location of class, and gender of students.

**Time of class.** Hypothesis two questioned if there were any differences in perceptions based upon whether the class was conducted in the day or evening/Saturday. The CES subscale of Competition was the only subscale which was significantly different. Day classes perceived their classes
to be higher in competition than evening/Saturday classes. Traditionally, evening and Saturday classes are less formal than day classes because people in these classes work full time and are part-time students taking the class for their own professional or personal growth and are older. Also, night and Saturday classes are usually taught by adjunct faculty who are employed full time in the computer field.

Examining the makeup of the classes, day classes had 39% nontraditional age students compared to 68% in evening and Saturday classes. However, age did not appear to influence the perception regarding competition. Of the nontraditional students, 41% were taking the class for personal reasons compared to 19% of the traditional students. Students taking the course for personal reasons perceived less classroom competition. The reason for taking the course might explain the difference in the perception regarding competition between day and evening/Saturday classes.

A post hoc analysis was completed using a oneway analysis of variance utilizing the class meeting frequency (1-4 times a week) and students' CES subscores. The rationale for this analysis was that instructors who teach both day and night classes in other subject areas feel there is a difference in the classroom climate. The findings included the CES subscale of Competition, but also identified that perceptions on the subscales of Involvement, Teacher Support, and Order and
Organization were significant. An examination of the means showed that for all but Competition, scores were highest for classes meeting once a week, then two or three times, and finally classes meeting four times a week. Thus indicating that night and evening/Saturday class students see greater emphasis on Involvement, Teacher Support, and Order and Organization. In all cases, classes which met four times a week were found to be significantly different than the other classes.

**Campus setting.** The setting of the two campuses involved in the study were different. The Urban campus is one building located in downtown Des Moines, Iowa's state capitol. The Ankeny campus is the main campus of the Des Moines Area Community College and is located ten miles from downtown Des Moines and has several class buildings.

Moos' Model of the Determinants of Classroom Climate (1979) incorporates the variables of physical and architectural features and school setting. In a study completed by Myrick and Marx (1968), a campus with one building versus one with several buildings encourages student and teacher interaction. Whether a school is located in an urban or suburban district may also influence the classroom social climate.

The subscales of Innovation and Competition were the only two scales found to be significantly different. Ankeny
students perceived a higher degree of Innovation, but a lower level of Competition compared to the Urban students.

**Gender difference.** In this study, the CES subscales of Involvement and Teacher Support were found to be significantly different, with females feeling a greater emphasis in these areas than males. Student gender played no difference in perceptions regarding Affiliation and Task Orientation or any of the other remaining five scales.

Previous research has shown that women need a supportive social climate to enhance growth and learning (Mezirow, 1978), that men and women place a different importance on relationships (Gilligan, 1982), and that the teaching-learning process of adults must satisfy adult needs (Knowles, 1980).

The scales of Involvement and Teacher Support are two scales in the relationship dimension. Therefore, it appears that females perceive a greater emphasis in these two areas than males and that gender differences may contribute to differences in classroom social climate perceptions.

**Grades and absenteeism**

Students choose to participate in learning activities when they feel comfortable and challenged within the classroom and in return have higher attendance rates and receive higher course grades.
Research on the relationship between grades and attendance have resulted in a variety of findings. This study examined whether there was a relationship between certain subscales in the CES which could predict student absenteeism and final course grade. There was found to be a correlation of -.598 between grades and attendance, indicating that as absenteeism decreased, grades went up. A regression analysis using predictor variables of age, gender, classification, grades or absenteeism, and the CES showed that 32% of the variance attributed to grades was due to absenteeism rate.

McCutcheon (1988) also found a negative correlation between grades and absences in a study conducted at a community college. This was especially true when students were of typical college age.

Grades. When examining the correlation between final course grades and the CES in this research study, it was found that students who received higher grades perceived the classroom social climate to have more emphasis on Involvement, Teacher Support, Task Orientation, Order and Organization, Rule Control, Innovation, and Teacher Control and lower emphasis on Affiliation and Competition than students who received lower grades. However, the correlation coefficients were all in the little if any correlation range with the exception of Teacher Support (.4652) and Order and Organization (.4247), which were both significant.
Therefore, when students perceive the instructor as providing a high level of support, have clear assignments, and maintain structured classroom activities, the students receive higher grades.

Traditional students received 31% of the A’s and B’s given in the class compared to 41% of the nontraditional students. Females received 41% of the A’s and B’s compared to 31% of the males. Thus indicating older students and females achieved higher grades. This finding is similar to Bowman’s (1989) study involving student age and academic performance at a community college.

Absence. It was found that as students perceptions of Teacher Support, Task Orientation, Order and Organization, Competition, Rule Clarity, Teacher Control, and Involvement go up, attendance goes down, but as Affiliation and Innovation goes up, so does absenteeism. However, Rule Clarity was the only subscale which had a significant correlation (−.4170). Therefore, classrooms had higher attendance rates when students knew what was expected of them, what would happen if they did not follow the rules, and knew that the instructor was consistent in dealing with students who break rules.

Nontraditional students had lower rates of absenteeism than traditional students. When comparing absenteeism of students who missed eight hours or less of class (mean was 7.7 hours) during the semester it was found that 33% were of
traditional age and 40% were nontraditional students. When examining the variable of gender, females were absent less than males. The percentages were 40% and 33% respectively.

In summary, when looking at the CES subscales which were significant, students who perceive classrooms as emphasizing Teacher Support and Order and Organization have higher grades while those perceiving a higher degree of Rule Clarity have lower absentee rates. Also, nontraditional students received higher grades and had lower absenteeism compared to traditional age students. Females received higher grades and had lower absentee rates than males.

Prediction analyses

A multiple regression technique was used to see if student age and CES subscores could be used in predicting student absenteeism and final course grade. In both models, age appeared to be the best predictor. Scores on selected CES subscales provided only a minor relationship.

It was therefore concluded that no causal implications can be drawn from the findings, however class climate, student absenteeism, and final course grade are probably mutually interrelated in a complex manner. Student background characteristics could also influence the findings. No attempt was made to incorporate ability level, student motivation and personality characteristics, and previous level of knowledge
in subject area into the study. For example, students in one class may have higher average ability levels, be easier to get along with, and be highly motivated. All of these factors serve to influence classroom climate, grades and absentee rate.

Also, many students attending a community college have family responsibilities which has implications for influencing both their attendance pattern and course grade.

The results of this study indicate further research needs to be conducted to look at different variables that may influence classroom social climate perceptions which can lead to lower absentee rates and increased student performance.

Implication of Findings

The findings in this study did not provide evidence to support previous research. This was not totally unexpected, as climate perceptions are likely to vary according to institutional settings. Why differences were found can only be speculated based upon high school vs community college, student age, student motivation, and andragogical vs pedagogical principles being applied in the development of the CES.

Traditionally, pedagogy is associated with helping children learn while andragogy is helping adults learn.
Andragogy is based on the following assumptions according to Knowles (1970, p. 39):

As individuals mature:

1) their self-concept moves from one of being a dependent personality toward one of being a self-directed human being,

2) they accumulate a growing reservoir of experience that becomes an increasing resource for learning,

3) their readiness to learn becomes oriented increasingly to the developmental tasks of their social roles, and

4) their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject centeredness to one of problem centeredness.

When contrasting pedagogy with andragogy, under pedagogy a student is dependent on the teacher for direction, has had few experiences upon which to draw, biological development and social pressure influence the readiness to learn, application of what is being learned is postponed, and learning is subject centered.

Climate under pedagogy is characterized as being authority oriented, formal, and competitive contrasted to andragogy of mutuality, respectful, collaborative, and informal. Junior and senior high classes for disciplinary reasons require the teacher to be more authoritative. Discipline is normally not a problem in adult classrooms and
therefore may be conducted on a more informal level than high school classes.

Planning, diagnosis of needs, and formulation of objectives in pedagogy are done by the teacher while in andragogy it is conducted on a collaborative basis by the teacher and the student.

The motivation of high school and community college students may be different also. In high school, students are there because it is required. In a community college, students are there because they want to learn a skill to get a job, or to transfer later to another college or university.

The course used in this study, Introduction to Computer Literacy, is taken by students for one of the following reasons: 1) to complete a vocational program, 2) to complete a two-year degree, or 3) to take the course for job or personal growth. Because of these goals, the students do not have the characteristics normally associated with high school students, college students in four-year institutions, or students taking adult education courses. Therefore, a blending of andragogical and pedagogical principals are utilized in the classes.

The CES was designed for use in junior and senior high schools using pedagogical theory. However, the CES has been used in research studies in higher education and adult education. For each of the nine CES subscales, the higher the
subscale score, the more ideal the climate. When andragogical principals are applied, that would not be the case. For example, in an "ideal" andragogical classroom the scores on the subscales of Competition, Rule Clarity, and Teacher Control should be low. Students work together to achieve a goal, not compete against each other. The establishing of rules is done on a collaborative basis by the students and teacher. Discipline is not a concern in an adult classroom, therefore, there is not a need for the teacher to have strict control of the classroom.

In summary, due to students' characteristics and goals community college classroom are different than high school classrooms and may explain why the findings in this study were different than previous research.

Future Research

Providing a climate conducive to learning is a major challenge to education, especially in community colleges because of the diverse population which it serves. In order to gain an understanding of what factors can impede or encourage growth in learning in community college classrooms, additional research needs to be undertaken.

The first research to follow this study should be a modification of this study. If the CES is to be used, certain questions should be omitted or revised in the CES subscales of
Competition, Rule Clarity, and Teacher Control because they are not appropriate in adult classrooms (e.g., questions relating to discipline). Students and instructors should complete the CES using both the Real and Ideal forms. This would provide information to the researcher as to whether students' and instructors' perceptions of ideal and real classrooms are different, and if not, areas that need to be explored to make modifications in the classroom social climate may be ascertained. Utilizing data obtained from the perceptions of the actual classroom environment and what students perceive as the ideal environment could be used to better predict what factors in the classroom may reduce absenteeism and result in improved performance.

Perhaps even more importantly, it may be useful to consider classroom climate as a blending of all the subscales. A composite score could be calculated and used to compare classroom social climate perceptions across classrooms. For example, some classrooms may be perceived as rating high on all subscales, another high on some and lower on others, etc.

An ideal classroom climate for adult learners, in accord with adult teaching and learning theory, would be one that is high on involvement, affiliation, teacher support, innovation, and perhaps task orientation and order and organization. At the same time, it would be low on competition, rule clarity, and teacher control. Thus, instead of using subscale scores
as a basis of analysis, a composite score representing perceived climate might provide a better unit of measurement. Therefore, a weighted scoring process to arrive at a composite climate score should be developed.

This study was limited to only one community college and one course. Additional studies should be made using more than one community college and expanded to more than one subject area. This would provide findings which may be more generalizable to a larger population.

Further study on gender differences in relationship to classroom social climate perceptions need to be conducted. This is especially important as the number of females in community college classes continue to increase.

This study did not look at motivational level, academic ability, and student age. These are factors which influence learning and are covariants which could provide additional insight into classroom social climate perceptions that should be explored.

Summary

This study did not provide a cause and effect explanation of classroom social climate perceptions, but it does contribute to our understanding of the perception of the social environment which effects the teaching-learning process. It did support previous findings regarding lack of
congruity between students and instructors perception of the
classroom social climate, but was not in the direction as
indicated by previous research.

When comparing the findings taken from two campuses
within the same school system, only two subscales on the CES
were found to be significantly different (Innovation and
Competition). Also, when comparing day and evening/Saturday
classes the scale of Competition only was found to be
significant. For school administration and faculty it is
reassuring to know that the findings regarding classroom
social climate are similar. This indicates that the classroom
social climate is fairly congruent under these different
situations.

Gender differences did influence classroom perceptions.
Females perceived a higher level of Teacher Support and
Involvement than males and also received higher grades and had
a lower absentee rate. Instructors need to plan their classes
accordingly to try and minimize these differences.

Absenteeism did explain 32% of the variance in course
grade when combined with the predictor variables of age,
gender, classification, and the CES. The more a student was
absent, the lower the grade. Students had higher grades in
classroom they perceived to be higher in Teacher Support and
Order and Organization. Absenteeism was reduced when there
was perceived to be higher Rule Clarity.
Climate by itself was not found to be a good predictor of student achievement or absentee rate in this study. A better picture may be provided by linking perceptions of the classroom social climate with student motivation and academic ability. This may be a better predictor of academic achievement and attendance patterns.

The Classroom Environment Scale, when used with post-secondary students in the future, should have some of the questions revised or omitted. This is especially true for the questions relating to discipline.

This study indicates that additional research needs to be conducted regarding classroom social climate and course performance. It also adds to the growing body of knowledge in the area of classroom perceptions in community college classrooms and can be used as a basis for further study.
BIBLIOGRAPHY


I wish to express my gratitude to all the people who made this study possible, especially, Dr. John Wilson, my advisor and major professor, for his assistance and patience. I want to thank Dr. Larry Ebbers, Dr. Terry Pickett, Dr. John Van Ast, and Dr. Richard Warren for serving as members of my graduate committee.

A thank you also goes to my friends, students, faculty, workstudy students, and administration at the Des Moines Area Community College who made this study possible. A special thank you goes to Jo Peckum, Renee Von Hagen, and Carroll Bennett for their assistance, support, and encouragement.

A special appreciation goes to my husband, Amir, for his patience as well as his faith in me during my Ph.D. program.
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APPENDIX A.

HUMAN SUBJECTS APPROVAL FORM
Information for Review of Research Involving Human Subjects
Iowa State University
(Please type and use the attached instructions for completing this form)

1. Title of Project: Relationship Between Classroom Social Climate & Course Attendance and Final Course Grades

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Jolyne L. Ghanatabadi
Typed Name of Principal Investigator

Date: 12/20/90
Signature of Principal Investigator

Department: Professional Studies
7189 NW 6th Dr. Ankeny, IA 289-2467
Campus Address
50021 Campus Telephone

3. Signatures of other investigators

NONE

Date
Relationship to Principal Investigator

4. Principal Investigator(s) (check all that apply)
- Faculty
- Staff
- Graduate Student
- Undergraduate Student

5. Project (check all that apply)
- Research
- Thesis or dissertation
- Class project
- Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)

- # Adults, non-students
- # ISU student
- # minors under 14
- # minors 14-17
- DMACC Instructors
- DMACC Adult Students 600

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)

SEE ATTACHED

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent:
- Signed informed consent will be obtained. (Attach a copy of your form.)
- Modified informed consent will be obtained. (See instructions, item 8.)
- Not applicable to this project.
9. Confidentiality of Data: Describe below the methods to be used to ensure the confidentiality of data obtained. (See instructions, item 9.)

Social Security Numbers will be used as an identifier, which is the same as the student ID # at DMACC. Only myself will see the list that has both student name and ID number. Cross references between individuals and information will be destroyed after the study is completed.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

NONE

11. CHECK ALL of the following that apply to your research:

- A. Medical clearance necessary before subjects can participate
- B. Samples (Blood, tissue, etc.) from subjects
- C. Administration of substances (foods, drugs, etc.) to subjects
- D. Physical exercise or conditioning for subjects
- E. Deception of subjects
- F. Subjects under 14 years of age and/or Subjects 14 - 17 years of age
- G. Subjects in institutions (nursing homes, prisons, etc.)
- H. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

Items A - D Describe the procedures and note the safety precautions being taken.

Item E Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

Item F For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

Items G & H Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

Des Moines Area Community College
Checklist for Attachments and Time Schedule
The following are attached (please check):

12. □ Letter or written statement to subjects indicating clearly:
   a) purpose of the research
   b) the use of any identifier codes (names, #s), how they will be used, and when they will be
      removed (see Item 17)
   c) an estimate of time needed for participation in the research and the place
   d) if applicable, location of the research activity
   e) how you will ensure confidentiality
   f) in a longitudinal study, note when and how you will contact subjects later
   g) participation is voluntary; nonparticipation will not affect evaluations of the subject

13. □ Consent form (if applicable)

14. □ Letter of approval for research from cooperating organizations or institutions (if applicable)

15. □ Data-gathering instruments

16. Anticipated dates for contact with subjects:
   First Contact
   Last Contact
   2/15/91       5/12/90
   Month / Day / Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual
    tapes will be erased:

18. Signature of Departmental Executive Officer
    Larry Keen    1/4/91
    Date
    Department or Administrative Unit
    Professional Studies

19. Decision of the University Human Subjects Review Committee:
    □ Project Approved    □ Project Not Approved    □ No Action Required

    Patricia M. Keith
    Name of Committee Chairperson
    1/22/91
    Date
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<td>9 or More</td>
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### STUDENT DEMOGRAPHIC DATA CONTINUED

#### STUDENT CLASSIFICATION

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#### EDUCATIONAL GOAL AT DMACC

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<tr>
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<td>Complete Liberal Arts Program</td>
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<tr>
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APPENDIX C.

INSTRUCTOR DEMOGRAPHIC DATA
### INSTRUCTOR DEMOGRAPHIC DATA

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<td>40-49</td>
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<tr>
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<td></td>
<td></td>
<td>4-Computer Science</td>
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<td></td>
<td></td>
<td>1-Psychology</td>
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<tr>
<td>Masters</td>
<td>7</td>
<td>2-MBA</td>
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<tr>
<td></td>
<td></td>
<td>1-Computer Science</td>
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<tr>
<td></td>
<td></td>
<td>1-Business</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-Guidance &amp; Counseling</td>
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<td></td>
<td></td>
<td>1-Educational Ad. &amp;</td>
</tr>
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<td></td>
<td></td>
<td>Computer Science</td>
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<td>Adjunct Faculty</td>
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<td>Full-Time Contracted Faculty</td>
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<th>TEACHING EXPERIENCE</th>
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<td>21-25 Years</td>
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INSTRUCTOR DEMOGRAPHIC DATA CONTINUED

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<td>6-10 Years</td>
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<td>11-15 Years</td>
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<td>16-20 Years</td>
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<tr>
<td>21-25 Years</td>
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</tr>
<tr>
<td>Total</td>
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</table>
APPENDIX D.

STUDENT DEMOGRAPHIC SURVEY
STUDENT DEMOGRAPHIC SURVEY

SOC. SEC. NO: ________________________________________________

---------------------------------------------------------------------
Please make the appropriate response to each question.

1. What is your age? ________

2. What is your gender?
   [ ] Female
   [ ] Male

3. What is your marital status?
   [ ] Never married
   [ ] Married
   [ ] Separated
   [ ] Divorced

4. How many children do you have?
   [ ] None
   [ ] One
   [ ] Two
   [ ] Three
   [ ] Four or more

5. What is the highest degree you received?
   [ ] Eighth grade certificate
   [ ] GED
   [ ] High school diploma
   [ ] Vocational certificate/diploma
   [ ] 2 year college degree
   [ ] 4 year college degree
   [ ] Post graduate degree

6. Approximately how many hours per week are you employed?
   [ ] None
   [ ] 1-10
   [ ] 11-15
   [ ] 16-20
   [ ] 21-25
   [ ] 26-30
   [ ] 31-35
   [ ] 36-40
   [ ] Over 40
7. Are you taking this course (COMS-181 Introduction to Computer Literacy) as a required or elective course?
[ ] Required
[ ] Elective

8. How many semesters have you been enrolled at DMACC?
   (Including this semester.)
   [ ] One
   [ ] Two
   [ ] Three
   [ ] Four
   [ ] Five
   [ ] Six
   [ ] Seven
   [ ] Eight
   [ ] Nine or more

9. What is your current student classification?
   [ ] Full time (12 or more credits)
   [ ] Part time (11 credits or less)

10. When do you attend classes this semester? (Check only one)
    [ ] Day--mornings
    [ ] Day--afternoons
    [ ] Night
    [ ] Saturday
    [ ] Day morning and afternoon
    [ ] Day morning and night
    [ ] Day afternoon and night
    [ ] Day and Saturday
    [ ] Night and Saturday

11. Which best describes your current educational goal at DMACC?
    [ ] Complete an occupational program at DMACC
    [ ] Complete a liberal arts program at DMACC
    [ ] Take courses, but not complete a program at DMACC

THANK YOU FOR COMPLETING THE SURVEY
APPENDIX E.

INSTRUCTOR DEMOGRAPHIC SURVEY
INSTRUCTOR DEMOGRAPHIC SURVEY

SOC. SEC. NO: __________________________________________

------------------------------------------------------------
Please make the appropriate response to each question.

1. What is your age? ________________

2. What is your gender?
   [ ] Female
   [ ] Male

3. Please indicate each degree you have received and your
   major.

   DEGREE                        MAJOR
   [ ] Vocational certificate/ diploma   __________________________

   [ ] 2 year college degree     __________________________
   [ ] 4 year college degree     __________________________
   [ ] Masters                  __________________________
   [ ] Doctorate                __________________________

4. What is your employment status at DMACC?
   [ ] Adjunct faculty member
   [ ] Full-time faculty member

5. How many years have you taught at the post-secondary
   level? __________

6. How many years of work experience in business/industry do
   you have in the data processing field? __________

THANK YOU FOR COMPLETING THE SURVEY
APPENDIX F.

CLASSROOM ENVIRONMENT SCALE
The Classroom Environment Scale by Moos and Trickett is a copyrighted instrument and is, therefore, not able to be included in this section in accordance with the letter found on the next page. A listing of questions in the CES can, however, be found in *Evaluating Educational Environments* (1979) by Rudolf Moos from Jossey-Bass Publishers. A specimen set can also be purchased from the following address:

Consulting Psychologist Press, Inc.
3803 E. Bayshore Road
P.O. Box 10096
Palo Alto, CA 94303
Telephone (415) 969-8901
Fax (415) 969-8608
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2. Title of your dissertation, thesis, or research project.
3. Your customer number, a completed Qualification Form (enclosed), OR your advisor's co-signature on your request letter.
4. Your complete name, address, and telephone/fax numbers.

There is no charge for sample items.

If your request is approved, I will send you a permission agreement. After I receive the signed permission agreement, I will sign the agreement and return a copy of the fully-executed agreement to you. At this time I will send you a copy of the sample items for this test. If your request is denied, I will send you a letter of explanation.

You may fax your initial request letter to the Permission Department at 415/969-8608. The actual permission agreement, however, must be mailed. I will use First Class mail unless you specifically request express mailing. If you request express mailing, you must provide a credit card number or Federal Express account number to pay for this service.

If you have any questions, please call the Permissions Department at 800/624-1765.

Sincerely,

Permissions Specialist

enclosure
TO: All Faculty Teaching COMS181-Introduction to Computer Literacy Spring Semester at the Ankeny and Urban Campuses

FROM: Jolyne Ghanatabadi, Business/Management Instructor, Ankeny Campus

DATE: December 11, 1990

SUBJECT: Research Project

Your cooperation is being asked to assist me in a research project I am conducting this semester on both the Ankeny and Urban Campuses for my dissertation at ISU. Both Tom Nelson, Dean Business/Management Ankeny, and Mary Chapman, Executive Dean Urban have given their approval to the project. In the coming week I plan to make contact with each of you either in person or by phone to discuss the project with you.

The purpose of the study is to assess student and instructor perceptions of the classroom social climate. Also, to identify if there is a relationship between student perception of the classroom social climate and attendance and final course grade. All data will be kept confidential.

Your involvement in the project would entail the following:

1. Approximately 30 minutes of classroom time in the seventh week of the semester for your students and yourself to complete a survey which will be administered by myself or a representative.

2. Keeping an attendance record for each student in your class during the semester starting January 28.

3. Submitting to me final course grades for each student in your class along with attendance data.

I am looking forward to talking with each of you to discuss any questions you may have and to provide additional information. If you wish to call me, my telephone number is 964-6493 (work) or 289-2467 (home).

c: Mary Chapman
   Tom Nelson
APPENDIX H.

STATEMENT TO PARTICIPANTS EXPLAINING STUDY
The survey (Classroom Environment Scale) you have been handed is part of a study being conducted in cooperation with the Des Moines Area Community College to assess your perception of the classroom social climate involving student-student relationships, teacher-student relationships, and classroom organizational structure. The results of the study will provide information that can be used to assist in course planning.

The demographic data requested will be used in conjunction with the findings of the Classroom Environment Scale.

All responses will be held confidential. Cross references between individuals and information will be destroyed after the study is completed.

Your social security number, which is the same as your Student ID, is being requested to compare those completing the survey with the class list.

Please take the next 20-30 minutes to complete the survey. If you do not want to participate in the study, please sign your name and return the form to me.

Thank you for your assistance.
APPENDIX I.

COMPARISON OF CES NORMS WITH POPULATION IN STUDY
Comparison of Classroom Environment Scale norms (N=67 classrooms) for business and technical classes (Moos & Trickett 1987, p. 11) with population in study (N=25 classrooms)

<table>
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<th>Scale Item</th>
<th>STUDENTS Population</th>
<th>STUDENTS Norm Mean</th>
<th>STUDENTS Population SD</th>
<th>STUDENTS Norm SD</th>
<th>INSTRUCTORS Population</th>
<th>INSTRUCTORS Norm Mean</th>
<th>INSTRUCTORS Population SD</th>
<th>INSTRUCTORS Norm SD</th>
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<tbody>
<tr>
<td></td>
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<td>Mean</td>
<td>SD</td>
<td>SD</td>
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