A STUDY OF COLLEGE STRESS
AND ITS MEASUREMENT

DISSERTATION

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By

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The purpose of the study was to compare the academic stress of freshmen in a community college with that of freshmen in a university. An additional purpose was to determine if gender, ethnicity, or semester course load was related to perceived academic stress.

The sample consisted of a total of 303 university and community college freshmen from English and Psychology classes at the University of North Texas and Richland Community College during the spring semester, 1989. The instrument that was administered to these volunteer students was the Academic Stress Test, a 35-item checklist of possible academic stressors. The students were asked to check the items which were perceived by them to be stressful and had occurred during the current semester. The T-statistic was used to analyze the total mean stress score for each variable being considered. Multiple regression was used to determine if there was any possibility that the variables might have a predictive effect for academic stress.

It was found that for these freshmen students there was a significant difference between the perceived academic stress of community college freshmen and university
freshmen. The mean academic stress score for university freshmen was higher than the mean for community college freshmen. Likewise, the perceived academic stress of females was significantly higher than that of males, and higher for those taking more semester hours than for those taking fewer semester hours. There was found to be no significant difference in the perceived academic stress of white and non-white freshmen college students.
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CHAPTER I

INTRODUCTION

There are many pressures and stresses involved with entering college and successfully completing a college degree. A person entering college must first decide whether to enter a two-year or a four-year college. This decision may involve library research, media input, and opinions of well-meaning friends and relatives. In addition to the normal hassles of life, the college student is faced with a whole new set of stressors, whether he or she attends a junior college or a university. Most of these stressors have to do with the academic environment (Kohn and Frazer 1986). Some college stressors might be more or less prevalent on certain campuses.

In 1986 the Academic Stress Scale was developed by James Kohn and Gregory Frazer to measure the academic stress of college. This checklist of academic stressors allows a respondent to indicate the occurrence of specific stressors (see Appendix A). It was developed by sampling university students. In the current study, the Academic Stress Scale was used to examine the stress level of students in a two-year community college and a major university.
Statement of the Problem

The problem of the study was to investigate the perceived academic stress of college students. The perceived academic stress of junior college freshmen was compared with that of university freshmen.

Purpose of the Study

The purpose of the study was to compare the academic stress of freshmen in a community college and a university. Second semester freshmen were tested and the stress score was correlated with the factors of gender, ethnicity, and semester course load.

Hypotheses

The following hypotheses were tested in the investigation.

1. There is no significant difference in the perceived academic stress of freshmen in a two-year college and in a university.

2. The perceived academic stress of male college freshmen is not significantly different from that of female college freshmen.

3. There is no significant difference in academic stress scores of those students taking many semester hours (seven or more) and scores of those students taking few semester hours (up to six semester hours).
4. No significant difference exists between the academic stress scores of white and non-white college students.

Justifying the Problem

Today, two-year colleges are fast becoming a major aspect of higher education (Velez and Javalgi 1987). One of the goals of a junior college or community college is to prepare students to continue their education in a four-year college or university. "Arguments in support of two-year colleges often rest on the premise that they serve a more diverse clientele than four-year colleges, providing the disadvantaged and the slow starter with a chance at higher education they otherwise would not have" (Valez and Javalgi 1987, 81).

Of interest in this study is whether the stress of the academic situation is different in the junior college and the university. In particular, does the freshman perceive significantly greater stress academically in a university as compared to a freshman in a junior college. This determination was attempted by the use of the Academic Stress Scale.

A recent study revealed that a student who starts in a two-year college has a lower probability of finishing a bachelor's degree than that student who starts in a four-year college (Velez 1985). Perhaps the study of academic
stress in these two educational settings might add to the present knowledge involved in student attrition.

**Significance of the Study**

The current study focused on the stress of the academic environment of college and attempted to measure that stress by means of the Academic Stress Scale. The primary significance of this study involves the following factors:

1. It will clarify and make additions to the studies concerning stress, especially as it relates to the college student.

2. It will extend the knowledge concerning stress as it relates to the college student.

**Theoretical Framework**

Stress, the focus of the study, is a characteristic that interferes with cognitive functioning and involves physiological disruption in humans (Grady 1978; Tobias 1979). Performance on major examinations appears to have ego-threatening components, and measures of autonomic arousal appear to be closely associated with academic performance (Morris and Liebert 1969). Accurate measurement of a college student's level of perceived stress may be of importance to the college educator as it concerns a student's ability to learn.

How might the academic environment of college be evaluated in terms of the stress it contributes to a
particular student? In 1967, Holmes and Rahe developed the now famous Social Readjustment Rating Scale which began the work of major studies of environmental stress. They developed a checklist of recent life events which, with mounting frequency, appeared to correlate positively with an individual's becoming ill. This self-administered checklist allowed the individual to check the events he or she had experienced and how often within a certain time period (Holmes and Rahe 1967).

The next step for Holmes and Rahe was to decide the importance of these events or to weigh each item. They did this by asking subjects to rank order these life events as to the amount of life change they involved in comparison with the life change experienced in marriage, which they arbitrarily ranked as 500. These life events were compared to the readjustment during marriage. For example, a subject might rank the death of a spouse as 1,000 or being fired at work as 470. After the ranks were computed and divided by ten, this score became the life change unit for each event. Marriage was 50; death of a spouse was given a value of 100; divorce, a value of 73; being fired at work, a value of 47; pregnancy, a value of 40; and Christmas, a value of 12 (Vingerhoets 1985). The Academic Stress Scale used in this study follows Holmes and Rahe's methodology in its derivation (see Instrument in Chapter II).
Summary

The major goal of this research was the analysis of the academic stress of college students. Students frequently talk about anxiety and stress as a major theme in their college life (Newton, Angle, Schuetter and Ender 1984). College professors often have the experience of having students who claim to know the subject matter but experience so much stress that they perform poorly on examinations. One study showed that certain highly-anxious students have a higher dropout rate due to academic failure than non-anxious students of comparable ability (Spielberger 1962).

On the other hand, other students appear to be successfully coping with the academic situation. Thus, the concept of the perception of stress is considered in this study as well as the external learning environment. Outgrowths of the present study might possibly be efforts toward helping the individual student with coping and taking measures to provide a supportive academic program that would decrease excessive student stress.
CHAPTER II

REVIEW OF LITERATURE

Introduction

For the college student, stress is an everyday aspect of campus life. The term strain is often used to describe the student's perception of stress or the student's unique individualized response to stress (Brown 1986). There have been various definitions of stress throughout the years. Hans Selye described stress as an over-all physiological response to any noxious stimulus. He called this response the General Adaptation Syndrome. This syndrome consisted of an initial shock phase with an increase in heart rate, a decrease in temperature and blood pressure, and a rebound phase where defensive forces were mobilized by an increased secretion of ACTH stimulating the release of cortisol from the adrenal cortex (Vingerhoets 1985).

The Concept of Stress

More recent investigators substitute "any noxious stimulus" to "any demand." Psychological stress has come to mean an interaction with the environment that the person appraises as important and in which the demands exceed present coping resources (Lazarus and Folkman 1984). This concept of stress also includes a person's inability to cope
effectively with some future stimulus (imagined or real) (Appley and Trumbull 1986). Therefore, stress has come to describe an imbalance between environmental demands (or perceived demands) and response capability (or perceived response capability). Someone is not extremely threatened by demands which he or she does not receive or by demands which that particular individual perceives himself or herself capable of handling. One is threatened by the anticipation that one will not be able to handle perceived demands adequately (whether these demands are real or not). The consequences (or what are perceived to be the consequences) of failure to meet the demand appear to be what is important.

Therefore, the basic stress construct has centered on the individual and summation of all that person's experiences with his or her environment at a given point in time (Appley and Trumbull 1986). The meaning of the event (or phenomena) to the individual appears to determine the emotional and behavioral response. Thus, the stress concept has become phenomenological.

Whereas initial stress research was non-cognitive, newer approaches include cognitive appraisal of an encounter, that is, it is either irrelevant, benign-positive, or stressful. If stressful, it can be either the stress of harm or loss, the stress of threat, or the stress of challenge (Lazarus and Folkman 1984). Appley and Trumbull
(1986) state that a good stress theory needs to describe what happens before and during a stress experience and the alteration of the individual after the encounter. He mentions two models of stress. The first is the Pathogen-Reaction model. This model describes a situation in which the individual responds to demands. The second is the Transactional model where nothing by itself is considered a stressor, but the event is only stressful if it is threatening to the individual.

Wild and Hanes (1976) describe an environmental demand-stress mediating factor-response that may agree or disagree with the individual's perceptions and evaluations. They describe two consequences of stress:

1. The direct effect of an external demand (stressor) which may affect the individual's response and disagree with that person's perception, for example, psychosomatic disorders due to stress; and

2. an indirect effect due to an organism's perceptions and evaluations, for example, anxieties from past failures affecting current situations.

An important concept introduced by Wild and Hanes is that "both internal and external mediating factors serve to define the environment within which the individual may respond to an external 'stressor' event and, as such, rule out certain areas of possible response often independent of the actor's evaluative processes" (Wild and Hanes 1976,
The instrument, the Academic Stress Scale, used in this study is in agreement with the stress-strain paradigm where the environment is an independent force, sometimes having unperceived consequences for the organism.

Classroom stress experienced by college students has been a subject of renewed interest. Tobias (1980) divided classroom learning into the following three divisions:

1. Input: where instructional materials are presented;

2. Processing State: where the students receive and organize (or process) the instruction;

3. Output: where the student shows his or her learning using some form of evaluation such as a test.

Tobias concludes that the most harmful effects on learning occur at the processing stage or immediately before and after the processing stage. At the preprocessing stage, the student's attention can be diverted by stress from the learning task. Anxious students are so preoccupied with worries about themselves and their performance, they frequently do not adequately stay focused, effectively restricting the amount of information initially perceived (Wine 1971). Tobias remarks that the more difficult and less structured the learning task or the environment, the greater are the processing demands upon students and the greater are the debilitating effects of stress. There appear to be more debilitating effects upon the student when
there is a large amount of ego involvement (Kagan and Fasan 1988).

In a few instances, high stress can be facilitative to the student. Individuals appear to differ in emotional responsiveness as has been measured by the Manifest Anxiety Scale (MAS) (Spence and Spence 1966). Conditioned anxiety-provoking stimuli evoke internal emotional responses which, in turn, can increase the drive level, or increase a student's motivation for learning (Spence and Spence 1966).

Studies also reveal that there is a positive correlation between being a Type A personality and having an increase in academic achievement (Lum 1960). Thus, academic stress is not only a product of classroom interaction, but it is stress brought into the classroom by certain individuals. Highly-anxious students appear to learn better than non-anxious students in situations of modeling or skill acquisition and when they have the ability to control the pace of instruction (Kagan and Fasan 1988).

The terms anxiety and stress are often used interchangeably and will be used as such in this review of research. Specifically, anxiety refers to a vague fear, whereas stress refers to an inability to cope. In 1985, Cohen and Wills summarized the types of stress studies which had been done to date. The following list categorizes these studies of stress.
1. Life Events Checklists: These are based on the hypothesis that illness is positively correlated to the great number of aversive life events (Holmes and Rahe 1967).

2. Stressors: Other instruments tried to quantify the number of objective conditions that interfere with healthy living (Pearlin and Lieberman 1979).

3. Perceived Stress: Studies of perceived stress used a rating instrument with which an individual would rate how he or she feels about a particular situation.

Concerning the stress of college, students consider the academic component to be the most important facet of the college domain (Okun et al. 1986). In a study investigating stress, it is important to measure perceptual indicators as well as life events. In the current study, objective events have been quantified or weighted as to stressfulness, and students respond to the testing instrument whether or not the item has been perceived as stressful to them. Thus, not only the situations and experiences of academic life are considered, but also the perceptions of those experiences by students.

Thus, student stress is not only multidimensional by nature but also multidimensional in the way it is studied and measured. Student behavior is the result of a personality and a situation. Assessment of stress and anxiety can be either "state" measurements, that is, instruments that measure momentary emotional response, or "trait"
measurements, which measure an individual's chronic disposition towards stress, that is, a personality characteristic (Phillips and Endler 1982).

In 1987 a group of researchers showed that anxiety was involved in cognitive functioning (Sime et al. 1987). They concluded that students with less anxiety (due to being given relaxation techniques) performed better in statistics than those in the control group. These researchers also showed that significant reductions of anxiety (as measured by a 24-item Math Anxiety Rating Scale) were positively related to decreased physiologic stress responses, as measured by skin temperature, which indicated peripheral blood flow. The temperature would decrease as the individual was stressed. The weakness of this study was its small sample size of fifty-six students in an introductory statistics course at the University of Nebraska.

An earlier study done by Kathan (1966) at Vanderbilt observed an interaction between anxiety, aptitude, and grades. Students with high anxiety obtained poorer grades than those with low anxiety in the broad middle ranges of ability. In 1984, Zitzow attempted to develop an instrument which would measure college students' stress in academic, social, personal, and family areas. He used a sample of 1,200 students, 300 from each of four different colleges. According to Zitzow, the following were most often experienced as stressful: (1) personal pressure to get good
grades; (2) studying for a test; (3) taking a test in class; (4) pressure to get an A or B; (5) giving class presentations; and (6) completing a research paper.

Zetzow concluded that the academic environment received the strongest response for item frequency and stress intensity. This may illustrate the academic environment's powerful impact on the self-perception of stress (Zitzow 1984).

Also in 1984, Heilburn and Chefitz did an interesting study to see if certain coping strategies, particularly the evasive technique of repression, were related to the amount of stress experienced by college students. Using a sample of ninety-six undergraduate students, these researchers came to the same conclusion as Lazarus (1975), namely, that palliative coping strategies were damaging to the extent that these strategies prevented the student from taking direct action to reduce the stress. They showed that unconscious repression, as demonstrated by a lack of memory for threatening material, was associated with higher levels of stress, as measured by self-ratings on a list of twenty-five symptoms of stress.

Suicide

Another problem related to college students' stress is that of suicide. Suicide has been shown to occur more frequently among students than among their non-student
counterparts. One can possibly attribute this difference to the adverse effect of problems encountered in college (Bruyn and Seiden 1965).

Carson and Johnson (1985) examined suicidal thoughts and factors related to suicidal thoughts. Using a sample of 218 undergraduates, they administered a questionnaire on which the student indicated if he or she had serious thoughts about committing suicide. Carson and Johnson also asked the students to complete a life events checklist indicating how they dealt with emotional problems. Twenty percent of these students claimed to have had thoughts of committing suicide. These particular students did not have high life events stress scores, but did have a high frequency of occurrence of stress symptoms. The study by Carson and Johnson did not include questions about academic stressors.

Characteristics of College Students and Characteristics of University Students

The emphasis of the present study is whether the stress that students experience at a community college is different in magnitude from stress that students experience at a university. In addition to the differences in the institutions of a community college and a university, there are differences in the characteristics of community college students and university students. Tinto (1975) conducted an ex post facto study of 8,000 high school seniors. He
studied the effects of having a public junior college in a community upon the type of colleges attended by high school graduates. He discovered that having a junior college in the area primarily attracted lower socio-economic individuals. Alexander, Holupka and Pallas (1987) found that access to four-year colleges as a place of entry was affected very little by student background. Their sample size was 33,000 using the National Longitudinal Survey of High Schools which studied enrollment patterns between 1972 and 1980. Thus, these researchers did not see socio-economic factors as limiting present-day opportunities for entering four-year colleges. However, academic variables such as poor test scores, high school courses, and poor grades may greatly limit the possibilities of attending a four-year college. Therefore, since the current study was involved with academic stress, perhaps students with different academic preparation perceived the academic situation differently.

In a recent study (1987) Johnson described the student who transferred into a university from a community college compared to the student already at the university, displayed the following characteristics.

1. They tended to be less self-confident.

2. They appeared to have lower academic ability and motivation.
3. They were half as likely to aspire to education beyond the baccalaureate degree.

4. They had a strong vocational purpose for attending college.

5. They had problems coping with the academic demands of the university.

6. They expressed a desire for more faculty-student interaction.

According to these conclusions, the transfer students had more difficulties coping. Higginson (1985) showed that the three primary reasons for withdrawing from college were academic in nature: (1) dissatisfaction with academic programs; (2) unclear career objectives; and (3) unclear educational goals. Higginson concludes that retention research would be more practical if such research could assess students' perceptions of academic factors. An earlier conclusion of Terenzini and Pascarella (1978) was that retention research needed to include students' academic perceptions. Although Tinto (1975) described attrition as a complex socio-environmental problem, Terenzini and Pascarella stressed the importance of what happened to the student once he or she arrived on campus. A study had been done using a sample size of 895 graduates at the University of Washington (Lunneborg and Lunneborg 1976). This study sampled 43 percent "native" students, 30 percent transfers, and 27 percent community college transfers. The community
college transfer students perceived more neglect by the university, with fewer going on to graduate school. Also, community college transfers ranked student-faculty interaction and a sense of isolation as very real problems.

From these and other studies, one can conclude that there appear to be differences in student perceptions between community college students and native university students. Rather than focusing on attrition, or why students leave college, educators may want to study the reasons why students stay in college (Okun et al. 1986). Essential for retaining students is the improvement of the quality of the students' academic experience.

Person-Environment Fit

The personalities and environments of university students and community college students are different. A theoretical model useful in the study of stress perception is the person-environment fit (Brown et al. 1987). The underlying theory is that pleasant affect is enhanced when an individual is in an environment that meets his or her needs. Thus, if P-E fit is a mismatch, the perceived stress increases in that individual. For example, in a job situation, if a mismatch exists between a person's abilities and the job requirements, then stress results. A model for analyzing stress-related variables with college students is that used by Johnson and Hartwein (1980). Rather than
considering direct relationships between environmental events and affective responses, this model looks for themes or patterns. The following is a basic listing of the Johnson-Hartwein model.

1. The objective environment puts demands on the worker.

2. The subjective environment mediates between the objective and the affective. It deals with how the worker perceives demands.

3. Response indicates the worker's affective, behavioral and physiological response.

4. Health or illness has an affect on perception.

5. Personality variables affect perceptions.

6. The social environment variables indicate possibilities of individual support.

In this work-setting model, a worker's aptitude and work load relate to outcome measures, such as performance and somatic complaints. In the academic environment, the outcome measures might be achievement or physical ills.

Using a sample of 164 college students, Johnson and Hartwein (1980) correlated stressors to affective responses separating various chains of variables with different outcomes. Anxiety showed the highest correlation with somatic complaints, and the study concluded "affective mediators are precursors of somatic problems" (Johnson and Hartwein 1980, 146). Other authors have concurred that
positive affect occurs when a college student fits the college environment. Likewise, the greater the individual student's level of integration into the social and academic systems of the college, the greater his or her subsequent commitment to the college and the less chance of attrition (Pascarella, Smart and Ethington 1986).

In dealing with life events in a P-E fit model, Rubio and Lubin (1986) determined that "the event unexpectedness, degree of adjustment, and undesirability of the experience seem to be the strain producing factors" (Rubio and Lubin 1986, p. 206). Likewise, Harari and Sek (1988) concluded that various moderating effects such as degree of social support and feelings of mastery, had a buffering influence on the amount of stress perceived.

Palladino and Tryon (1978) conducted a survey of eight hundred freshmen and showed that the students of 1976 were more concerned with finances, living conditions, and employment than the students of 1969. These researchers concluded that the more modern student had more total problems. A recent study by Koplik and DeVito (1986) showed that college students were even more troubled than they were ten years ago. This 1986 study reported that college students' distress increased in nearly every aspect of the students' lives. These researchers stated that students accepted problems more than in the past and had a greater willingness to verbalize their problems.
The concept of the person-environment fit applies not only to the student but to the college teacher. As to the environment, person-environment fit can provide a setting for an appropriate level of interaction or person-environment mismatch can make such interaction impossible. In a recent article concerning the perils of the incoming college student, the author listed frequent stressors for students and concluded that there were sources of help to the student. He listed sources of help such as the counseling center, the school infirmary, possibly a chaplain's office, or an academic advisor (Mucowski 1984). It is interesting to note that the college classroom teacher was not mentioned as a resource to the troubled student. Perhaps the present study will contribute to informing educators of today as to the stressful situation of college students.
CHAPTER REFERENCE LIST


CHAPTER III

PROCEDURES FOR COLLECTION OF DATA

Introduction

The study was conducted during the mid-semester of the spring term at the University of North Texas. The University of North Texas is a research university offering many varied programs leading to the baccalaureate, masters, and doctoral degree. It has an approximate enrollment of 22,000 students, many of whom are commuters from the surrounding Dallas and Fort Worth metroplex. Thus, it is both a residential and commuter campus. Approximately 10,000 students are male, and 11,000 are female. The university has 80 percent white students and 20 percent non-white students (black, Hispanic, Asian, Indian, American Indian, and others). The first sample was chosen from the University of North Texas, and the second sample was chosen from Richland Community College located in Dallas, Texas. Richland was chosen because of its similarities in the type of student (primarily commuter students from the metroplex), and because Richland had similar ethnic percentages to the University of North Texas (see Table 2).
**Population and Sample Selection**

Participants in the university sample were second-semester freshmen enrolled in English courses at the university. Although the university is in a town with a population of only 67,000 (a figure which reflects the number of residential students at two universities in the town), the majority of students come from metropolitan cities. The second semester was chosen to control for the initial adjustment to college life which would have an affect on academic stress (Astin 1977).

The second sample consisted of second-semester freshmen enrolled in either English or Psychology classes at Richland Community College. Because the English department did not provide a large enough sample, the Psychology department consented to participate in the study.

Although all students at the community college were commuters, this was not considered a barrier to similarity of the university and community college groups. One study by Liu and Jung (1980) showed that commuter students were no different from residential students regarding their satisfaction with the academic environment.

**Research Design**

The study had a quasi-experimental design in that the subjects were not randomly chosen. It was a nonequivalent group design with the type of institution, gender of the
student, ethnicity, and number of semester hours taken as the independent variables and perceived academic stress (as measured by their total score on the Academic Stress Scale) as the dependent variable.

All subjects were tested within a two-week period in the middle of the spring semester. Taking into account the possibility that one time of the academic year might be more stressful than another, the researcher kept the time period one not close to final examinations.

Often in stress research, investigators develop their own scales of indicators of stress and neglect to report reliability and validity information (Golden 1973). The instrument used in the current study, the Academic Stress Scale, has an internal consistency for the thirty-five stressors, as measured by Cronbach's alpha, as .92. Reliability estimates were determined by using the split-half technique and found to be coefficients ranging from .59 to .86.

The internal validity of a study is the extent to which extraneous variables have been controlled by the researcher (Borg and Gall 1983). The test instrument itself controls some extraneous variables by limiting the stressors to only those concerning academics. Also, all students were tested within a two-week time frame. Choosing only freshmen in English and Psychology courses further limited extraneous variables. One possible threat to internal validity of the
study was the fact that the researcher did not administer the tests. Theoretically, different instructors may have inserted personal comments in their explanations to students which may have influenced the way students checked the items. Concerning validity, the so-called "John Henry Effect" occurs when a group performs beyond their usual ability when they feel they are in competition with an experimental group (Borg and Gall 1983). Although the group comparisons of the research were not fully explained to the students, the teachers who administered the test knew that the perceived stress of community college students was being compared to the perceived stress of university students. It is possible that the teacher discussed this concept with the students. If so, perhaps the university group, knowing they were being compared to community college students, might decide to check more items as stressful and the John Henry effect would have occurred.

External validity describes the extent to which the findings can be applied to particular settings. The "Hawthorne Effect" describes a situation where the special attention given to a treatment group may affect results rather than the treatment itself (Borg and Gall 1983). If before the testing situation the students and teacher interacted extensively on the subject of stress, the students may have indicated that they had perceived more stress items than in reality they had experienced. Such inaccuracy
would be a threat to the generalizability of the findings of the study. Since the teachers were cautioned only to read the instruction sheet to the students, this researcher considers that the threats to internal and external validity to be at a minimum in the study.

In order to determine if the predictor variables of group, sex, semester hours, and ethnicity have any predictive quality that correlates with perceived academic stress, a multiple correlation was used. The multiple correlation coefficient ($R$) is the correlation between the weighted sum of the predictor variables and the criterion variable (Kachigan 1986). The squared multiple correlation coefficient ($R^2$) indicates what proportion of the variance of the criterion variable (the stress score) is accounted for by all the predictor variables combined. This can be expressed in the following equation:

\[
\text{STRESS} = f (\text{SEX, JR-U, ETHNIC})
\]

where SEX indicates male-female, JR-U is community college and university, and ETHNIC is white-non-white. (Semester hours is not included since some students did not record this information.)

The $F$ ratio tells whether an observed multiple correlation coefficient is significantly different from zero. Table 1 summarizes the multiple regression findings of this study. If the null is true, there is less than one chance in 10,000 that there is no relationship between these
TABLE 1
MULTIPLE REGRESSION ANALYSIS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>.28569</td>
</tr>
<tr>
<td>R Square</td>
<td>.08162</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>299</td>
</tr>
<tr>
<td>F</td>
<td>8.85757</td>
</tr>
<tr>
<td>Significant F</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

variables and the academic stress score. Thus, it appears that there is a significant relationship ($R^2 = .08162$) between these variables and the academic stress score. To the extent to which $F$ exceeds a value of 1 is indicative of a significant effect of the variables (Kachigan 1986) (see Table 1 for $F$ value).

Method

Once the university and community college had been selected, permission to do the study was sought from the deans of instruction, heads of the departments involved, and individual professors. Once these permissions were received, the researcher contacted the professors involved with the particular students who were to be the subjects. The researcher described the over-all purposes of the study and gave the teacher brief instructions concerning the test (see Appendix D). The teachers were to inform the students
that this was not a test, and that there were no right or wrong answers, and that their course grade would not be influenced if they did not participate. They were tested anonymously and informed that they could withdraw from taking the test at any time without penalty.

The test itself is a listing of thirty-five possible academic stressors (for example, examinations and classroom speaking) which the student indicated by checking if he or she perceived that particular item as stressful and had experienced it as stressful during the current semester. In the literature, there appears to be a lack of agreement as to what constitutes college stress for undergraduate students. Therefore, it was decided to incorporate into this study the latitude of allowing the student to indicate what they personally perceived as stress (rather than just listing events that had occurred to them and assuming they perceived them as stressful). Other than this allowance for individual perception, the instrument is empirical in that the items are predetermined and weighted before the actual testing begins.

According to Lazarus and Launier (1978), stress occurs when a person appraises a situation with the environment as potentially threatening, and it is perceived to exceed the person's adaptive resources.

At the extreme, nothing could be stressful to an individual unless he defines it as such. Therefore, there
would be no event that is universally stressful (Fleming, Baum and Singer 1984). However, realism is implied in the operational definition of stress in this research. Thus, as in a former study by Shirom (1986), the actual measurement of the perception of stress is based on stimuli (test items) that are part of the phenomenological world of the student whose stress perceptions the researcher attempted to gauge. The items included in the Academic Stress Scale represent those that are likely to be actually experienced by a student.

**Delimitations**

The present study is subject to the following delimitations.

1. The sample was chosen from freshmen at Richland Community College and the University of North Texas which both have approximately 80 percent white and 20 percent non-white enrollment (See Table 2).

2. The Academic Stress Scale was administered at a particular time of the academic year.

3. The testing instrument was limited to thirty-five possible academic stressors. (For other possible stressors, see Shirom 1986; Heilburn and Chefitz 1984.)

4. The Academic Stress Scale deals only with academic stress items.
Instrument

In order to measure the perceived academic stress of college students, the Academic Stress Scale was used (see Appendix A). This checklist developed by James Kohn and Gregory Frazer identifies thirty-five academic stressors with an accompanying weighted importance of stressfulness of each item. A convenience sample of 202 university students was used to generate the items. Subsequently, a sample of 498 university students from four midwestern universities was utilized to determine the rated importance of each item. Students were asked to assign values above or below five hundred depending on whether, in their opinion, the specific stressor caused more or less stress than an examination which was arbitrarily given a score of five hundred. For example, buying textbooks might be three hundred, and pop quizzes might be four hundred. The ratings were compiled and averaged, and an adjusted rating for each item was determined as a percentage of the highest rating. In the current study, the researcher chose to name this weighted amount for each item its College Stress Unit score. In the final scale, the College Stress Unit score for final grades was one hundred, term papers was eighty-five, pop quizzes was sixty-seven (see Appendix A).

The Academic Stress Scale was used in this study by initially informing the subjects about the nature of the study and then asking them to check the items on the
Scantron sheet that they felt were stressful to them in the current semester. All College Stress Units were tallied for the items that were checked by the subjects which gave a total equalling the student's Perceived College Stress Score. Obviously, excluded from the list of stressors were stresses experienced in other spheres of the student's life such as work, family, or leisure. Thus, the check list dealt only with academic stressors (see Appendix C, Testing Instrument).

**Summary**

The general characteristics of the university and the community college were presented in this chapter. The two samples, one from the university and the other from the community college were as homogenous as possible. A community college with a similar ethnic percentage and with a commuter student body was chosen.

The quasi-experimental research design was one that used an instrument of previously listed and weighted item selection, but requested that the student indicate only those items perceived as stressful. This instrument was previously developed and tested for reliability and validity (Kohn and Frazer 1986). Threats to internal and external validity were discussed and judged to be controlled. The research method of collection of data was simplified by individual professors administering the tests to their
students using scantron answer sheets. The results were recorded and analyzed by the data collection and computer services of the University of North Texas.
CHAPTER REFERENCE LIST


CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

This chapter begins with a description of the sample and the findings of the procedures used to test each of the four hypotheses. The chapter concludes with a discussion of the major findings of the study.

Description of the Sample

The data were collected during a two-week period in mid-March 1989 at the University of North Texas in Denton, Texas and Richland Community College in Dallas, Texas. A total of 303 college students comprised the sample population—148 from the university and 155 from the community college. The sample was considered homogenous in that these students came from schools which were 80 percent white and 20 percent non-white and from student bodies from primarily a large metropolex area (Dallas-Fort Worth) with many commuting students. Likewise, the entire sample consisted of second-semester freshmen in either English or Psychology classes.

Of the 303 subjects, 146 (48 percent) were male and 157 (52 percent) were female; 51 were non-white (16 percent) and 252 were white (84 percent). Sixty-three students (21 percent) reported being enrolled for less than six semester
hours of college credit. Two hundred thirty-eight students (79 percent) reported that they were enrolled in college courses totalling seven to twelve semester hours, and twenty-two students did not report their semester hours.

Methodology

After the researcher received permission from the participating schools and individuals involved, instruction sheets along with the actual Academic Stress Test and Scantron answering sheets were given to the professors who were to administer the test. They were asked to administer the test to their students within two weeks. In addition, they were requested to return the completed Scantron answer sheet and accompanying form containing demographic data to a special box in the departmental office. They were to notify the researcher if they had any questions or if there was any problem in the administration of the test. Only one teacher notified the researcher that she had a question about anonymity of the subjects, and that she had failed to give the test within the allotted two-week time period. Therefore, these particular tests were eliminated from possible inclusion in the sample since they did not fulfill the allotted time period.

Of the 450 tests that were given, 147 were eliminated either because the students who had completed the test were not freshmen or because they had incorrectly completed the
TABLE 2
DESCRIPTION OF SAMPLED INSTITUTIONS

<table>
<thead>
<tr>
<th>Institution</th>
<th>Black Male</th>
<th>Black Female</th>
<th>White Male</th>
<th>White Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of North Texas</td>
<td>493</td>
<td>755</td>
<td>7906</td>
<td>9282</td>
</tr>
<tr>
<td>Richland Community College</td>
<td>352</td>
<td>476</td>
<td>4767</td>
<td>5678</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of North Texas</td>
<td>342</td>
<td>320</td>
<td>51</td>
<td>58</td>
</tr>
<tr>
<td>Richland Community College</td>
<td>239</td>
<td>272</td>
<td>386</td>
<td>294</td>
</tr>
<tr>
<td>Indian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of North Texas</td>
<td>35</td>
<td>25</td>
<td>1308</td>
<td>696</td>
</tr>
<tr>
<td>Richland Community College</td>
<td>24</td>
<td>25</td>
<td>73</td>
<td>48</td>
</tr>
</tbody>
</table>

Percent White: University of North Texas 80
Richland Community College 80
Percent Non-White: 20*

*approximate values
Statistical Supplement, Fall 1987

answer sheet. Thus, 303 remained as the total sample, with 148 being university students, and 155 being community college students. The answers to the individual tests as well as the demographic data about each student was entered into the computer and analyzed for differences in the hypothesized variables by means of a T-test of significance. In addition, a multiple regression analysis was performed to
determine if there was any predictive quality in these variables.

**Findings**

The data was analyzed by means of the T-statistic. The two assumptions of the T-test are that the distribution of the sample mean differences approximate a normal curve, and that the two populations from which samples are selected have the same variances. The first assumption will be satisfied if either the two populations are normal or both samples are relatively large (n > 30) (Gravetter and Wallnau 1988, 259). In this study, the samples were considerably larger than thirty. The first sample (community college freshmen) contained 155 subjects, and the second sample (university freshmen) had 148 subjects. The homogeneity of variance is discussed when dealing with each individual variable of Group (university or community college), Gender (male or female), Semester Hours (more than six hours, or between seven and twelve hours), and Ethnicity (white or non-white).

Of the 303 stress scores recorded, the highest total score for an individual student was 1,532, and the lowest score was 120—a range of 1,412 College Stress Units. This may indicate the wide variation of stress perception in individual students.
The first hypothesis states that there is no significant difference in the perceived academic stress of freshmen in a two-year college and in a university. To test this hypothesis, volunteer freshmen from a two-year college and a university were given the Academic Stress Test. The total of each student's stress score was entered into the computer along with certain demographic data about that student such as their classification, gender, and semester hours enrolled. In addition, they were asked to indicate their score on the college SAT entrance test. However, many students did not record this SAT score, and it was not entered as usable data.

As can be seen in Table 3, the mean stress score for university students was higher than that of community college students. The mean stress score for university students was 874.86, and for community college freshmen it was 708.36. Choosing an alpha of $p = .05$, a T-test was performed using the SPSS-X computer program for independent samples. The goal of this research was to use the data from two samples as the basis for evaluating the mean difference between two populations. Although the samples were not randomly chosen, they were representative of their populations.

The greater the sample size ($n$), the larger the degrees of freedom ($n - 1$), and the better the $T$-distribution approximates the normal distribution (Gravetter and Wallnau
TABLE 3

T-TEST FOR HYPOTHESIS ONE
(COMMUNITY VS. UNIVERSITY)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Cases</th>
<th>Mean Stress Score</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Community</td>
<td>155</td>
<td>708.3613</td>
<td>330.507</td>
</tr>
<tr>
<td>Group 2</td>
<td>University</td>
<td>148</td>
<td>874.8581</td>
<td>426.293</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>F-Value</th>
<th>2-Tailed Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance of Samples</td>
<td>1.66</td>
<td>p &lt; .002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>T-Value</th>
<th>Degrees of Freedom</th>
<th>2-Tailed Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate Variance Estimate</td>
<td>-3.79</td>
<td>277.05</td>
<td>p &lt; .001</td>
</tr>
</tbody>
</table>

p = .05
The difference in the means is significant.

1988). This study fulfills this requirement of a large sample size.

Using a two-tailed probability, the F-value was 1.66 with p < .002 showing that this grouping (university and community college) did not meet the assumption of the homogeneity of variance.
As has been stated, one of the assumptions of the T-statistic is that the two populations from which the samples are selected have the same variances. This is called "homogeneity of variance" (Gravetter and Wallnau 1988). If the two samples have variances that are similar, then there is said to be a homogeneity of variance. If one is as much as four times larger than the other, then one has violated this assumption. For the first hypothesis, one can merely look at Table 2 at the standard deviations for both groups and square them to compare variances. As has been stated, this first hypothesis did not meet the requirement of homogeneity of variance because there was more variance in Group 2 (the university group). In order to determine the T-value, the separate variance estimate was used for this hypothesis. At $p < .001$ and df of 277.05 (adjusted for a separate variance estimate) the T-value was -3.79. This T-value indicates that the data are not consistent with the null hypothesis and that the data suggest the existence of a significant difference between the two means (see Table 3).

The T-statistic was likewise used to test the remaining hypotheses. The second hypothesis stated that the perceived academic stress of male college freshmen is not significantly different from that of female college freshmen. The mean stress score for males taking the test was 707.86, and for females it was 865.78. The difference in means was significant at the .0001 level (see Table 4). This is in
agreement with a study by Palladino and Tryon (1978) where they conclude that gender differences in personal problems show that women report more problems than men on a self-report checklist. Men and women appear to moderate their stress differently. Henderson (1981) found that the buffering effects of confidant support was helpful for women but not for men. Such differences may be differences in the types of stressors experienced by men and women (Billings and Moos 1981).

The third hypothesis stated that there is no significant difference in the academic stress scores of students taking many semester hours (seven or more) and students taking few semester hours (up to six). The mean stress score of students taking between seven and twelve semester hours was 842.40 and for those taking less than seven semester hours, it was 606.54 (see Table 5). This difference was significant at the .0001 level and the null hypothesis was rejected. Evidence from this study seems to suggest the existence of a positive correlation between the number of semester hours and the amount of perceived academic stress.

Taking more semester hours could be indicative of the type of student and thus be involved in his stress perceptions. Studies across academic levels have revealed a positive correlation between the tendency to be a Type A personality and having high academic achievement.
TABLE 4
T-TEST FOR HYPOTHESIS TWO
(MALES AND FEMALES)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Cases</th>
<th>Mean Stress Score</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>146</td>
<td>707.86</td>
<td>381.873</td>
<td>31.604</td>
</tr>
<tr>
<td>Females</td>
<td>157</td>
<td>865.77</td>
<td>380.648</td>
<td>30.379</td>
</tr>
</tbody>
</table>

F-Value   2-Tailed Probability

| Variance of Samples | 1.01 | .967 |

<table>
<thead>
<tr>
<th>T-Value</th>
<th>Degrees of Freedom</th>
<th>2-Tailed Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pooled Variance Estimate</td>
<td>-3.60</td>
<td>301</td>
</tr>
</tbody>
</table>

p = .05

The difference in the means is significant.

(Ovcharchyn, Johnson and Petzel 1981). There appears to be a strong desire to succeed in this form of stress. Thus, increased semester hours might be related to the kinds of stress perceptions students bring to the classroom by virtue of inherent personality characteristics, such as demonstrating Type A behavior. On the other hand, increased stress due to semester hours could be related to the actual work involved in taking the courses or the financial burden
TABLE 5
T-TEST FOR HYPOTHESIS THREE (LOW SEMESTER HOURS AND HIGH SEMESTER HOURS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Cases</th>
<th>Mean Stress Score</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Semester Hours (0-6)</td>
<td>63</td>
<td>606.53</td>
<td>343.90</td>
<td>43.328</td>
</tr>
<tr>
<td>High Semester Hours (7-12)</td>
<td>238</td>
<td>842.39</td>
<td>384.39</td>
<td>24.91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>F-Value</th>
<th>2-Tailed Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance of Samples</td>
<td>1.25</td>
<td>0.299</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>T-Value</th>
<th>Degrees of Freedom</th>
<th>2-Tailed Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pooled Variance Estimate</td>
<td>-4.42</td>
<td>299</td>
<td>p &lt; 0.001</td>
</tr>
</tbody>
</table>

$p = .05$
The difference in the means is significant.

involved with being enrolled in more semester hours. Rising tuition costs and inflation have made significant contributions to student stress indicated by an increased concern with finances and employment (Palladino and Tryon 1978).

This increasing concern with money was documented in Astin's (1988) national study of American higher education.
This research project which involved an ex-post-facto descriptive survey of attitudes of entering freshmen of 1966 and those of 1985, surveyed over six million students since 1966. Astin concluded that most of the values items on the annual freshmen survey showing increases in recent years were those concerned with money, power, and status (Astin 1986). In Astin's 1988 survey he noted that one of the identified stressors of entering freshmen is their concern about paying for college.

Hypothesis four states that no significant difference exists between the academic stress scores of white and non-white college students. The mean stress score of white students was 794.23 and non-whites was 767.25 which was not found to be significant ($p = .652)$ (see Table 6). When the null hypothesis states that there is no difference and the $T$-statistic is close to zero (in this case it was -0.45), the difference is not significant (Gravetter and Wallnau 1988). Thus, the researcher failed to reject the null hypothesis since there was no support of a significant difference in means. This finding is in agreement with recent studies that suggest that there is a possible lessening effect of ethnicity differences, and that racism and isolation may be lessened by the fact that students who commute are able to leave the campus and return to a family atmosphere perhaps more supportive of their goals (Mannon, Charleston, and Saghafi 1986). The ways in which other
TABLE 6

T-TEST FOR HYPOTHESIS FOUR
(WHITE AND NON-WHITE)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Cases</th>
<th>Mean Stress Score</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>252</td>
<td>794.22</td>
<td>387.97</td>
<td>24.44</td>
</tr>
<tr>
<td>Non-White</td>
<td>51</td>
<td>767.25</td>
<td>395.51</td>
<td>55.38</td>
</tr>
</tbody>
</table>

F-Value | 2-Tailed Probability

Variance of Samples | 1.04 | 0.822

T-Value | Degrees of Freedom | 2-Tailed Probability

Pooled Variance Estimate | -0.45 | 301 | 0.652

p = .05
The difference in the means is not significant.

variables might have related ethnicity to academic stress, such as academic preparedness, were not included in the present study.
<table>
<thead>
<tr>
<th>Item (Stressor)</th>
<th>Number of Students Who Checked Item</th>
<th>Percentage of Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Final Grades</td>
<td>193</td>
<td>63.69</td>
</tr>
<tr>
<td>2. Excessive Homework</td>
<td>186</td>
<td>61.38</td>
</tr>
<tr>
<td>3. Term Papers</td>
<td>180</td>
<td>59.40</td>
</tr>
<tr>
<td>4. Examinations</td>
<td>245</td>
<td>80.85</td>
</tr>
<tr>
<td>5. Forgotten Pencil/Pen</td>
<td>47</td>
<td>15.51</td>
</tr>
<tr>
<td>6. Studying for Exams</td>
<td>202</td>
<td>66.66</td>
</tr>
<tr>
<td>7. Class Speaking</td>
<td>132</td>
<td>43.56</td>
</tr>
<tr>
<td>8. Poor Classroom Lighting</td>
<td>30</td>
<td>9.9</td>
</tr>
<tr>
<td>10. Classes Without Open Discussion</td>
<td>49</td>
<td>16.17</td>
</tr>
<tr>
<td>11. Crowded Classes</td>
<td>75</td>
<td>24.75</td>
</tr>
<tr>
<td>12. Irrelevant Classes Toward Major</td>
<td>113</td>
<td>37.29</td>
</tr>
<tr>
<td>13. Noisy Classroom</td>
<td>85</td>
<td>28.05</td>
</tr>
<tr>
<td>14. Note-Taking in Class</td>
<td>79</td>
<td>26.07</td>
</tr>
<tr>
<td>15. Waiting for Graded Tests</td>
<td>168</td>
<td>55.44</td>
</tr>
<tr>
<td>16. Fast-Paced Lectures</td>
<td>171</td>
<td>56.43</td>
</tr>
<tr>
<td>17. Unclear Course Objectives</td>
<td>138</td>
<td>45.54</td>
</tr>
<tr>
<td>18. Learning New Skills</td>
<td>37</td>
<td>12.21</td>
</tr>
<tr>
<td>19. Pop Quizzes</td>
<td>140</td>
<td>46.20</td>
</tr>
<tr>
<td>20. Forgotten Assignments</td>
<td>163</td>
<td>53.79</td>
</tr>
<tr>
<td>21. Incomplete Assignments</td>
<td>118</td>
<td>38.94</td>
</tr>
<tr>
<td>22. Unclear Assignments</td>
<td>184</td>
<td>60.72</td>
</tr>
<tr>
<td>23. Unprepared to Respond to Questions</td>
<td>140</td>
<td>46.20</td>
</tr>
<tr>
<td>24. Announced Quizzes</td>
<td>73</td>
<td>24.09</td>
</tr>
<tr>
<td>25. Studied Wrong Material</td>
<td>110</td>
<td>36.30</td>
</tr>
<tr>
<td>26. Incorrect Answers in Class</td>
<td>77</td>
<td>25.41</td>
</tr>
<tr>
<td>27. Arriving Late for Class</td>
<td>97</td>
<td>32.01</td>
</tr>
<tr>
<td>28. Cold Classrooms</td>
<td>60</td>
<td>19.80</td>
</tr>
<tr>
<td>29. Late Dismissals of Class</td>
<td>116</td>
<td>38.28</td>
</tr>
<tr>
<td>30. Attending Wrong Class</td>
<td>44</td>
<td>14.52</td>
</tr>
<tr>
<td>31. Boring Classes</td>
<td>135</td>
<td>44.55</td>
</tr>
<tr>
<td>32. Non-Native Language Lectures</td>
<td>52</td>
<td>17.16</td>
</tr>
</tbody>
</table>
Table 7—Continued

<table>
<thead>
<tr>
<th>Item (Stressor)</th>
<th>Number of Students Who Checked Item</th>
<th>Percentage of Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>33. Hot Classrooms</td>
<td>89</td>
<td>29.37</td>
</tr>
<tr>
<td>34. *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Buying Textbooks</td>
<td>104</td>
<td>34.32</td>
</tr>
</tbody>
</table>

*Item 34 was typed as "Learning New Skills" by the researcher. This was just repeating item 18, and thus was not used. Only the first time the student checked this item (that is, if he or she checked item 18) was it used. On the original Academic Stress Scale, number 34 was "Evaluating Classmates' Work," which had a weighted value of 29.


CHAPTER V

SUMMARY OF THE STUDY

This final chapter consists of a summary of the study, a discussion of the findings and conclusions, and a listing of recommendations for further study.

Summary

The problem of the study was to investigate the perceived academic stress of both university and community college freshmen. Other than personal problems, the general academic area is perceived by students to be most stressful (Wright 1964). The intensity of an individual student's stress seems to be dependent on available support measures, individual stress tolerance, and individual perception of stressful events (Zitzow 1984). Thus, accurate measurement of the student's perception of stress was of considerable importance in the study.

The purpose of the study was to compare the academic stress of freshmen in a community college with the academic stress of freshmen in a university. An additional purpose was to determine if gender, ethnicity, or semester course load was related to perceived academic stress.

A survey of related literature revealed that anxiety and stress definitely interfere with the task of learning.
Generally, the more difficult and less structured the situation, the greater are the processing demands, and the more debilitating is the effect of stress on the student. Although a few studies mention the facilitative effect of stress on the student's motivation or drive level, most studies emphasize that beyond a certain coping threshold, stress has a deleterious effect on the student. Six different studies conclude that it is in the area of academics that college students indicate they perceive most college stress.

Although no study has been done to compare the stress levels of students in a community college with the stress level of students in a university, many studies have been done in recent years to investigate the problems involved in student transfer from a community college to a university. Likewise, there are many studies having to do with student dissatisfaction with college and student dropout. The personal characteristics of community college students differ from that of university students. Several studies concerning attrition show that among the many reasons for dropping out of college, academic problems are paramount.

This quasi-experimental study involved not only comparing students at a community college with a university, but also dealt with gender, ethnicity, and course load as factors that might be related to perceived academic stress. Several studies indicate that women express more anxieties
than men. Also, the literature supports the concept that an increase desire for achievement may be related to increases in stress perceptions. Literature to this date on white-non-white issues emphasizes the multiplicity of factors involved. Ethnic background may or may not be related to stress perception. One study showed that the effects of stress involved with racism towards the student might possibly be buffered by a student who commutes.

The current study used 303 university and community college freshmen from English and Psychology classes at the University of North Texas and Richland Community College during the spring semester, 1989. The researcher used the classroom teacher to administer the instrument, the Academic Stress Test. This test is a 35-item check-list of possible academic stressors. The students were asked to indicate the items which were perceived by them to be stressful and had occurred to them during the current semester. The individual items on this checklist were weighted and the total stress score was determined for each student by adding up the weights of the items which they had checked. Demographic data were collected from the 303 subjects and entered into the computer with the aid of Scantron answering sheets. This data, including gender, ethnicity, and semester course load, was the basis for making comparisons between these variables. The population demographics concerning gender and ethnicity are shown in Table 2.
Individual responses to each item and the total stress scores for each student were entered into the computer and analyzed. The T-statistic was used to analyze the total mean stress score for the four hypotheses. Multiple regression was used to determine if the variables had a predictive effect for academic stress.

Summary of the Findings

In the sample population of 303 freshmen college students, 155 attended Richland Community College, and 148 attended the University of North Texas. This sample represented the population of freshmen attending a community college or a university on a predominantly commuting campus with an ethnic ratio of 80 percent white and 20 percent non-white students. The sample consisted of 146 (48 percent) males and 157 (52 percent) females, 252 (84 percent) white and 51 (16 percent) non-white. There were 63 (21 percent) students enrolled for less than six semester hours and 238 (79 percent) enrolled in seven to twelve semester hours, and two students did not report their semester hours.

The following list summarizes the findings of this study.

1. The data suggest the existence of a significant difference between the perceived academic stress of the community college freshmen and the perceived academic stress of the university freshmen as measured by the Academic
Stress Test. The mean of the academic stress score for the university freshmen was higher than the mean for community college freshmen.

2. Perceived academic stress of male college freshmen was found to be significantly different from that of female college freshmen. Overall, the mean of the stress score for females was higher than that of males on the Academic Stress Test.

3. The mean of the academic stress scores of the college freshmen taking more semester hours (seven to twelve hours) was greater than the mean academic stress score of college freshmen taking fewer (less than six) semester hours. The data suggest this difference in means to be significant.

4. There was found to be no significant difference in the perceived academic stress of the white and non-white freshmen college students.

Additional Findings

The following list summarizes some additional findings of this study.

1. The items checked by most subjects (see Table 7) were the ones related to test-taking (number 4—Examinations and number 6—Studying for Examination).

2. Final grades, excessive homework, term papers, waiting for test grades, forgotten assignments, and unclear
assignments were items that were checked by over 150 subjects (see Table 7).

3. The largest total stress score by an individual student on the Academic Stress Test was 1,532, and the lowest score was 120, giving a range of 1,412 College Stress Units.

Discussion of the Findings

There were four hypotheses in the study. Hypothesis one was related to the primary purpose of determining if there was a relationship between the perceived academic stress of a freshman attending a community college and a freshman attending a university. Hypotheses two, three, and four dealt with the variables of gender, semester hours, and ethnicity and their possible relationship to perceived academic stress. A discussion of the four hypotheses follows with the conclusion of some additional findings.

Hypothesis One

There was a significant difference in the mean stress scores of university freshmen and community college freshmen. This result is consistent with the increased university academic demands felt by the community college student who transfers to a university (Lunneborg and Lunneborg 1978). This result is also consistent with the findings of Johnson (1987) in which community college students who
transfer have problems coping with the academic demands of a university.

Hypothesis Two

There was a significant difference in the mean stress scores between male and female freshmen. Females indicated higher perceived academic stress. Johnson (1987) found that male transfer students perceived the pressures of external factors to be associated with their academic satisfaction and female transfer students put more emphasis on being academically integrated. For the female student, academic performance hinged on their academic satisfaction, whereas males' academic performance involved the stress of external factors (i.e., non-academic factors).

Hypothesis Three

There was a significant difference in the mean stress score of those taking more semester hours (seven to twelve) and those taking fewer (less than six) semester hours. Those freshmen taking more semester hours had more perceived academic stress. This is consistent with studies showing that an increased desire to succeed is frequently positively related to increased stress level (Kagan and Fasan 1988).

Hypothesis Four

There was no significant difference in the mean stress scores of white and non-white freshmen students. This
finding is in agreement with research that shows that commuter students having multiple demands on their time do not spend as much time on campus, and, thus, their racial problems, if any, might be mediated (Mannon, Charleston, and Saghafi 1986). Other possible contributing factors, such as ability and achievement levels, were not investigated in the study.

Conclusions

The findings of the present study led to the following conclusions.

1. The primary purpose of the study was to compare perceived academic stress of freshmen in a community college with that of perceived academic stress of freshmen in a university. The Academic Stress Scale, a weighted list of thirty-five academic stressors, was given to each student to indicate which items were perceived as stressful in the current academic semester. The conclusion that there is a significant difference in the perceived academic stress of university students and community college students is consistent with the related research, especially that concerning transfer students from a community college to a university. The university students' academic stress perception was greater than the community college students, and it can be concluded that university students whether
from personality characteristics or the academic situation itself, perceive more stress in the area of academics.

2. Another purpose was to compare the academic stress of the freshmen student with the variables of gender, semester hours, and ethnicity. It can be concluded that there is a significant difference between the perceived academic stress of female and male freshmen. Females appear to perceive more stress in academics. The conclusion that females perceive more academic stress is consistent with recent investigations on gender and stress.

3. It can be concluded that freshmen taking more semester hours have more perceived academic stress. This finding is in agreement with the possibility that the high-achieving or success-oriented individual often perceives more stress than the individual with less drive or motivation.

4. The result of the study concerning ethnicity showed no significant difference in the mean stress scores of whites and non-whites. This result is consistent with the findings of other researchers as to the multiplicity of variables that can confound the ethnic variable's effect on a study.

5. Additional findings of the study are a list of most frequently checked items indicated by this sample of freshmen as related to their perceived academic stress. These included examinations, studying for examinations,
final grades, excessive homework, term papers, waiting for test grades, forgotten assignments, and unclear assignments. No statistically-based conclusions were made from these findings.

Implications

The findings of this study demonstrate that it is possible to isolate a component of student stress (academics) and analyze it. In looking at the findings regarding hypothesis one, it was concluded that university students' academic stress perception was greater than community college students. On the surface, this might appear to be due to the academics of a university being more difficult than a community college. However, the review of literature reveals that community college students have less academic ability and more difficulties in an academic setting. This seems contradictory to the findings of less stress in community college students. A possible scenario that might have occurred is that either these particular community college students were more academically prepared than Tinto's (1975) sample, or else something was happening in this community college to buffer their stress. These students might have been receiving extra social support or counseling which the university students were not receiving. Also, they were perhaps experiencing more of a mastery of
the subject matter (due to either lower requirements or supplemental tutoring).

The second hypothesis dealing with male and female perceived stress has implications for the college classroom. More studies need to be done to determine if perhaps males and females should be given different assignments. In replication studies, would there be increased female stress? Other factors including age, grade-point average, family situation, and job situation might reveal contributing factors to this additional stress.

As to the third hypothesis dealing with the number of semester hours taken, additional information on personality type, financial resources, and area of major study might show striking differences in stress level.

The finding of no significant difference between whites and non-whites in this study might be a challenge to typical stereotypes of certain cultural groups. Other studies need to be done to analyze the various means of buffering stress used by different ethnic groups. It would also be of value to know which academic stressors are particularly stressful to which ethnic group. This knowledge might enable college faculty and counselors to effectively assist those students to lower their stress level.

The whole idea of stress on the college campus is a very complex concept to isolate and analyze. The fact that this study attempted to isolate perceived academic stress
does not lessen the problem. Stress appears to be an interaction over time of two complex systems—the environment and the individual. Thus, stress is relational.

Perhaps, in addition to analyzing the amount of perceived stress students experience because they are in college, it would be interesting to test the effect, or the stress, that the students "inflict" on the college--on the physical environment, the city where the college is located, and the faculty. This study primarily deals with the stress teachers contribute to students. Perhaps a study might be conducted that illustrates the stress students bring to teachers.

Another implication of this study might be to the student who feels stress because of a lack of academic pressure from faculty. Some individuals appear to have a strong need to use their intellectual abilities and an "underload" of academics appears to cause boredom and stress. As can be seen by this study, 135 students checked "Boring Classes" as stressful to them.

Lazarus (1966) defines stress as a psychological condition involving the anticipation on the part of the organism of his inability to cope effectively with some future stimulus. Of all the definitions of stress, this one may apply to the college student because of the emphasis on grades and testing which are future events.
The primary implication of this study is its methodology for measuring student perceptions. It used an empirical instrument which listed items which were pre-weighted in value, but the instrument allowed for individual perceptions by asking the students to check the item only if it was perceived as stressful. This is a different methodology than Holmes and Rahe (1967) who ask the respondent to check the item if it occurred. The assumption of this study is that perhaps some of these items were experienced by students but were not perceived as stressful.

The final implication is that comparisons between community college students and university students can be made. What appears to be unique to the community college as an educational institution is the heavy emphasis on counseling, and the findings of this study would support that idea.

**Recommendations**

Based on the findings and conclusions of the study, the following recommendations are made.

1. A replication of the study using the Academic Stress Scale should be made at various institutions of higher education. This study might be repeated at various institutions not only to compare the stress scores but also demographic data, perhaps including SAT scores. Also of interest might be a correlational study between the type of college, a private or state school, and stress, or between
the number of student services and other extra-curricular support services and the overall academic stress scores.

2. Individual institutions may wish to replicate the study with a certain cross-section of their student body. Possible cross-sections to analyze might include students in different majors, for example, psychology vs. biology. Comparing freshmen, sophomores, juniors, and seniors might have value in analyzing the academic stress of the particular year in college.

3. Another instrument might be developed with additional stressors. Since the study used an instrument which excluded all but academic stressors, perhaps males might score higher if external factors were included. Additional academic stressors might be added to the instrument. Also a similar instrument might be developed using only non-academic stressors of college (i.e., parking problems, fraternity problems, and others).

4. Although the total impact of the lack of racial social integration was not addressed in the study, more studies need to be conducted in the area of ethnicity. To study ethnicity, the use of SAT scores might be helpful. Also an analysis of various cultural groups and their academic stress score might be of value.

5. Since university freshmen and freshmen taking increased academic loads experienced increased stress perceptions, the researcher recommends measures to assist
these particular students, such as targeted counseling and other special resources. Targeted counseling would include such measures as automatic contact of students with poor grades by Student Services informing them of the counseling available at the school. Offering tutoring to freshmen at reduced rates might be another attempt to lower academic stress.


Academic Stress Scale (with accompanying College Stress Units)

<table>
<thead>
<tr>
<th>Item</th>
<th>Weighted College Stress Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Final grades</td>
<td>100</td>
</tr>
<tr>
<td>2. Excessive homework</td>
<td>85</td>
</tr>
<tr>
<td>3. Term papers</td>
<td>84</td>
</tr>
<tr>
<td>4. Examinations</td>
<td>84</td>
</tr>
<tr>
<td>5. Forgotten pencil/pen</td>
<td>36</td>
</tr>
<tr>
<td>6. Studying for exams</td>
<td>82</td>
</tr>
<tr>
<td>7. Class speaking</td>
<td>81</td>
</tr>
<tr>
<td>8. Poor classroom lighting</td>
<td>28</td>
</tr>
<tr>
<td>9. Evaluating classmates' work</td>
<td>29</td>
</tr>
<tr>
<td>10. Classes without open discussion</td>
<td>30</td>
</tr>
<tr>
<td>11. Crowded classes</td>
<td>33</td>
</tr>
<tr>
<td>12. Irrelevant classes toward major</td>
<td>34</td>
</tr>
<tr>
<td>13. Noisy classroom</td>
<td>36</td>
</tr>
<tr>
<td>14. Note-taking in class</td>
<td>36</td>
</tr>
<tr>
<td>15. Waiting for graded tests</td>
<td>76</td>
</tr>
<tr>
<td>16. Fast-paced lectures</td>
<td>70</td>
</tr>
<tr>
<td>17. Unclear course objectives</td>
<td>48</td>
</tr>
<tr>
<td>18. Learning new skills</td>
<td>49</td>
</tr>
<tr>
<td>19. Pop quizzes</td>
<td>67</td>
</tr>
<tr>
<td>20. Forgotten assignments</td>
<td>66</td>
</tr>
<tr>
<td>21. Incomplete assignments</td>
<td>61</td>
</tr>
<tr>
<td>22. Unclear assignments</td>
<td>61</td>
</tr>
<tr>
<td>23. Unprepared to respond to questions</td>
<td>57</td>
</tr>
<tr>
<td>24. Announced quizzes</td>
<td>57</td>
</tr>
<tr>
<td>25. Studied wrong material</td>
<td>57</td>
</tr>
<tr>
<td>26. Incorrect answers in class</td>
<td>54</td>
</tr>
<tr>
<td>27. Arriving late for class</td>
<td>36</td>
</tr>
<tr>
<td>28. Cold classrooms</td>
<td>37</td>
</tr>
<tr>
<td>29. Late dismissals of class</td>
<td>38</td>
</tr>
<tr>
<td>30. Attending wrong class</td>
<td>39</td>
</tr>
<tr>
<td>31. Boring classes</td>
<td>39</td>
</tr>
<tr>
<td>32. Non-native language lectures</td>
<td>43</td>
</tr>
<tr>
<td>33. Hot classrooms</td>
<td>48</td>
</tr>
<tr>
<td>34. Not Used (see notation in Table 7)</td>
<td></td>
</tr>
<tr>
<td>35. Buying textbooks</td>
<td>51</td>
</tr>
</tbody>
</table>
APPENDIX B

INFORMED CONSENTS
USE OF HUMAN SUBJECTS INFORMED CONSENT

Name of Subject: ________________________________

I hereby give consent to Sandy Garrett to perform the following investigational procedure treatment:

ACADEMIC STRESS SCALE

I have heard a clear explanation and understand the nature of this procedure. I understand that the procedure is investigational and that I may withdraw my consent at any time without prejudice or penalty. With my understanding of this, having received this information and satisfactory answers to the questions I have asked, I voluntarily consent to the procedure designated above.

Signed: ______________________________________

Date: _______________________________________

Witness: ____________________________________

Witness: ____________________________________
Dear

I am conducting research on college stress and its measurement. I would like to use the students at your college to complete my test measurement tool. It will take them approximately fifteen minutes of their time, and they will be fully informed about the test. It will be done anonymously, and they will sign a consent form to participate in this voluntary study.

I seek your permission to ask your students to participate. I will work with the appropriate faculty member.

Please check.

Permission ____ granted ____ denied.

Signed: ________________________________

Office: ________________________________

Thank you for your consideration.

Sincerely,

Sandy Garrett

For further information, you may contact me at 1-817-566-1047 or write to 1431 N. Locust, Denton, Texas 76201.
APPENDIX C

TESTING INSTRUMENT
PLEASE COMPLETE BEFORE FILLING OUT FORM.

Circle: Male Female

Classification: Fr Soph Jr Sr Grad

Number of semester hours currently taking: ____

SAT Score Verbal ____ Math ____ Cumulative ____

Check one:

Ethnic origin: Black ____ White ____ Hispanic ____

Asian ____ Indian ____

On the following page, please check the item if it has been stressful to you in the current semester.
ACADEMIC STRESSORS

Check any item that has been stressful for you this semester.

- Final grades
- Excessive homework
- Term papers
- Examinations
- Forgotten pencil/pen
- Studying for exams
- Class speaking
- Poor classroom lighting
- Evaluating classmates' work
- Classes without open discussion
- Crowded classes
- Irrelevant classes toward major
- Noisy classroom
- Note-taking in class
- Waiting for graded tests
- Fast-paced lectures
- Unclear course objectives
- Learning new skills*
- Pop quizzes
- Forgotten assignments
- Incomplete assignments
- Unclear assignments
- Unprepared to respond to questions
- Announced quizzes
- Studied wrong material
- Incorrect answers in class
- Arriving late for class
- Cold classrooms
- Late dismissals of class
- Attending wrong class
- Boring classes
- Non-native language lectures
- Hot classrooms
- Learning new skills*
- Buying textbooks

*By mistake, this item was listed twice on the testing instrument. The second time, the item should have been "Evaluating classmates' work."
APPENDIX D

TEACHER INSTRUCTIONS
INSTRUCTIONS FOR TEACHERS

First: Pass around consent forms letting them know this is voluntary.

Instructions for you to read to the students:

As soon as you have signed your consent form and had two other students be your witnesses, pass them to the front. This test is completely anonymous, and no one will know your answers.

The purpose of this test is to measure the academic stress of college. Please complete the front form on the test itself in pen or pencil. Leave it stapled to your test. Turn the page and you may begin. Merely circle in on the Scantron sheet if the item has been stressful to you during this current semester. For example, if Final Grades from last semester was stressful to you, color in circle A under number 1 on your Scantron sheet. All the other stressors apply to the current semester you are in right now. For example, if number 22, Unclear Assignments, in any course is stressful to you during the current semester, circle in A on the Scantron by number 22.

Return all sheets and pencils to the teacher when you have completed the test. It should take about ten to fifteen minutes.

Thank you for cooperating in this study.

Sandy Garrett

Teachers:

Be sure the test number is the same as the ID number on the Scantron sheet.
REFERENCE LIST


Statistical Supplement: 15-25.


