CLARK'S "COOLING OUT" CONCEPT
AS A FACTOR IN STUDENT
COMPLETION OF COMMUNITY COLLEGE PROGRAMS

BY

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To My Mother and Father

"Nita and Ski" Kaliszeski

for their willingness to give of themselves and for encouragement to strive above and beyond --
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Abstract of Dissertation Presented to the Graduate School of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

CLARK'S "COOLING OUT" CONCEPT AS A FACTOR IN STUDENT COMPLETION OF COMMUNITY COLLEGE PROGRAMS

By

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Chairman: James L. Wattenbarger
Major Department: Educational Leadership

The purpose of this study was to determine if there was a significant difference in relation to selected student characteristics between students who have followed the cooling out process and those who have not as measured by their graduation status from a two-year community college. The cooling out process was defined as a set of counseling strategies designed to assist students with unrealistic aspirations in selecting alternative career goals which would be more in line with their abilities.

The sample drawn for this study was taken from two community colleges in Florida based on the criterion that one served a predominantly urban population and one served a predominantly rural population. From each college a master list of students was obtained whose last term of enrollment
was the Fall semester 1984. From these lists a total of 100 dropouts and 100 graduates were randomly selected for study.

An ex post facto design was utilized which involved collecting certain information for each student in the sample by reviewing academic transcripts. Additional information was obtained through a subsequent telephone interview. Data which were collected concerning race, gender, father's occupation, status (dropout or graduate), and process (followed the cooling out process or did not follow the cooling out process) were synthesized for each student and recorded for analysis. Non-parametric statistical procedures were performed to determine if significant differences existed between student status and process based on the variables of race, gender, and father's occupation.

Results of the study showed (a) the relationship between student status and process was statistically significant. The cooling out process appears to be linked to dropping out regardless of race, gender, or father's occupation; (b) the relationship between race and process was statistically significant and (c) the relationships between gender and process, and father's occupation and process were not statistically significant.

Recommendations based on the major findings of this study and topics for further study were presented.
CHAPTER I
INTRODUCTION

Declining enrollment is a serious problem currently affecting many institutions of higher education. This problem becomes amplified when one considers that some studies indicate a 24% to 50% rate of student attrition at many institutions of higher education (Analysis of Persistence, 1981; Astin, 1975; Beal & Noel, 1980; Clagett, 1982; MacMillian & Kester, 1973; Nespoli & Radcliffe, 1982; Pantages & Creedon, 1978; Thornton, 1966; Tinto, 1982). In their studies of college attrition, Pantages and Creedon (1978) observed that, in terms of numbers alone, the attrition problem deserves the attention of those affiliated with institutions of higher education.

The open-door community college appears to be prone particularly to high rates of student attrition. Zwerling (1976) reported that national dropout rates for junior college students range up to 75% during the course of the two years. Cope and Hannah (1975) cited similar observations.

The rate of dropping out among community college students is apparently considerably higher than rates at four-year colleges. Although reliable
data on community colleges are difficult to find—in fact, they are usually artfully buried—nationally it appears that approximately one half of community college students do not return for a second year and only about half of the remaining students go on to complete the requirements for the associate degree. . . . Our estimate is that about 2 students in 10 entering community college stay on to complete the requirements for an associate degree and 1 in 10 go on to complete the requirements for a baccalaureate degree. (p. 2)

Some of those who have been critical of the community college blame this high rate of attrition on the open-door admissions concept. Clark (1960b) discussed this unique feature of the community college and noted that the open door allows the community college to admit all applicants, regardless of ability, academic achievement in high school, or past experiences.

This egalitarian philosophy of admissions has been a topic of controversy among educators as well as those who have been critical of the community college. Cross (1974), in discussing the various philosophies behind college admissions policies, stated "the sign of the times is illustrated by a headline (Time, 1970) reading: Open Admissions: American Dream or Disaster?" (p. 4).

Many believe that it is difficult at best, if not impossible, to provide equal opportunity, and maintain academic integrity. Clark (1962) observed democracy encourages aspiration, and generous admission allows the student to carry his hopes into the school or now principally the college. But there his desires run into the standards
necessary for the integrity of programs and training of competent workers. (p. 80)

As American higher education began to embrace the egalitarian philosophy of admissions, enrollments increased drastically as students began seeking post-secondary education as a means of achieving upward mobility. Vaughan (1980) noted that after World War II, the belief that everyone should have the opportunity to pursue some form of post-secondary education became very popular. The American citizenry in general began to view the college credential as a ticket to a better way of life. Karabel (1972) noted "the stress on diplomas has led to a clamor for access to higher education, regardless of social background or past achievements" (p. 233). However, many four-year institutions with aristocratic or meritocratic philosophies of college admissions were not willing to open their doors to accommodate the rising aspirations of the American citizenry. Where then could these potential students go to fulfill their dreams, goals, and aspirations? Jencks and Riesman (1968) believed "the community colleges provide a way out of this dilemma, allowing the universities to become more exclusive without the overall system's doing likewise" (p. 491).

The community college, by virtue of its egalitarian, open-door philosophy, became the vehicle for providing instruction and hopefully upward mobility for many students
with wide ranging aptitudes and academic ability. Many who entered the community college lacked the academic prowess or financial support to enroll directly into a four-year institution. In essence the community college allowed the masses to pursue a post-secondary education without altering the basic structure of society or higher education. Jencks and Riesman (1968) concluded that, for those institutions practicing meritocratic admissions policies, the community college served as a safety valve, releasing pressures that might otherwise disrupt the overall structure of higher education. They further concluded that by containing these pressures the universities are allowed to go their own way without experiencing the consequences of excluding those who lack the ability to succeed.

However, many believe that community colleges have, in some instances, become revolving doors by not fully addressing student needs (Cross, 1974; Zwerling, 1976). Clark (1960b) in his book *The Open Door College: A Case Study* discussed the dilemma of accepting students with varying academic aptitude. He explained that students with low academic ability should not be allowed to pass through the community college and then be allowed to transfer to a four-year institution. Clark (1960b) stated

if a junior college allows students of low academic promise to slip through, then the frequency of failure by transfer students at senior colleges will increase. The reputation and
self-respect of staff members are also affected. (p. 69)

Clark (1960b) described the community college as having three types of students; occupational, pure transfer, and latent terminal. According to Clark (1960b) the latent terminal student is one who aspires to transfer to a four-year institution but realistically does not have the skills to do so. He believed that students who cannot perform academically at the appropriate level need to be convinced that they are not capable of undertaking an extended college education. Clark (1960b) observed caught between its own open door and the standards of other colleges, therefore, an unselective two-year college needs to "administer" the student who is, in fact, destined to be a terminal student but who does not know it or refuses to recognize this likelihood at the time of entry. The person who earmarks himself as a terminal student is no special problem, nor is the candidate for transfer who comes with high scholastic promise. For the pure terminal and the pure transfer students, destiny is in line with intention. The procedure-shaping type of student is the latent terminal, the "overintender" whose transfer status as a student belies his terminal future. (p. 69)

Clark (1960b) labeled the process of changing ones goals so that they are in line with ones abilities as the "cooling out" process. He believed that the task of convincing latent terminal students that their educational goals are unrealistic involves a sequential series of events. Moore (1975), as cited by Clark (1980), summarized this process.
The process as described by Clark entails a student's following a structured sequence of guidance efforts involving mandatory courses in career planning and self-evaluation, which results in "reorientation" of the student rather than dismissal. The process begins with preentrance testing, which identifies low-achieving students and assigns them to remedial classes. The process is completed when the "overaspiring student" is rechanneled out of a transfer program and into a terminal curriculum. Throughout the process the student is kept in contact with guidance personnel, who keep careful track of the student's "progress." (p. 17)

Clark (1960b) observed that the primary problem of the junior college is the processing of the student who falls between the transfer and terminal groups. He explained that the filtering out or cooling out process is very much what the junior college is all about.

Many such as Zwerling (1976) and Karabel (1972) believed that the cooling out process as described by Clark (1960b) serves a hidden function in the overall scheme of higher education and society. Zwerling (1976) devoted a chapter in his book Second Best: The Crisis of the Community College to Clark's cooling out concept and maintained that community colleges, through the cooling out process, covertly direct young people into basically the same positions in the social structure that their parents already occupy. He believed that community college students for the most part come from the lowest socioeconomic classes of college students and that the dropout rate among
community college students will be higher than the overall college population.

The cooling out process is therefore viewed by some as the capitalist way of tracking students who are from the lower socioeconomic class in our society into low status jobs (Bowles, 1971; Karabel, 1972; Zwerling, 1976). Karabel (1972) stated that the high rate of attrition at community colleges is actually functional and necessary for the existing social system.

There appears to be two schools of thought regarding the cooling out issue; those such as Clark who believe it is the result of a conflict between academic standards and the open door, and others such as Zwerling and Karabel who view the concept as a class-based tracking process that maintains the social status quo. In reviewing the thesis of both views (of the debate), there appears to be agreement that the cooling out process is implicitly tied to the high rate of attrition at the two-year community college. Clark (1980) in his article, "The 'Cooling Out' Function Revisited," summarized what was the primary focus of this study.

Then, too, it probably would have helped to have carried the cooling out process one step further: after students move from transfer to terminal programs, or while they are being asked to do so, they often quickly move from college to a job or some other form of withdrawal. This would have hooked cooling out to the enormous attrition of community colleges and suggested a major two- or
three-step flow in the denial of hope, lowering of aspirations, and disengagement. (p. 29)

The cooling out process, as described by Clark (1960b), appears to be a set of procedures designed to assist gently students who have unrealistic career aspirations in readjusting their educational goals so that they are in line with academic ability. According to Clark (1960b) this process should maximize the student's chances for success within the academic environment and reduce the stress that accompanies the realization that readjustment involves the loss of status associated with the original career goal.

For the purpose of this study, the cooling out process was defined as having the following set of procedures:

1. Pre-entrance placement testing and/or advising.
2. Mandatory or voluntary placement into one or more developmental courses in areas such as mathematics, English, reading, or study skills.
3. Placement on academic warning and/or probation.
4. Complete withdrawal from the institution (dropping out) or, achieving graduate status by changing initial major to an alternate program of study which is perceived by the student as being less rigorous and/or associated with less status.
Statement of the Problem

The purpose of this study was to determine if there is a significant difference in relation to selected student characteristics between students who have followed the cooling out process and those who have not as measured by their graduation status from a two-year community college.

Specifically, the following hypotheses were addressed:

1. There is no difference between the percentage of dropouts who followed the cooling out process and those who did not.

2. There is no difference between the percentage of graduates who followed the cooling out process and those who did not.

3. There is no difference between the percentage of dropouts who followed the cooling out process and the percentage of graduates who followed the cooling out process.

4. There is no difference between the percentage of dropouts who followed the cooling out process and the percentage of graduates who followed the cooling out process based on the variables of race, gender, and father's occupation.

5. There is no difference between the percentage of dropouts who followed the cooling out process and those who did not based on the variables of race, gender, and father's occupation.
6. There is no difference between the percentage of graduates who followed the cooling out process and those who did not based on the variables of race, gender, and father's occupation.

Delimitations

The study was bound by the following restrictions.

1. The study was limited to those students who graduated at the conclusion of the fall semester, 1984, and those students who withdrew during the fall semester, 1984, and had not reenrolled for at least two consecutive semesters.

2. The study of Clark's cooling out concept as a factor in student completion of community college programs was limited to two Florida community colleges.

3. The study was an attempt to determine if Clark's cooling out process is a factor in student completion of community college programs; no attempt was made to show a causal relationship.

Limitations

The study was classified as ex post facto research. Inherent to ex post facto research are the following threats to internal and external validity:

1. Since the researcher cannot manipulate or randomize the independent variables of the study, the results
obtained may be considered spurious (Ary, Jacobs, & Razavich, 1979, P. 274).

2. The results of this study should not be generalized or projected beyond the setting from which the samples are drawn.

**Justification**

Beginning after World War II and continuing through the 1970s, institutions of higher education showed little interest in solving the problem of student attrition. With the post-war baby boom, legislation such as the G. I. Bill, and the growing acceptance of the egalitarian philosophy of admissions, it appeared that college enrollment figures would never decline. Consequently, colleges and universities did not feel the impact of losing students because they were enrolling faster than they were leaving. Resources also appeared to be unlimited as funding formulae were usually tied to enrollment. This situation slowly changed as the college age cohort produced by the post-war baby boom began to decline. With the pool of potential college students drying up, institutions began to experience declining enrollments and diminishing resources. Because of this new situation, institutions of higher education have placed greater emphasis on identifying factors which
contribute to student attrition. Pantages and Creedon (1978), in their studies of college attrition, stated,

in terms of sheer numbers, the attrition problem deserves the attention of those interested in and affiliated with institutions of higher education. From the institutional point of view, attrition has a heavy impact on institutional operations and finance. From the student's point of view, the effect of dropping out . . . is also another important aspect of the attrition problem. The need to understand this phenomenon becomes more urgent every day. (p. 49)

Another phenomenon currently affecting the community college is the decline of the transfer function. Kintzer and Wattenbarger (1985) noted that many students who enter community colleges intend to complete requirements for the bachelor's degree; however, relatively few matriculate in senior institutions. They cited several reasons for this decline, including the shift in students' career interests from academic to vocational/occupational fields.

It appears possible that these phenomena, the increase in attrition and the decline of the transfer function, are linked together through a conceptual framework involving the cooling out process. If, indeed, students are being "counseled" or "cooled" from transfer programs to terminal programs and ultimately withdraw from the institution, then the two or three step flow suggested by Clark (1980) which links cooling out to attrition, may be valid. This study should be an important step in determining this relationship.
Assumptions

For the purpose of this study the following assumptions were made:

1. It was assumed that students who had withdrawn and not reenrolled for a period of at least two consecutive semesters are dropouts and not stop-outs.

2. It was assumed that individual student records maintained by the registrar's office at the two selected community colleges reflected accurate information concerning those students selected for study.

3. It was assumed that the telephone survey was a valid technique for collection of the data and that responses made by individual subjects were honest and could be taken at face value.

4. It was assumed that the sample drawn for the study was representative of the target population for which generalizations would be made.

Definition of Terms

Community college. The terms "community college," "community junior college," and "junior college" will be used interchangeably and refer to a two-year public institution which offers programs and/or courses limited to
the first two years of post-high school education, including the university parallel program and at least one of the following areas, occupational education and/or continuing education.

Cooling out process. For the purpose of this study the cooling out process was defined as having the following set of procedures.

1. Pre-entrance placement testing and/or advising.
2. Mandatory or voluntary placement into one or more developmental courses in areas such as mathematics, English, reading, or study skills.
3. Placement on academic warning and/or probation.
4. Complete withdrawal from the institution (dropping out) or, achieving graduate status by changing initial major to an alternate program of study which is perceived by the student as being less rigorous and/or associated with less status.

Developmental education. The terms "developmental education" and "remedial education" will be used interchangeably and refer to postsecondary courses in mathematics, English, reading, and study skills, which are designed to prepare the student for freshman level college courses.

Dropout. A "dropout" is defined as a student who leaves or withdraws from the institution and does not return for at least two consecutive terms.
Father's Occupation. "Father's occupation" will be classified as either white collar or blue collar based on the following criteria:

1. An occupation will be considered white collar if it falls into one of the following categories.
   a. managerial and professional specialities
   b. technical, sales, and administrative support occupations
   c. service occupations
2. An occupation will be considered blue collar if it falls into one of the following categories.
   a. farming, forestry, and fisheries
   b. precision production and repair occupations
   c. operators, fabricators, and laborers

Overaspiring student. In this study, the terms "overaspiring student" and "overintender" will be used interchangeably. An overaspiring student is one who has educational goals which are above and therefore inconsistent with academic abilities.

Stop-out. A "stop-out" is defined as a student who leaves the institution for a period of time but returns to the same institution for additional work or study.

University parallel. The terms "university parallel" and "university transfer" will be used interchangeably. A university parallel program is one that prepares students for upper division work and is intended to be the first two
years of a four-year degree, therefore, a university parallel program, by design, transfers to four-year institutions.

**Procedures**

**Sampling Plan**

The sample used for this study was taken from two community colleges in Florida based on the criterion that one serves a predominantly urban population, and one serves a predominantly rural population. The target population from which the sample was drawn was defined as those students at the selected community colleges whose last term of enrollment was the fall term of 1984. An appropriate size sample was drawn from the target population using a table of random numbers.

**Data Collection**

The following steps were followed to obtain data for the study.

1. Each of the two selected community colleges was asked to provide a list of students whose last term of enrollment was for the fall term of 1984. These lists comprised the target population.

2. From the target population the appropriate size sample was drawn. Sample selection was accomplished using a table of random numbers.
3. Individual student records maintained by the registrar's office at each of the two selected community colleges were utilized to provide information concerning those students selected for study. This information included the following:
   a. placement test scores (if available),
   b. enrollment in developmental courses,
   c. academic standing, and
   d. demographics.

4. A telephone survey was utilized to obtain additional information necessary for this study but not found on individual student records maintained by the registrar's office. This information included the following:
   a. father's occupation,
   b. validation and/or clarification of the student's initial major, and major at graduation or exit, and
   c. final determination as to whether or not cooling out has taken place.

Data Analysis

After the sample was drawn and data for those students selected for study were collected, the following procedures were utilized for analysis.

The purpose of this study was defined in terms of two factors:
1. Student Status

2. Process

Each of these factors has two levels:

1. Student Status
   a. graduate
      (1) race
      (2) gender
      (3) father's occupation
   b. dropout
      (1) race
      (2) gender
      (3) father's occupation

2. Process
   a. followed cooling out process
   b. did not follow cooling out process

Since the purpose of the study was to determine if there is a significant difference between various levels of these two factors, data were placed in the appropriate cells of contingency tables. The following statistical tests were utilized in order to answer the questions presented in this study.

1. The chi-square test for contingency tables
2. Fisher's exact test
3. The chi-square test for goodness of fit
The statistical software package SAS (Statistical Analysis System) was utilized to perform procedures necessary for analysis.

Summary

Chapter I has provided background information and justification for a study of Clark's cooling out concept as a factor in student completion of community college programs and described procedures which were followed to obtain data for the study. Chapter II is a review of related literature which focused on the cooling out process, and factors associated with student attrition. Chapter III describes in detail the source of data, collection of data, and statistical procedures for the analysis of data. Chapter IV presents the results of the data analysis and hypotheses testing. Chapter V is a discussion concerning the interpretation of the results and presents final conclusions and implications of the study.
CHAPTER II
REVIEW OF RELATED LITERATURE

Introduction

The review of literature related to this study encompassed two specific areas: (a) the cooling out process and (b) factors associated with student attrition. Since the primary focus of this study is to determine if there is a potential link between the cooling out process and attrition, it seemed appropriate that this review be organized thematically by those areas.

The Cooling Out Process

Introduction

The literature concerning the cooling out process was organized thematically by the following subtopics: historical perspective, methods for cooling out, cooling out as a class-based tracking process, and research studies related to the cooling out process.

It should be pointed out that while Burton Clark's application of the cooling out process to higher education was positive in that its intent was to provide alternatives for the overaspiring student rather than dismissal, some writers viewed the process as being deceitful and,
therefore, negative. However, it is important to note that although the cooling out process has been controversial, none of the writers found in the literature attempt to compare directly community college counseling strategies to tactics used by con artists.

Erving Goffman's (1952) description of the con game has been included in the historical perspective to show its relationship to the cooling out concept. The reader should not infer that there is any relationship between counseling practices in higher education and tactics used by con artists.

**Historical Perspective**

Burton Clark's (1960b) analysis of the dissociation between aspirations and achievement was based on an earlier statement of the cooling out conception made by Erving Goffman. Goffman (1952), using criminal terminology from Maurer (1940) and Sutherland (1937), wrote an interesting paper which described profoundly how victims of criminal fraud adapt to their sudden loss of security and status, therefore perceived failure.

According to Goffman (1952), in the criminal world the "mark" is the victim or sucker. The operation of a particular game, play, or racket which results in a loss of money, status, or position for the mark is called a "play." The persons who operate the racket and subsequently con the mark are called "operators." Goffman (1952) believed that
the confidence game was a good racket in the United States because Americans were easy targets; always ready and eager to make easy money.

Goffman (1952) described the typical play as having several phases:

The potential sucker is first spotted, and one member of the working team (called the outside man, steerer, or roper) arranges to make social contact with him. The confidence of the mark is won, and he is given an opportunity to invest his money in a gambling venture which he understands to have been fixed in his favor. The venture, of course, is fixed, but not in his favor. The mark is permitted to win some money and then persuaded to invest more. There is an "accident" or "mistake" and the mark loses his total investment. The operators then depart in a ceremony that is called the blowoff or sting. They leave the mark but take his money. The mark is expected to go on his way, a little wiser and a lot poorer. (p.451)

Goffman (1952) further explained that often there is a need for an additional phase because sometimes the mark is not willing to just accept the loss and leave quickly. There is fear that the mark may "squawk" and go to the authorities which would obviously be bad for business. To avoid this type of situation, the "cooling out" phase of the scam is added. Cooling out the mark is usually accomplished by an operator who is left behind after the blowoff. This person, called the "cooler," is an expert in the art of consolation and is expected to give the mark a lesson in the philosophy of taking a loss. Goffman (1952) described the primary responsibility of the cooler.
In essence, then, the cooler has the job of handling persons who have been caught out on a limb—persons whose expectations and self-conceptions have been built up and then shattered. The mark is a person who has compromised himself in his own eyes if not in the eyes of others. (p. 452)

Although Goffman (1952) based his concept of cooling out mainly on the confidence game where the mark is deliberately deceived and misled, Clark (1960b) believed that the general notion of a cooling out function could be applied to situations of failure in which those who are responsible act in good faith.

Clark (1960b), in his case study of the development of San Jose Junior College, discussed the application of the cooling out process to higher education. Clark (1960b), explained that the junior college was expected to admit all students regardless of academic ability. An unrestrained choice of major or program of study became part of the open door policy. Thus, with the advent of the egalitarian philosophy of admissions and absolute freedom to pursue any field of study, the community college found itself with the dilemma of dealing with a multitude of entering students with career aspirations far above academic ability.

Clark (1980) contended that cooling out was not on his mind as either a phenomenon or term as he began his research of San Jose Community College. However, he explained that as his research progressed, certain procedures began to emerge that appeared to be designed to channel students with
unrealistic goals out of transfer programs and into curricula that terminated at the community college. Clark (1980) observed that the reassignment of students into programs that coincided with abilities was no easy task and that no matter how helpful, these emerging procedures would be looked upon as "the dirty work of the organization" (p. 16). Clark (1980) explained how he came to choose the term "cooling out" to describe this process.

This effort to rechannel students could have been called "the counseling process" or "the redirection-of-alternative process" or "the alternative-career process" or by some other similarly ambiguous term so heavily used in education and sociology. I played with the terms then readily available but all seem to have the bite of warmed over potatoes. While I was stewing about how to point a concept, a friend called my attention to an article by Goffman (1952) in which, for various sectors of society, the need to let down the hopes of people was analyzed brilliantly. Goffman used terms from the confidence game in which the aspirations of the "mark" to get rich quick are out-of-line with the reality of what is happening to him or her, and someone on the confidence team is assigned the duty of helping the victim face the harsh reality without blowing his mind or calling the police. Now there was a concept with a cutting edge! So I adopted and adapted it, aware that it would not make many friends in community college administrative circles. (pp. 16-17)

**Methods for Cooling Out**

Clark (1960a) explained that higher education had basically two ways of handling the student who enters with expectations that are unrealistic and out of line with academic ability. The first method is to simply dismiss the student. According to Clark (1960a),
this "hard" response is found in the state
university that bows to pressure for broad
admission but then protects standards by heavy
drop-out . . . the response of the college is hard
in that failure is clearly defined as such.
Failure is public; the student often returns home.
(p. 571)

The second method described by Clark (1960a) is one that
appears to be more humane and, therefore, more socially
acceptable.

A second answer is to sidetrack unpromising
students rather than have them fail. This is the
"soft" response: never to dismiss a student but
to provide him with an alternative . . . the major
form of the soft response is not found in the
four-year college or university, however, but in
the college that specializes in handling students
who will soon be leaving--typically the two-year
public junior college. (pp. 571-572)

Goffman (1952) described a variety of cooling out
strategies which could be applied to higher education,
specifically, the community college. The first strategy is
one of "stalling" the inevitable doom of failure. This is
accomplished in the criminal world by the cooler convincing
the mark that maybe the loss really did not happen. This
gives the mark a chance to get accustomed to the potential
loss of status or failure and adjust to the new lower
self-image before actually having to do so. In the context
of higher education, the placing of students on academic
probation could be considered a stalling tactic, giving
those students a chance to think about dismissal before
actually having to withdraw. Clark (1960b) stated that the
The real meaning of academic probation was to kill off the hope of those students with unrealistic program expectations.

Another method of cooling out observed by Goffman (1952) was to offer the person a status which is different from the one he has lost or failed to gain, but which provides at least something for him to become. The alternative thus presented is usually a compromise of some kind, providing him with some of the trappings of his lost status as well as some of its spirit. (p. 457)

This particular procedure appears to be the heart of the cooling out process in the community college as defined by Clark (1960b). Students with high goals and low ability are gently persuaded to reevaluate their potential and, in doing so, are offered alternative programs of study instead of dismissal. Thus, the student who unrealistically aspires to go to medical school may be convinced to reevaluate his or her aptitude and subsequently decide to become a medical laboratory technician or enter some other program which is more in line with his or her ability.

Still another form of cooling out applicable to higher education involves allowing the person to retain the hope for the desired status but in a different environment (Goffman, 1952). This tactic is somewhat analogous to the situation where the student who graduates from a community college with a very poor academic record is allowed entrance into a four-year institution only if he or she agrees to pursue an alternate program of study, one which is less
rigorous. In this case the student is still allowed to pursue the status of a four-year degree; but through a different program.

Finally, Goffman (1952) described a method by which the operator and the mark may enter into a tacit understanding according to which the mark agrees to act as if he were leaving of his own accord, and the operator agrees to preserve the illusion that this was the case. (p. 458)

Simon (1967), in an article which discussed the cooling out function of the community college, pointed out that this particular technique allowed the student to use a variety of face-saving rationalizations and other defenses when confronted with inevitable failure and the subsequent loss of prestige and status.

Cooling Out As a Class Based Tracking Process

Clark (1960b) believed that the cooling out process was the result of a conflict between academic standards and the open door policy of admissions. He believed that the process was necessary and that it maximized the overaspiring students' chances for success within the academic environment and reduced the stress that accompanies the realization that lowering ones career goals may result in a loss of status.

Some writers, however, viewed the cooling out concept in the context of a much wider debate. Templin and Shearon (1980), in their article "Curriculum Tracking and Social Inequality in the Community College" explained that there
appeared to be sharp disagreement between sociological theorists over whether class structure itself was necessary, what factors determine the quality of education a person receives, and the influence of education on upward mobility.

Templin and Shearon (1980) pointed out that there were two sides to this sociological debate; the functional theorists vs. the conflict theorists. Functional theorists viewed social stratification as a necessary, positive, and effective means of assuring that there will be an adequate supply of individuals available for the various divisions of labor (Davis & Moore, 1966). Templin and Shearon (1980) explained this point of view.

carrying the functionalist argument further, functional theories of education maintain that in the American class structure, higher education serves as the means for the selection, training, and placement of individuals in positions commensurate with their abilities. The community college in particular is viewed as being well suited to serve as a channel for social mobility and for the attainment of the American ideal of achieving social position based upon motivation, ability, and performance rather than on the basis of race, sex, or family origin. (p. 84)

Those who support the functionalist point of view claim the community college provides equal opportunity through its open-door egalitarian admissions policy and assures that societal needs will be met through its sorting out function (Templin & Shearon, 1980). Some, however, disagreed slightly by stating that community colleges do in fact enhance social stratification but at the expense of equal
opportunity by channeling high risk students into the community college.

In particular, the "cooling out function" and the practice of tracking students with different abilities into state systems of higher education were viewed by some sociologists as contributing to social stratification rather than to the reduction of barriers to equal opportunity. (Deegan & Tillery, 1985, p. 15)

The opposite side of this debate centers around what is called the conflict theory of social stratification.

This viewpoint maintains that social stratification is neither necessary nor serves to guarantee the most able persons will fill the most important positions in society. (Templin & Shearon, 1980, p. 85)

Carrying the conflict theorists' argument further, Templin and Shearon (1980) explained that those who subscribe to this particular theory believed that class structure served only those who were powerful and wealthy by allowing them to pass their social status, with all its inherent privileges, on to their children. This resulted, they said, in the maintenance of the status quo and social inequality.

Zwerling (1976), in his book Second Best: The Crisis of the Community College, appeared to assume this position by maintaining that community colleges, through the cooling out process, covertly direct students into basically the same positions in the social structure that their parents already occupy. Emphasizing this point, Zwerling (1976) stated
not only is maintaining the social hierarchy a primary function of the community college, but the community college is also remarkably effective at the job. (p. xix)

Zwerling (1976) argued that, if his thesis were correct, a hidden function of the community college was to maintain the social status quo, then the high dropout rate for community colleges, specifically among the economically disadvantaged, was not a problem at all but necessary to provide a labor force for lower level occupations.

Zwerling (1976) observed that although the cooling out process was gentle, it was deceitful and that it only had the appearance of openness and fairness. He added that the primary purpose of testing and subsequent placement into remedial classes was actually to cast doubt on the students' confidence that they can do bona fide college work and that probation was really a tactic designed to put to rest any last hope that the overaspiring student may have.

Jerome Karabel (1972), in an earlier article entitled "Community Colleges and Social Stratification: Submerged Class Conflict in American Higher Education," appeared to have laid the foundation for many of Zwerling's (1976) ideas. Karabel (1972) noted that Americans took great pride in what he called their country's apparent capacity to let each person advance as far as his abilities could take him, regardless of social origin. He believed that the emphasis Americans placed on academic credentials led to a great
demand for access to higher education, regardless of socioeconomic background or past achievements. However, Karabel (1972) believed that the community college acted merely as an illusion of opportunity.

Existing four-year colleges did not, for the most part, open up to the masses of students demanding higher education . . . instead, separate two-year institutions stressing their open and democratic character were created for these new students. Herein lies the genius of the community college movement: it seemingly fulfills the traditional American quest for equality of opportunity without sacrificing the principle of achievement. (pp. 233-234)

Karabel (1972) stated that existing evidence showed that the community college actually promoted tracking because, for the most part, those who attended the community college were from lower social origins and that the community college was the bottom track of the American system of higher education. He further noted that tracking took place within the community college in the form of vocational education. Karabel (1972) summarized his position as follows:

Thus, the current tracking system in higher education may help transmit inequality intergenerationally. Lower class students disproportionately attend community colleges which, in turn, channel them into relatively low status jobs. (p. 237)

Corcoron (1972), in his article "Community Colleges: The Coming Slums of Higher Education?" discussed another disadvantage of tracking students into the community college. He believed that if too many low income or
minority students attend one type of institution, in this case the community college, then not only would the tracking process be enhanced, but the educational rewards of ethnic diversity would also be lost.

According to Templin and Shearon (1980), two studies have been conducted to determine whether either the functionalist or conflict theories of social stratification best describe program activity of community colleges.

The first study (Shearon, Templin, & Daniel, 1976) was conducted in 1974 using a sample of 6,937 students enrolled in 16 two-year colleges in the North Carolina Community College System. The second study (Shearon, Daniel, Hoffman, Templin, & West, 1980) was conducted in 1979 using 11,888 students enrolled in 57 North Carolina Community Colleges. In both studies, data regarding student academic ability, socioeconomic status, curriculum, and demographic characteristics were collected and analyzed.

Templin and Shearon (1980) summarized the results of these two studies and noted that

Results from both studies generally confirmed that students' socioeconomic status characteristics were associated with the curriculum in which students eventually enrolled. There indeed appears to be some merit to Zwerling's charges that community college programs are stratified in a relationship which roughly mirrors the socioeconomic status of students. However, there also appears to be a relationship between academic ability and program selection which is independent of socioeconomic status, just as functionalist theorists such as Clark might predict. (p. 86)
Templin and Shearon (1980) cautioned, however, that even though overall there appears to be a positive relationship between students' socioeconomic status characteristics and their selected program of study, the relationships are not consistent across all variables nor are they particularly strong. They, therefore, finally concluded that

Those who charge the community college with tracking students according to their social origin raise a valid issue which should not be ignored. However, the problem of tracking can be easily overplayed with the inference that it is a pervasive activity in the two-year college which seriously threatens equal educational opportunity. The findings of the research [from these two studies] simply do not support such a conclusion. (Templin & Shearon, 1980, p. 88)

Bushnell and Kievit (1974) also appeared to be discounting the tracking function of the community college by suggesting that the community college be viewed from another perspective.

The function of the community college is to recognize that it is serving the needs of a knowledge society. That is, it provides an opportunity for developing job skills, communication skills, and other badly needed coping skills at low cost to an increasing number of students. (p. 52)

Bushnell and Kievit (1974) summarized their position by stating that community colleges should not be viewed as institutions for cooling out but rather as "one of America's most noteworthy expressions of egalitarian ideals" (p. 53).
Other Studies Related to Cooling Out Within the Community College

A review of the literature yields relatively few studies concerning the direct application of Clark's cooling out concept to higher education. Several, however, were indentified and warrant inclusion.

Moore (1975) examined the applicability of the cooling out concept to the experience of women in the two-year college. The methodology involved interviewing 62 women in three two-year colleges in central New York State. The women interviewed were selected on the basis of their choice of career as indicated by a questionnaire distributed approximately one month prior to their scheduled interview. Of the 62 women interviewed, 28 indicated that they were pursuing a traditional career and 34 indicated a nontraditional career choice. Moore (1975) believed that the results of her study showed that women were often cooled from nontraditional careers to traditional careers mainly because of gender. This rechanneling, according to Moore (1975), was facilitated by parents (particularly the father), counselors, and other institutional personnel.

The research presented here has brought us to a position similar to Karabel's. While we do not question the utility and even necessity for certain individuals to rechannel their aspirations with the skilled assistance of counselors . . . we do question the utility and necessity of a process that results in women being rechanneled because they are women. (Moore, 1975, p. 583)
Another important study which presents a different point of view was conducted by Baird (1971). The purpose of his study was to examine the characteristics of students who were cooled out during junior college and to compare these characteristics to two other groups; those who "warmed up" (increased their aspirations) and those who "stayed" (retained their original aspirations).

Baird's (1971) sample was comprised of 1,511 men and 1,002 women attending 27 junior colleges. Results showed that only a small percentage of the total sample lowered their degree plans (11.4% for men and 14.3% for women), while a majority actually raised their degree plans (45.3% for men and 49.4% for women). Many also appeared to retain their original degree plans (43.3% for men and 36.3% for women). Variables were also presented which, according to Baird (1971), helped distinguish between warmers and coolers, the most significant of which was college grades. Warmers had higher grades than coolers; however, these groups did not differ on average high school grades. Another important finding was that among women, the students who were cooled out had a significantly higher ACT composite scores and reported more high school achievements in art and writing. They also came from families with incomes higher than those of the warmers. Baird (1971) also reported that, overall, those who cooled out received lower college grades.
than warmers or stayers, but were not lower in academic aptitude.

Baird's (1971) study, although earlier, appears to cast doubt upon some of Zwerling's (1976) and Karabel's (1972) assertions by showing that students who were cooled out were not necessarily lower in socioeconomic status, academic aptitude, or high school grades. Baird (1971) conceded though that it was possible that students who had truly cooled out, had probably dropped out, and therefore were not included in the sample. However, Baird (1971) also pointed out that, overall, those who warmed up tended to score low on achievement variables and come from families with lower incomes. According to Zwerling (1976) and Karabel (1972) one would expect these students to be prime candidates for cooling out.

Baird (1971) summarized his study and stated that it is clear that the processes of cooling out and warming up are not efficient. The talented are not less likely to be cooled out, and the untalented are not less likely to be warmed up. In fact, warming up was much more common than cooling out. (p. 171)

Fitch (1969) completed a study which also questioned the effectiveness of the cooling out process at the community college. Fitch (1969) investigated the cooling out process as indicated by students' change of major. Using a sample of 1,000 students from Cerritos College, California, Fitch (1969, p. 17) hypothesized that, if the
cooling out process was working successfully, then, operationally, the following should be observed:

1. Students on probation should change their major more frequently than students who are doing passing work.

2. Students who initially selected a transfer major and found themselves on probation should change to a terminal major.

3. Students who are on probation (both terminal and transfer) should lower their level of aspiration by changing to an easier major.

4. Over a period of time the proportion of students selecting a terminal major should increase.

Results, however, did not support these hypotheses.

Fitch (1969) concluded that

1. Students on probation and those doing passing work showed no significant differences in frequency of major change.

2. Only one-third of the students initially selecting a transfer major changed to a terminal major after being placed on probation.

3. Almost as many probationary terminal and transfer students changed to a more difficult major as selected an easier one, with the majority failing to change majors at all.
Summary of the Review of Literature Pertaining to Cooling Out

The cooling out concept was originally discussed by Erving Goffman (1952) who analyzed this phenomenon within the context of the criminal world. Goffman (1952) used the term "cooling out" to describe the last phase of the confidence game in which there was a need to console the mark after a loss of money and/or status. Clark (1960b), while studying the development of San Jose Community College, noticed that a certain set of procedures began to emerge which were designed to assist students with unrealistic aspirations in setting alternative career goals which would be more in line with their abilities. Searching for terminology to adequately describe this process within the context of higher education, Clark (1960a) adopted and adapted "cooling out" to describe these counseling strategies, fully aware of the consequences of choosing such an ominous term.

Cooling out has been controversial among sociologists as well as educators. The literature revealed two schools of thought regarding cooling out, social stratification, and the sorting function of the community college.

On one side are the functionalists such as Clark, who believed that the community college, with its open door,
egalitarian policy of admissions assured equal educational opportunity and provided a vehicle for upward mobility. According to the functionalists, this process also assured that there would be an ample supply of manpower at all divisions of labor through a natural sorting of ability.

On the other side of the debate are the conflict theorists who believed that social stratification was unnecessary and that class structure was determined primarily by power and wealth which was passed along from generation to generation. Bowles (1971), Karabel (1972), and Zwerling (1976) appeared to subscribe to this position arguing that the community college provided only an illusion of opportunity and covertly channeled students into relatively the same social positions that their parents already occupy.

The literature appeared to support both sides of this debate. Several writers presented evidence that cooling out is active within the community college (Karabel, 1972; Moore, 1975; Zwerling, 1976). Others such as Baird (1971) and Fitch (1969) discounted the effectiveness of cooling out by showing a negative correlation between academic ability, family income, and cooling out.

**Factors Associated With Student Attrition**

**Introduction**

Over the past 25 years much has been written concerning student attrition. Thousands of studies have been conducted
in an effort to determine why some students drop out of post-secondary education, while other students persist. Even though a review of attrition-related literature yields a plethora of research, much of it is not comparable. The use of different operational definitions and methods of analysis has, in many cases, "clouded" the attrition issue. Specifically, the various definitions of the term "dropout" have kept educational researchers from drawing any definitive conclusions concerning rates of student attrition. For example, one study conducted by Nickens (1976) placed the dropout rate of community college students in Florida at 2%. According to Nickens (1976) results showed that many students are mislabeled as dropouts. He believed that the term dropout as applied to community colleges should be defined to include only those students who have not reached their educational goals and have no plans to do so. Nickens (1976) concluded that community colleges in Florida do a far better job of retaining students than previous studies indicated. However, research conducted by others has indicated the average dropout rate to be between 24% and 50% (Astin, 1975; Beal & Noel, 1980; Pantages & Creedon, 1978; Tinto, 1982). Again, this wide discrepancy is largely due to the variety of methodology employed and lack of agreement by educational researchers on common operational definitions. Tinto (1982) explained that
The field of dropout research is in a state of disarray in large measure because we have been unable to agree about what behaviors constitute an appropriate definition of dropout. The result has been confusion and contradiction as to the character and causes of dropout from higher education.

Astin (1975) discussed the disagreement over the various definitions of dropout and concluded that no categorization will be wholly satisfactory until all students either obtain their degrees or die without receiving them: any former student can, in theory, go back to college at any time to complete the degree. (p. 6)

It is therefore important that one proceeds through any review of literature concerning student attrition with some degree of caution.

This review is not intended to be exhaustive but will focus on selected studies and reviews of literature that will give a contemporary perspective concerning the student attrition phenomenon. This material is presented so that the findings related to the cooling out process and student attrition can viewed in proper perspectives.

This review will focus on research concerning the more prominent variables associated with student attrition and is organized by the following subtopic factors: demographic, academic, motivational, college environment, and personality.

Demographic Factors Associated with Student Attrition

Age. Pantages and Creedon (1978) summarized 25 years of attrition research and suggested that rates of attrition
were similar for younger and older students. They concluded that based on their review, age was not a factor in causing attrition. Smith (1982) cited other research which appears to support this conclusion.

Age at matriculation studies have shown no consistently conclusive findings. [Several] studies . . . have shown similar attrition rates for both younger and older students. (p. 4)

However, some studies do appear to suggest that age is a factor in student attrition. Astin (1975) in his book Preventing Students from Dropping Out explained that for the most part, dropping out was associated with those students who were older than traditional freshmen. Lenning (1982) synthesized several studies and reviews of literature and concluded that there does appear to be some relationship between age and reasons given for dropping out. He conceded though that studies sometimes conflicted because evidence suggested that while older students were "rusty" on academic skills, they were often more mature and motivated. Greer (1980) completed a study which discussed the differences between traditional and nontraditional age students relative to academic success and persistence. Using discriminant analyses, Greer (1980) found that age was negatively related to persistence for students in regular academic programs and positively related for those in a developmental program. Donsky, Burk, and Hite (1979) investigated the characteristics of 2,969 students who attended Lakeland
Community College, Ohio, in the fall of 1978 but did not return for the winter term 1979. Results showed that the typical non-returning student was likely to be a married woman in her early 30's with little previous college experience and no definite career goals. Garber (1979) conducted a similar study and concluded as Donsky et al. (1979) that non-returning students tended to be older with limited educational objectives.

In summary, a review of literature concerning age and attrition appears to be inconclusive. Research presented here suggests that in some cases age may be a factor but overall such a relationship is difficult to establish.

**Gender.** Some studies show that gender may be a factor in attrition. Astin (1975) concluded that

Among freshman women, those who are either married or have marriage plans are more likely to drop out, although among male freshmen being married at the time of college entrance is related to persistence. (p. 45)

Taines (1973) discussed the success of a women's re-entry program at Diablo Valley College in California and suggested that women, more than men, seem to discontinue their education early for a variety of reasons such as marriage, child bearing and rearing, the need to earn money, and societal discouragement of women in higher education.

Several studies appear to show that women drop out more frequently than men. Baratta (1978) analyzed the characteristics of nonpersisting students at Moraine Valley
Community College in Illinois and found that 56% of the nonpersisters were female. Slark (1978) completed a longitudinal study of student flow and persistence at Santa Ana College in California. Results showed that 58% of the male students persisted compared to a 50% rate for the female students.

Several studies show no relationship between gender and attrition. Pantages and Creedon (1978) concluded that sex was not a significant variable in determining attrition, however, they pointed out that sex does appear to become more significant as scholastic, environmental, institutional, and longitudinal factors come into play. Smith (1982) stated that most studies show no significant differences in attrition rates for men and women. However, he added that women appear to have a slightly higher chance of completing a bachelor's degree in four years than men.

Lenning (1982), in his summary of attrition research, pointed out that different rates of attrition for men and women can be explained by other variables such as differences in motivation, socioeconomic level, and marital status.

In summary, women appear to discontinue their education slightly earlier than men do; however, it appears that these differences can possibly be explained by other interacting variables. Women are likely to cite non-academic reasons
for withdrawal while men are more likely to cite an academic reason.

**Socioeconomic status.** Most researchers appear to agree that students of lower socioeconomic status drop out more frequently than those of higher status. Lenning (1982) summarized several studies and concluded that students from the lowest socioeconomic levels drop out more often than do more advantaged students. This is less the result of the parents' income and occupation than of their educational level. The educational level of parents is often related to how much they value a college education for their children, as well as to the type of environment they provided for students while they were growing up. (p. 36)

Kester (1971) explained that the typical community college dropout was likely to be black and from a family background which is less affluent than the average.

Pantages and Creedon (1978) pointed out that there appeared to be "little agreement as to the effects and significance of SES [socioeconomic status] factors on rates of attrition" (p. 58).

In summary, most research appears to show some relationship between socioeconomic status and attrition. However, as pointed out by Lenning (1982) it is often the interaction of other variables such as parents' education, and to some extent, parents' income and occupation that determines the strength of the relationship.

**Race and ethnic background.** Pantages and Creedon (1978) concluded from their review that most studies that
indicated a relationship between race, ethnic background, and student attrition did not control for academic factors. They explained that when factors such as high school rank and scholastic aptitude were held constant, race and ethnicity were not significant factors which explained attrition.

However, McMillan (1977) in his attrition study of Essex County College, New Jersey, found that the majority of those who had dropped out were from minority racial or ethnic origin. Kolstad (1977), in his national study of attrition from two- and four-year colleges and universities, found that black and Hispanic students withdrew more frequently than white students. Another study by de los Santos, Montemayor, and Solis (1980) found similar results. They concluded that national data from two- and four-year institutions indicated that Hispanics had significantly higher rates of attrition than non-Hispanics.

Lenning (1982) summarized well the relationship between race, ethnicity, and student attrition:

Hispanic students tend to drop out more often, irrespective of controls used; Asian and Jewish students less often. Blacks and American Indians drop out more often, but such differences disappear when socioeconomic level, ability test scores, and motivation are controlled. (p.36)

**Academic Factors Associated with Student Attrition**

**High school grades.** High school grades appear to be the single most important factor in determining who will
drop out of college. In combination with other factors such as academic ability, high school grades become an even better predictor of persistence. Astin (1975) stated that "by far the greatest predictive factor is the student's past academic record and academic ability" (p. 45). Pantages and Creedon (1978) reviewed numerous studies and concluded, as Astin (1975) did, that high school grades were extremely useful in predicting success at the college level. However, it is important to note that Pantages and Creedon (1978) distinguished between academic success and academic persistence. They cited several studies that showed high school GPA was predictive of college grades but not necessarily college persistence. Lenning (1982) in his review of the literature stated that although high school grades and rank in high school have been found to have a high relationship to student attrition, they account for only a small percentage of the variance, less than 10%.

In summary, most researchers appear to agree that high school grades yield the highest single correlation coefficient when correlated with persistence, however, this coefficient is usually moderate at best (.50 or less), leaving room for the interaction of many other variables.

**Scholastic aptitude.** Scholastic aptitude, like high school grades, appears to be a good indicator of academic success and potential for graduation. Rowell (1974) surveyed the literature and examined characteristics of
students who dropped out after or during their freshman year. He found that students quite often dropped out because of poor scholastic ability. Astin (1975) found that high scores on college admissions tests were significant in predicting persistence but not as powerful as high school grades. Lenning's (1982) review of the literature cited similar results:

lower college-admissions test scores and reading test scores . . . are related to higher attrition and imply that students have to work much harder to succeed in college. Reading ability is also related to other communication abilities important for college achievement. (p. 37)

Smith (1982) cited several studies and stated that "Most of the attrition appears to be during the first year and among those who are academically less talented" (p. 2).

Pantages and Creedon (1978) summarized the effectiveness of academic factors such as high school grades, rank, and scholastic aptitude in predicting persistence and concluded that these factors are effective in predicting college achievement, but are less effective in predicting college persistence. Whereas these measures are the most significant predictors of attrition, they only account for a small proportion of the students who drop out. (p. 64)

Another study conducted by Farnsworth (1982) found that academically accelerated students dropped out at the same rate as marginal students. In his attrition study at Muscatine Community College, Iowa, Farnsworth (1982)
concluded that these gifted students were dropping out because they were not being challenged.

In summary, scholastic ability, as with high school grades, appears to be an important criterion for predicting college success, but not necessarily persistence.

**College grades.** Although dropouts tend to have lower grades than persisters, most dropouts have satisfactory grades (Lenning, 1982). Russell and Perez (1980) discussed a study by the University of California and observed that many students dropped out voluntarily before their average dropped enough to be placed on academic probation. According to Smith (1982) men more than women are likely to say their reasons for dropping out were because of poor academic performance. Baratta (1978) in an analysis of nonpersisters at Moraine Valley Community College, Illinois, found that of those students who dropped out, 40% had a GPA over 3.0; however, 26% had a G.P.A. of 0.0. Pantages and Creedon (1978) found that many studies showed a highly significant relationship between attrition and first semester college grades. However, they cautioned that other studies seemed to indicate "that poor grades are a far more stable predictor of attrition than good grades are a predictor of retention" (p. 64).

In summary, it appears that students who drop out generally have lower grades than persisters, however, while these grades are lower, most often they are still
satisfactory. Good grades appear to be a poor measure of persistence while bad grades appear to be a better indicator of attrition.

Curriculum. Students in some majors persist better than others (Lenning, 1982; Wilner, 1982). Math and science majors drop out more frequently than most other majors (Russell & Perez, 1980). Baratta (1978), in an attrition study at Moraine Valley Community College, Illinois, found that 53% of those who dropped out were in occupational programs while 47% were in transfer programs. Smitherman and Carr (1981) described a study of 20,031 noncurricular community college students in Virginia. One purpose of the study was to determine if the curriculum a student finally enrolls in is predictive of persistence in the community college. Results showed a statistically significant relationship between the final curriculum choice of students and persistence. Nespoli and Radcliffe (1982) conducted a study to determine the persistence rate of Howard Community College (Maryland) students from the fall of 1981 to the spring of 1982. Results indicated the overall persistence rate to be 61.1%; however, full-time occupational students had the highest persistence rate at 83.6%.

In summary, there appears to be agreement in the literature that students in some majors persist better than others. However, the research is inconclusive as to which
majors or programs have the highest rates of attrition or persistence.

Motivational Factors Associated with Student Attrition

Educational goals and commitment. According to Bean and Metzner (1985) student educational goals at the time of entry include

the highest level of education sought, the amount of importance ascribed to obtaining a college education, and the likelihood of completing an educational goal at the present institution. (p. 495)

Several major models have been developed which explain the decision to withdraw from college as a process which includes numerous interacting antecedents. In Tinto's (1975) conceptual framework goal commitment is paramount:

In the final analysis, it is the interplay between the individual's commitment to the goal of college completion and his commitment to the institution that determines whether or not the individual decides to drop out from college. . . . Presumably, either low goal commitment or low institutional commitment can lead to dropout. (p. 96)

Tinto (1975) also explained what appears to happen when a student's institutional commitment, and commitment to complete college, are of different levels and intensities:

Given levels of institutional commitment, the lower the individual's commitment to the goal of college completion, the more likely is he to drop out from college. Largely the result of the person's experience in the academic domain, the person may reevaluate his educational expectations and decide to withdraw voluntarily from the institution. This may occur despite his having been socially integrated into the institution. The notion of self-selection applies here. Burton
Clark's (1960) discussion of the "cooling-out" process in higher education may be another. (p. 96-97)

Bean and Metzner (1985) developed a conceptual framework based on variables which explained nontraditional rather than traditional student attrition. Their model was built on the premise that nontraditional students drop out for somewhat different reasons than traditional students. They found, as Tinto (1975) did for traditional students, that educational goals at entry and commitment to those goals were extremely significant factors for determining student persistence.

Other studies stressed the importance of educational goals. Beal and Noal (1980) stated that "low academic achievement and limited educational aspirations were the two most important dropout-prone characteristics" (p. 19). Lenning (1982) in his review of the literature stated that "Students aspiring to doctoral or professional degrees are more likely to persist than those with lower degree aspirations" (p. 38). Astin's (1975) study also appeared to indicate a strong relationship between the academic degrees one plans to obtain and persistence. Results reported by Astin (1975) showed that students with higher degree aspirations at entry enjoyed higher rates of persistence when examined four years later.

In summary, motivational factors such as educational goals and commitment to those goals, play an important role...
in predicting student persistence. Several conceptual models have been developed which attempt to explain attrition for nontraditional as well as traditional students. All of these models recognize the importance of, and therefore, rely heavily on motivational factors. Ramist (1981) summarized it well:

student motivational factors may be considered the sine qua non of persistence, and therefore the most important target of persistence research. (p. 10)

**Personality Factors Associated with Student Attrition**

Pantages and Creedon (1978) observed that

the study of personality factors and their relation to attrition is faced with many of the same difficulties discussed in connection with motivational factors in attrition. A problem lies once again with measurement techniques. (p. 74)

Pantages and Creedon (1978) viewed personality variables as a potential source of valuable information concerning persistence. They cautioned however, that the reason why most current studies fail to report significant findings may not be due to measurement problems but simply to the absence of a significant relationship between motivation, personality, and attrition. Pantages and Creedon (1978) also observed that "current research has challenged the belief that dropouts are more angry than persisting students, particularly towards the college" (p. 72). They cited several studies that reported that most "dropouts rarely felt any anger toward themselves, their
college, their parents, or toward society in general" (p. 72). They concluded that based on their review of the literature "personality variables should be included in any analysis of persistence or withdrawal in college [however] they cannot yet be regarded as predictive factors" (p. 75).

Lenning (1982), in his review, observed that students who are more mature, responsible, and clear in their goals and aspirations tend to persist. He also reported that anxiety about success (at normal levels), and a healthy positive self concept appear to enhance persistence.

In summary, the literature yields relatively few studies concerning personality variables and student attrition. Most research found inconclusive results. This appears to be a neglected area of research primarily because of the lack of accurate measuring techniques.

Environmental Factors Associated with Student Attrition

The ease at which students are able to integrate themselves socially into the college environment has proven to affect student retention and persistence. Tinto (1975) suggested that students who academically and socially integrate themselves into the college environment persist significantly longer than students who attend for academic or social benefits only. Tinto's (1975) observations have been validated by other studies (Pascarella, 1982; Pascarella & Terenzini, 1980).
Bean and Metzner (1985) suggested that for nontraditional students, environmental factors were more important than academic factors:

for nontraditional students, environmental support compensates for weak academic support, but academic support will not compensate for weak environmental support. (p. 492)

Astin (1975) discussed the benefits of leaving home to attend college and the positive effects of participation in extracurricular activities:

students concerned about maximizing their chances of finishing college should seriously consider leaving home and living in a college dormitory. Simply getting away from home appears to enhance a man's chances of finishing college even if he lives in a private room or apartment. For the woman, however, leaving home may reduce her chances of finishing college if she opts for private residence. (p. 107)

Concerning extracurricular activities Astin (1975) suggested that participation in extracurricular activities, especially membership in social fraternities or sororities, is also significantly related to staying in college. These findings support the theory that student persistence to some extent depends on the degree of personal involvement in campus life and environment. (p. 108)

Rowell (1974) in his review of the literature, observed the importance of what he called "college-related factors" to persistence. According to Rowell (1974) these environmental factors are important because they provide for self interaction with peers, faculty, curricula, and institutional activities.
In summary, students who acclimate themselves both academically and socially to the college environment persist longer than those who do not. The idea of an appropriate "fit" between student and institution, as advanced by Astin (1975) and Cope and Hannah (1975) appears to be valid.

**Conclusion and Summary**

The preceding review documents the complexity of the student attrition problem. No single factor can account for this phenomenon. While several variables in isolation appear to be more significant than others, it becomes obvious that the attrition problem must be viewed within the context of a multitude of interacting variables. The cooling out concept ascribed to Clark (1960) is significant to this body of knowledge in that it could yet be another piece of the puzzle which when viewed as a whole better explains the attrition problem. This review has hopefully provided the reader with an appreciation and understanding of the breadth and depth of the student attrition phenomenon.
CHAPTER III
RESEARCH METHODOLOGY

Introduction

Basic procedures for completion of the study were presented in Chapter I. This chapter will expand on those procedures and discuss in more detail the following subtopics: design of the study, setting, sample selection, procedures for data collection, and statistical procedures for data analysis.

Design of the Study

Since the variables involved in this study are "attribute" variables in that they can not be directly manipulated by the researcher, an ex post facto design was utilized. Ex post facto designs are appropriate when "the research in question is conducted after variations in the independent variable have already been determined in the natural course of events" (Ary, Jacobs, & Razavich, 1979, p. 271). Although ex post facto designs are not considered useful for showing causal relationships among variables, they do "provide a method that can be used in the circumstances under which much of educational research must be conducted" (Ary, Jacobs, & Razavich, 1979, p. 273).
Students selected for this study were placed into discrete categories based on historical information. Because of this, it appears appropriate that this study be classified as ex post facto research.

Setting

To assure that the sample selected for study contained an adequate mix of students from white and blue collar families, the target population was extracted from two community colleges based on the criterion that one serves a predominantly urban population (college A), and one serves a predominantly rural population (college B). College A and college B were chosen based on available information such as the population density and urban residence of the counties they serve, and the size of their enrollment. Table 1 presents a density analysis of the respective districts based on district population, square miles, and persons per square mile. Table 2 contrasts the urban population of each district, and Table 3 compares the total annual (1983-1984) enrollment and full-time equivalents of each college. The information presented in these tables reveal the urban and rural characteristics of college A and college B which confirms the appropriateness of their selection as the target population for this study.
### Table 1

**Density Breakdown of the Target Population**

<table>
<thead>
<tr>
<th>College</th>
<th>District Population</th>
<th>District Area Square Miles</th>
<th>Persons per Square Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (URBAN)</td>
<td>728,531</td>
<td>280</td>
<td>2,601.0</td>
</tr>
<tr>
<td>B (RURAL)</td>
<td>74,372</td>
<td>2,682</td>
<td>27.7</td>
</tr>
<tr>
<td>STATE</td>
<td>9,746,424</td>
<td>54,153</td>
<td>180.0</td>
</tr>
</tbody>
</table>

Note. Data in Table 1 are from 1980 census handbook *Florida counties*, F. W. Terhune & S. S. Floyd (Eds.), 1984, Gainesville, FL: University Presses of Florida.

### Table 2

**Urban Residence of the Target Population**

<table>
<thead>
<tr>
<th>College</th>
<th>District Population Urban</th>
<th>Percent Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (URBAN)</td>
<td>724,988</td>
<td>99.5</td>
</tr>
<tr>
<td>B (RURAL)</td>
<td>16,882</td>
<td>22.7</td>
</tr>
<tr>
<td>STATE</td>
<td>8,212,385</td>
<td>84.3</td>
</tr>
</tbody>
</table>

Note. Data in Table 2 are from 1980 census handbook *Florida counties*, F. W. Terhune & S. S. Floyd (Eds.), 1984, Gainesville, FL: University Presses of Florida.
Table 3

Enrollment Breakdown of the Target Population

<table>
<thead>
<tr>
<th>College</th>
<th>Enrollment</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (URBAN)</td>
<td>43,014</td>
<td>8,884</td>
</tr>
<tr>
<td>B (RURAL)</td>
<td>8,113</td>
<td>2,060</td>
</tr>
</tbody>
</table>

Note. Data for Table 3 are from the Report for Florida community colleges 1983-84: Part 1 statistical tables. Department of Education, Division of Community Colleges, Tallahassee, FL.

Sample Selection

The registrar's office of each college (college A and college B) was asked to provide a master list comprised of students whose last term of enrollment was the fall semester 1984. These master lists were then divided into two subgroups: those who graduated at the conclusion of the fall semester of 1984 and those who dropped out during the fall semester of 1984. Using a table of random numbers, 50 students were selected from each subgroup. Figure 1 illustrates this process.
Target Population (6253)

Master List
College A (5757)

Dropouts Random Sample (5230) (50)

Graduates Random Sample (527) (50)

Dropouts Random Sample (421) (50)

Master List
College B (496)

Graduates Random Sample (75) (50)

Figure 1

Sample Selection Process

Note: Numbers in parentheses indicate the total number of students in that group.
Procedures for Data Collection

Academic transcripts were obtained for each student in the sample. These transcripts were utilized to determine the following information for each student:

1. race
2. gender
3. placement test scores (if available)
4. enrollment in developmental courses
5. academic standing
6. degree(s) or certificate(s) awarded (if any)

A telephone survey was utilized to obtain the following additional information necessary for the study but not found on individual student transcripts:

1. major at entry
2. major at graduation or exit
3. reason(s) for changing major (if appropriate)
4. father's occupation

By reviewing individual transcripts and information obtained through the telephone survey, it was then possible to synthesize and record for analysis the following information for each student selected for study:

1. race: white, other
2. gender: male, female
3. father's occupation: white collar, blue collar
4. status: graduate, dropout
5. process: followed the cooling out process, did not follow the cooling out process.

Statistical Procedures For Data Analysis

Data Classification

Based on the criteria set forth in Stevens' (1951) taxonomy of measurement, the data which were collected, synthesized, and analyzed for this study were classified as "nominal" data. "Nominal measurement involves the placing of objects or individuals into categories which are qualitatively rather than quantitatively different" (Ary, Jacobs, & Razavich, 1979, p. 92). As explained in the preceding section, Procedures for Data Collection, all student information collected for this study was synthesized and placed into discrete categories such as race, gender, father's occupation, status, and process. The placement of students into these qualitative groups constitutes a nominal or classificatory scale of measurement.

Procedures for Analysis

Because the data collected for this study were classified as belonging to the nominal scale of measurement, the appropriate nonparametric statistical procedures were sought to evaluate the six hypotheses presented in Chapter I. Depending on expected cell frequencies, degrees of freedom, and the number of
variables being considered, each hypothesis employed one or more of the following procedures defined below.

**Chi-square test for contingency tables.** This procedure commonly referred to as the chi-square test for independent samples, is considered a useful procedure for determining whether two nominal measures are related (Roscoe, 1975; Siegel, 1956). Although this procedure has no restrictions with respect to the number of categories in either the row or column variable, there are, however, restrictions with respect to sample size. According to Siegel (1956), chi-square tests for contingency tables with two or more degrees of freedom are appropriate if fewer than 20% of the cells have an expected frequency of less than five, and no cell has an expected frequency of less than one. Roscoe (1975) recommends that in two-by-two contingency tables (the situation where degrees of freedom is equal to one) the average expected cell frequency should be no less than seven. For smaller expected frequencies, Fisher's exact test should be used.

**Fisher's exact test.** This nonparametric procedure is extremely useful in comparing two independent samples on a dichotomous criterion (two-by-two contingency tables). The Fisher's exact test may be substituted for the chi-square test for contingency tables when the data are cast into a two-by-two bivariate frequency table and the
average expected cell frequency is less than seven (Roscoe, 1975; Siegel, 1956).

Chi-square test for goodness of fit. This procedure, sometimes called a one sample chi-square test, is useful to determine whether an observed frequency distribution departs significantly from an expected frequency distribution based on the null hypothesis (Roscoe, 1975). It is recommended by Roscoe (1975) that when the degrees of freedom are less than two, the expected cell frequencies should be equal to, or, greater than five.

Tests for Hypotheses

Table 4 presents information regarding the method(s) of analysis selected for each null hypothesis presented in Chapter I. The .05 level of significance was used as the basis for rejecting the null hypotheses.

Table 4
Selected Method(s) of Analysis for Each Hypothesis

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Method(s) of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>chi-square test for goodness of fit</td>
</tr>
<tr>
<td>2</td>
<td>chi-square test for goodness of fit</td>
</tr>
<tr>
<td>3</td>
<td>chi-square test for goodness of fit</td>
</tr>
<tr>
<td>4</td>
<td>chi-square test for contingency tables</td>
</tr>
<tr>
<td></td>
<td>Fisher's exact test</td>
</tr>
<tr>
<td>5</td>
<td>chi-square test for contingency tables</td>
</tr>
<tr>
<td>6</td>
<td>chi-square test for contingency tables</td>
</tr>
<tr>
<td></td>
<td>Fisher's exact test</td>
</tr>
</tbody>
</table>
CHAPTER IV

PRESENTATION OF RESULTS

Introduction

The primary purpose of this study was to determine if there is a significant difference in relation to selected student characteristics between students who have followed the cooling out process, and those who have not, as measured by their graduation status from a two-year community college. This chapter presents an analysis of the data which were collected to answer this research question and is organized by the following subtopics: (a) descriptive analysis of the random sample, (b) tests of hypotheses, (c) other related findings, and (d) summary of Chapter IV.

Descriptive Analysis of the Random Sample

As described in Chapter III the sample selected for study was extracted from the target population using a table of random numbers. A total of 100 dropouts (50 from each college) and 100 graduates (50 from each college) were drawn for study. Since the hypotheses addressed in this study were defined in terms of two factors,

1. Student Status and,

2. Process
with each of these factors having two levels,

1. Student Status
   a. graduate
      (1) race
      (2) gender
      (3) father's occupation
   b. dropout
      (1) race
      (2) gender
      (3) father's occupation

2. Process
   a. followed the cooling out process
   b. did not follow the cooling out process

A descriptive analysis of the sample based on these two factors and their corresponding levels is presented.

Student Status and Race

Of the 200 students drawn for study, 86.5% were classified as "white", and 13.5% were classified as "other" minorities. Considering only white students, 49.7% were dropouts while 50.3% were graduates. Minority students showed a similar distribution with 52.0% and 48.0% falling into the dropout and graduate categories respectively. The racial composition of the sample in relation to student status is presented in Table 5.
Table 5

Descriptive Analysis of Sample: Student Status and Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>86 (49.7)</td>
<td>87 (50.3)</td>
<td>173 (100.0)</td>
</tr>
<tr>
<td>Other</td>
<td>14 (52.0)</td>
<td>13 (48.0)</td>
<td>27 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

Note. Values presented are frequency totals. Numbers in parentheses indicate row percentages.

Student Status and Gender

Of the 200 students selected for study, 45.0% were male and 55.0% were female. Both male and female students were relatively evenly distributed between the dropout and graduate categories. Considering only male students, 47.8% were dropouts and 52.2% were graduates. Female students showed a similar distribution with 51.8% and 48.2% falling into the dropout and graduate categories respectively. Table 6 presents a frequency analysis of gender in relation to student status.

Student Status and Father's Occupation

Of the 200 students drawn for study, 44.0% had a father whose occupation was considered to be "white" collar, and 56.0% had a father whose occupation was considered to be
Table 6

Descriptive Analysis of Sample: Student Status and Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>43 (47.8)</td>
<td>47 (52.2)</td>
<td>90 (100.0)</td>
</tr>
<tr>
<td>Female</td>
<td>57 (51.8)</td>
<td>53 (48.2)</td>
<td>110 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

Note. Values presented are frequency totals. Numbers in parentheses indicate row percentages.

"blue" collar. When isolating those students of white collar families, 55.0% were dropouts and 45.0% were graduates. Students of blue collar families showed a similar distribution with 46.4% and 53.6% falling into the dropout and graduate categories respectively. Table 7 presents a frequency analysis of father's occupation and student status.

Process and Race

Of the 200 students selected for study, 31.5% followed the cooling out process and 68.5% did not follow the cooling out process. When considering only white students, 27.2% followed the cooling out process and 72.8% did not. Other minority students showed a somewhat different distribution with 59.3% and 40.7% falling into the cooled out and not
Table 7

Descriptive Analysis of Sample: Student Status and Father's Occupation

<table>
<thead>
<tr>
<th>Father's Occupation</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>48 (55.0)</td>
<td>40 (45.0)</td>
<td>88 (100.0)</td>
</tr>
<tr>
<td>Blue</td>
<td>52 (46.4)</td>
<td>60 (53.6)</td>
<td>112 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

Note. Values presented are frequency totals. Numbers in parentheses indicate row percentages.

cooled out categories respectively. Table 8 presents a frequency analysis of process and race.

Process and Gender

Of the 90 male students included in the sample, 34.4% followed the cooling out process and 65.6% did not follow the cooling out process. Of the 110 female students included in the sample, 29.1% and 70.9% fell into the cooled out and not cooled out categories respectively. Table 9 presents a frequency analysis of process and gender.

Process and Father's Occupation

Of the 88 students selected for study whose father had a white collar occupation, 29.6% followed the cooling out
### Table 8
Descriptive Analysis of Sample: Process and Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>47 (27.2)</td>
<td>126 (72.8)</td>
<td>173 (100.0)</td>
</tr>
<tr>
<td>Other</td>
<td>16 (59.3)</td>
<td>11 (40.7)</td>
<td>27 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>63 (31.5)</td>
<td>137 (68.5)</td>
<td>200 (100.0)</td>
</tr>
</tbody>
</table>

**Note.** Values presented are frequency totals. Numbers in parentheses indicate row percentages.

### Table 9
Descriptive Analysis of Sample: Process and Gender

<table>
<thead>
<tr>
<th>Race</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>31 (34.4)</td>
<td>59 (65.6)</td>
<td>90 (100.0)</td>
</tr>
<tr>
<td>Female</td>
<td>32 (29.1)</td>
<td>78 (70.9)</td>
<td>110 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>63 (31.5)</td>
<td>137 (68.5)</td>
<td>200 (100.0)</td>
</tr>
</tbody>
</table>

**Note.** Values presented are frequency totals. Numbers in parentheses indicate row percentages.
process and 70.4% did not follow the cooling out process. Of the 112 students whose father had a blue collar occupation, the distribution was somewhat similar with 33.0% and 67.0% falling into the cooled out and not cooled out categories respectively. Table 10 presents a frequency analysis of process and father's occupation.

Table 10

Descriptive Analysis of Sample: Process and Father's Occupation

<table>
<thead>
<tr>
<th>Father's Occupation</th>
<th>Process</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cooled Out</td>
<td>Not Cooled Out</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>26 (29.6)</td>
<td>62 (70.4)</td>
<td>88 (100.0)</td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>37 (33.0)</td>
<td>75 (67.0)</td>
<td>112 (100.0)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63 (31.5)</td>
<td>137 (68.5)</td>
<td>200 (100.0)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Values presented are frequency totals. Numbers in parentheses indicate row percentages.

Tests of Hypotheses

As previously outlined, the purpose of this study was defined in terms of six null hypotheses which involved the analysis of various factors and levels of factors, based on the variables of race, gender, and father's occupation. This section addresses each hypothesis individually and
discusses its statistical significance based on the method of analysis employed. In some cases it was necessary to preface and/or supplement the testing of some of these null hypotheses with other statistical analyses to enhance the limpidity of the overall investigation. All null hypotheses were tested at the .05 level of significance.

Before proceeding to hypotheses one, two, and three which test for significant differences between the primary levels of student status and process, it was logical to determine first if a statistically significant relationship existed between student status and process. A chi-square test for independent samples was employed to test the null hypothesis that there is no significant relationship between student status and process. The obtained \( \chi^2 (1, N = 200) = 12.26, p < .05 \), with its corresponding contingency coefficient of .24 resulted in rejecting the null hypothesis. Therefore, the relationship between student status and process is statistically significant. Table 11 presents this analysis.

**Test of Hypothesis One**

\( H_{01} \): There is no difference between the percentage of dropouts who followed the cooling out process and those who did not.

A chi-square test for goodness of fit was utilized to determine if there was a statistically significant difference between the percentage of dropouts who followed
the cooling out process and those who did not. The obtained $\chi^2 (1, N = 100) = 6.129, p<.05$, resulted in rejecting null hypothesis one. Table 12 presents this analysis.

Table 11

Chi-Square Analysis: Student Status by Process

<table>
<thead>
<tr>
<th>Process</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropouts</td>
<td>43</td>
<td>57</td>
<td>100</td>
</tr>
<tr>
<td>Graduates</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>137</td>
<td>200</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 12.26, df = 1, $p = .000$. Contingency coefficient = .24.

Table 12

Chi-Square Test for Goodness of Fit: Dropouts by Process

<table>
<thead>
<tr>
<th>Process</th>
<th>Frequencies (Dropouts)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed</td>
<td>Expected</td>
<td></td>
</tr>
<tr>
<td>Cooled Out</td>
<td>43</td>
<td>31.5</td>
<td></td>
</tr>
<tr>
<td>Not Cooled Out</td>
<td>57</td>
<td>68.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Note. Chi-square value = 6.129, df = 1, $p = .013$. 
Test of Hypothesis Two

$H_{02}$: There is no difference between the percentage of graduates who followed the cooling out process and those who did not.

A chi-square test for goodness of fit was used to determine whether the percentage of graduates who followed the cooling out process differed significantly from the percentage of those who did not. The obtained $\chi^2 (1, N = 100) = 6.129$, $p < .05$, resulted in rejecting hypothesis two. Table 13 presents this analysis.

Table 13
Chi-Square Test for Goodness of Fit: Graduates by Process

<table>
<thead>
<tr>
<th>Process</th>
<th>Observed</th>
<th>Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooled Out</td>
<td>20</td>
<td>31.5</td>
</tr>
<tr>
<td>Not Cooled Out</td>
<td>80</td>
<td>68.5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 6.129, df = 1, $p = .013$.

Test of Hypothesis Three

$H_{03}$: There is no difference between the percentage of dropouts who followed the cooling out process and the percentage of graduates who followed the cooling out process.
A chi-square test for goodness of fit was used to determine if the percentage of dropouts who followed the cooling out process differed significantly from the percentage of graduates who followed the cooling out process. The obtained $\chi^2 (1, N = 63) = 8.397, p < .05$, resulted in rejecting hypothesis three. Table 14 presents this analysis.

Table 14

Chi-Square Test for Goodness of Fit: Those Cooled Out by Student Status

<table>
<thead>
<tr>
<th>Student Status</th>
<th>Observed</th>
<th>Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropouts</td>
<td>43</td>
<td>31.5</td>
</tr>
<tr>
<td>Graduates</td>
<td>20</td>
<td>31.5</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>63</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 8.397, df = 1, $p = .003$.

Since the rejection of hypothesis three established that a statistically significant difference existed between the percentages of dropouts and graduates who followed the cooling out process, a second chi-square test for goodness of fit was applied to determine if a statistically significant difference existed between the percentages of
dropouts and graduates who did not follow the cooling out process. The obtained $\chi^2 (1, N = 137) = 3.861, p < .05$, resulted in rejecting the null hypothesis that there is no significant difference between the percentage of dropouts who did not follow the cooling out process and the percentage of graduates who did not follow the cooling out process. Table 15 presents this analysis.

Table 15

Chi-Square Test for Goodness of Fit: Those Not Cooled Out by Student Status

<table>
<thead>
<tr>
<th>Student Status</th>
<th>Observed</th>
<th>Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropouts</td>
<td>57</td>
<td>68.5</td>
</tr>
<tr>
<td>Graduates</td>
<td>80</td>
<td>68.5</td>
</tr>
<tr>
<td>Total</td>
<td>137</td>
<td>137</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 3.861, df = 1, $p = .049$.

Chi-Square Analyses: Race by Process, Gender by Process, and Father's Occupation by Process

Before proceeding to hypotheses four, five, and six which test for significant differences between student status and process based on the variables of race, gender, and father's occupation, it was logical to determine first if a statistically significant relationship existed between
these variables and process. Therefore, the following chi-square tests for independent samples were employed.

1. race by process
2. gender by process
3. father's occupation by process

**Race by process.** A chi-square test for independent samples was applied to test the null hypothesis that there is no statistically significant relationship between race and process. The obtained $\chi^2 (1, N = 200) = 11.147, p<.05$, with its corresponding contingency coefficient of .23 resulted in rejecting the null hypothesis. Therefore, the relationship between race and process was statistically significant. Table 16 presents this analysis.

Table 16

<table>
<thead>
<tr>
<th></th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>Cooled Out</td>
</tr>
<tr>
<td>White</td>
<td>47</td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

**Note.** Chi-square value = 11.147, df = 1, $p = .001$. Contingency coefficient = .23.
Gender by process. A chi-square test for independent samples was applied to test the null hypothesis that there is no significant relationship between gender and process. The obtained $\chi^2(1, N = 200) = .657$, $p > .05$, with its corresponding contingency coefficient of .06 resulted in accepting the null hypothesis. Therefore, the relationship between gender and process was not statistically significant. Table 17 presents this analysis.

Table 17

Chi-Square Analysis: Gender by Process

<table>
<thead>
<tr>
<th>Race</th>
<th>Process</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cooled Out</td>
<td>Not Cooled Out</td>
</tr>
<tr>
<td>Male</td>
<td>31</td>
<td>59</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>137</td>
</tr>
</tbody>
</table>

Note. Chi-square value = .657, df = 1, $p = .417$.
Contingency coefficient = .06.

Father's occupation by process. A chi-square test for independent samples was applied to test the null hypothesis that there is no statistically significant relationship between father's occupation and process. The obtained $\chi^2(1, N = 200) = .598$, $p > .05$, with its corresponding
contingency coefficient of .04 resulted in accepting the null hypothesis. Therefore, the relationship between father's occupation and process was not statistically significant. Table 18 presents this analysis.

Table 18

Chi-Square Analysis: Father's Occupation by Process

<table>
<thead>
<tr>
<th>Father's Occupation</th>
<th>Process</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cooled Out</td>
<td>Not Cooled Out</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>26</td>
<td>62</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>37</td>
<td>75</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>137</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

Note. Chi-square value = .278, df = 1, p = .598. Contingency coefficient = .04.

Test of Hypothesis Four

H_0^4: There is no difference between the percentage of dropouts who followed the cooling out process and the percentage of graduates who followed the cooling out process based on the variables of race, gender, and father's occupation.

The investigation of hypothesis four involved the use of the chi-square test for independent samples and the Fisher's exact test. Each variable (race, gender, father's occupation) was cross tabulated with student status
(dropouts, graduates) which was sorted by process (those who followed the cooling out process, those who did not follow the cooling out process). This design resulted in the following six cross tabulations each of which utilized the chi-square statistic with the exception of number two which employed the Fisher's exact test because 25% of the cells in that contingency table had expected frequencies less than five:

1. race by student status (for those cooled out),
2. race by student status (for those not cooled out),
3. gender by student status (for those cooled out),
4. gender by student status (for those not cooled out),
5. father's occupation by student status (for those cooled out), and
6. father's occupation by student status (for those not cooled out).

Race by student status (those cooled out). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who followed the cooling out process and the percentage of graduates who followed the cooling out process based on the variable of race. The obtained $\chi^2 (1, N = 63) = .002, p>.05$, with its corresponding contingency coefficient of .01 resulted in accepting the null hypothesis. Table 19 presents this analysis.
Table 19

Chi-Square Analysis: Race by Student Status Sorted by Process to Isolate Those Who Were Cooled Out

<table>
<thead>
<tr>
<th>Race</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>32</td>
<td>15</td>
<td>47</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>20</td>
<td>63</td>
</tr>
</tbody>
</table>

Note. Chi-square value = .002, df = 1, p = .961. Contingency coefficient = .01.

Race by student status (those not cooled out). The Fisher's exact test was selected to test the null hypothesis that there is no difference between the percentage of dropouts who did not follow the cooling out process and the percentage of graduates who did not follow the cooling out process based on the variable of race. The selection of Fisher's exact test was based on expected cell frequencies. The obtained two-tailed probability of occurrence under the null hypothesis was .361 (N = 137), p > .05, which resulted in accepting the null hypothesis. Table 20 presents this analysis.
Table 20

Fisher's Exact Test: Race by Student Status Sorted by Process to Isolate Those Who Were Not Cooled Out

<table>
<thead>
<tr>
<th>Race</th>
<th>Student Status (Those Not Cooled Out)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dropouts</td>
</tr>
<tr>
<td>White</td>
<td>54</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
</tr>
</tbody>
</table>

Note. Fisher's exact test two-tail probability of occurrence under the null hypothesis = .361.

Gender by student status (those cooled out). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who followed the cooling out process and the percentage of graduates who followed the cooling out process based on the variable of gender. The obtained $\chi^2 (1, N = 63) = 2.924, p > .05$, with its corresponding contingency coefficient of .21 resulted in accepting the null hypothesis. Table 21 presents this analysis.

Gender by student status (those not cooled out). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who did not follow the cooling out process and the percentage of graduates who did not follow
Table 21

Chi-Square Analysis: Gender by Student Status Sorted by Process to Isolate Those Who Were Cooled Out

<table>
<thead>
<tr>
<th>Gender</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>18</td>
<td>13</td>
<td>31</td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>7</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>20</td>
<td>63</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 2.924, df = 1, $p = .087$. Contingency coefficient = .21.

the cooling out process based on the variable of gender. The obtained $\chi^2 (1, N = 137) = .025, p > .05$, with its corresponding contingency coefficient of .02 resulted in accepting the null hypothesis. Table 22 presents this analysis.

Father's occupation by student status (those cooled out). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who followed the cooling process and the percentage of graduates who followed the cooling out process based on the variable of father's occupation. The obtained $\chi^2 (1, N = 63) = .921, p > .05$, with its corresponding contingency coefficient of .12 resulted in accepting the null hypothesis. Table 23 presents this analysis.
Table 22

Chi-Square Analysis: Gender by Student Status Sorted by Process to Isolate Those Who Were Not Cooled Out

<table>
<thead>
<tr>
<th>Gender</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>25</td>
<td>34</td>
<td>59</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>46</td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>80</td>
<td>137</td>
</tr>
</tbody>
</table>

Note. Chi-square value = .025, df = 1, p = .874. Contingency coefficient = .02.

Table 23

Chi-Square Analysis: Father's Occupation by Student Status Sorted by Process to Isolate Those Who Were Cooled Out

<table>
<thead>
<tr>
<th>Father's Occupation</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>16</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>Blue</td>
<td>27</td>
<td>10</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>20</td>
<td>63</td>
</tr>
</tbody>
</table>

Note. Chi-square value = .921, df = 1, p = .337. Contingency coefficient = .12.
Father's occupation by student status (those not cooled out). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who did not follow the cooling out process and the percentage of graduates who did not follow the cooling out process based on the variable of father's occupation. The obtained $\chi^2 (1, N = 137) = 4.668$, $p < .05$, with its corresponding contingency coefficient of .18 resulted in rejecting the null hypothesis. Table 24 presents this analysis.

Table 24

Chi-Square Analysis: Father's Occupation by Student Status Sorted by Process to Isolate Those Who Were Not Cooled Out

<table>
<thead>
<tr>
<th>Father's Occupation</th>
<th>Dropouts</th>
<th>Graduates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>32</td>
<td>30</td>
<td>62</td>
</tr>
<tr>
<td>Blue</td>
<td>25</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>80</td>
<td>137</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 4.668, df = 1, $p = .031$. Contingency coefficient = .18.

Test of Hypothesis Five

$H_0$: There is no difference between the percentage of dropouts who followed the cooling out process and those who did not based on the variables of race, gender, and father's occupation.
Hypothesis five involved the use of the chi-square test for independent samples. Each variable was cross tabulated with process which was sorted by student status to isolate dropouts. This design resulted in the following cross tabulations:

1. race by process (for dropouts),
2. gender by process (for dropouts), and
3. father's occupation by process (for dropouts).

Race by process (for dropouts). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who followed the cooling out process and those who did not based on the variable of race. The obtained $\chi^2 (1, N = 100) = 8.404, p<.05$, with its corresponding contingency coefficient of .28 resulted in rejecting the null hypothesis. Table 25 presents this analysis.

Gender by process (for dropouts). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who followed the cooling out process and those who did not based on the variable of gender. The obtained $\chi (1, N = 100) = .040, p>.05$, with its corresponding contingency coefficient of .02 resulted in accepting the null hypothesis. Table 26 presents this analysis.
Table 25

Chi-Square Analysis: Race by Process Sorted by Student Status to Isolate Dropouts

<table>
<thead>
<tr>
<th>Race</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>32</td>
<td>54</td>
<td>86</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>57</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 8.404, df = 1, $p = .004$. Contingency coefficient = .28.

Table 26

Chi-Square Analysis: Gender by Process Sorted by Student Status to Isolate Dropouts

<table>
<thead>
<tr>
<th>Gender</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>18</td>
<td>25</td>
<td>43</td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>32</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>57</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. Chi-square value = .040, df = 1, $p = .842$. Contingency coefficient = .02.
Father's occupation by process (for dropouts). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of dropouts who followed the cooling out process and those who did not based on the variable of father's occupation. The obtained $\chi^2 (1, N = 100) = 3.519, p > .05$, with corresponding contingency coefficient of .18 resulted in accepting the null hypothesis. Table 27 presents this analysis.

Table 27

Chi-Square Analysis: Father's Occupation by Process Sorted by Student Status to Isolate Dropouts

<table>
<thead>
<tr>
<th>Father's Occupation</th>
<th>Process (For Dropouts)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cooled Out</td>
<td>Not Cooled Out</td>
</tr>
<tr>
<td>White</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Blue</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>57</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 3.519, df = 1, $p = .061$. Contingency coefficient = .18.
Test of Hypothesis Six

H$_0^6$: There is no difference between the percentage of graduates who followed the cooling out process and those who did not based on the variables of race, gender, and father's occupation.

Hypothesis six involved the use of the chi-square test for independent samples and the Fisher's exact test. Each variable was cross tabulated with process which was sorted by student status to isolate graduates. This design resulted in the following cross tabulations all of which utilized the chi-square statistic with the exception of number one which employed the Fisher's exact test because 25% of the cells in that contingency table had expected frequencies less than five.

1. race by process (for graduates)
2. gender by process (for graduates)
3. father's occupation by process (for graduates)

Race by process (for graduates). The Fisher's exact test was selected to test the null hypothesis that there is no difference between the percentage of graduates who followed the cooling out process and those who did not based on the variable of race. The selection of Fisher's exact test was based on expected cell frequencies. The obtained two-tailed probability of occurrence under the null hypothesis was .129 (N = 100), p>.05, which resulted in accepting the null hypothesis. Table 28 presents this analysis.
Table 28

Fisher's Exact Test: Race by Process Sorted by Student Status to Isolate Graduates

<table>
<thead>
<tr>
<th>Race</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>15</td>
<td>72</td>
<td>87</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. Fisher's exact test two-tailed probability of occurrence under the null hypothesis = .129.

Gender by process (for graduates). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of graduates who followed the cooling out process and those who did not based on the variable of gender. The obtained $\chi^2 (1, N = 100) = 3.252, p > .05$, with its corresponding contingency coefficient of .18 resulted in accepting the null hypothesis. Table 29 presents this analysis.

Father's occupation by process (for graduates). A chi-square test for independent samples was used to test the null hypothesis that there is no difference between the percentage of graduates who followed the cooling out process and those who did not based on the variable of father's occupation. The obtained $\chi^2 (1, N = 100) = 1.042, p > .05$, with its corresponding contingency coefficient of .10.
resulted in accepting the null hypothesis. This analysis is presented in Table 30.

Table 29

Chi-Square Analysis: Gender by Process Sorted by Student Status to Isolate Graduates

<table>
<thead>
<tr>
<th>Gender</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>34</td>
<td>47</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>46</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 3.252, df = 1, $p = .071$. Contingency coefficient = .18.

Table 30

Chi-Square Analysis: Father's Occupation by Process Sorted by Student Status to Isolate Graduates

<table>
<thead>
<tr>
<th>Father's Occupation</th>
<th>Cooled Out</th>
<th>Not Cooled Out</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>10</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Blue</td>
<td>10</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. Chi-square value = 1.042, df = 1, $p = .307$. Contingency coefficient = .10.
Other Related Findings

As outlined in Chapter III a telephone survey was used to obtain additional information necessary for the study which was not found on individual student transcripts. This information centered around determining each student's: (a) major at entry and at graduation or exit, (b) father's occupation, and (c) confirmation as to whether or not cooling out had actually taken place. In addition to this information, other data were collected which involved asking students about their a educational plans and objectives, and overall experience as a community college student. This section presents these related findings.

Educational Goals and Objectives

Of the 100 dropouts drawn for study 35% indicated that they had fulfilled their educational goal or objective for attending the community college, 65% indicated they had not. However, when sorted by race, only 7.1% of the minority dropouts indicated that they had fulfilled their goal or objective for attending the community college compared to 39.5% for white dropouts. This indicates that proportionally, a greater number of minorities withdrew before fulfilling their educational goals or objectives than whites. Of the 100 graduates selected for study 100% indicated that they realized their goal or objective for attending the community college. Table 31 presents this information.
Frequency Distribution: Student Status by Goal Fulfillment, Sorted by Race

<table>
<thead>
<tr>
<th>Student Status by Race</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Dropouts</td>
<td>34 (39.5)</td>
<td>52 (60.5)</td>
<td>86 (100.0)</td>
</tr>
<tr>
<td>Minority Dropouts</td>
<td>1 (7.1)</td>
<td>13 (92.9)</td>
<td>14 (100.0)</td>
</tr>
<tr>
<td>Total (Dropouts)</td>
<td>35 (35.0)</td>
<td>65 (65.0)</td>
<td>100 (100.0)</td>
</tr>
<tr>
<td>White Graduates</td>
<td>87 (100.0)</td>
<td>0 (0.0)</td>
<td>87 (100.0)</td>
</tr>
<tr>
<td>Minority Graduates</td>
<td>13 (100.0)</td>
<td>0 (0.0)</td>
<td>13 (100.0)</td>
</tr>
<tr>
<td>Total (Graduates)</td>
<td>100 (100.0)</td>
<td>0 (0.0)</td>
<td>100 (100.0)</td>
</tr>
</tbody>
</table>

Note. Values presented are frequency totals. Number in parentheses indicate row percentages.

Of the 100 graduates drawn for study 54% had obtained the Associate of Arts degree, 35% had obtained the Associate of Science degree, and 11% had obtained a certificate. When asked about their future educational plans 91% of the Associate of Arts degree graduates planned to complete a four-year degree, 43% of the Associate of Science degree students planned to complete a four-year degree, and 55% of the certificate graduates planned to complete a four-year degree. Of the 100 dropouts selected for study 48% indicated that they planned to complete a four-year degree sometime in the future. Overall 70% of the graduates and
48% of the dropouts plan a four-year degree. Tables 32 and 33 present this information.

When the 200 students drawn for study were sorted by process 59% of those who were cooled out indicated that they planned to complete a four-year degree. Students who were not cooled out showed the same distribution with 59% planning a four-year degree and 41% not planning to go on. Table 34 presents this information.

**Experience as a Community College Student**

When asked to describe their experience as a community college student 94% of all students indicated that they were either "very satisfied" or "satisfied." Only 6% indicated that they were either "disappointed" or "very disappointed" with their experience.

When sorted by student status 90% of the dropouts and 98% of the graduates indicated that they were either very satisfied or satisfied with their experience as a community college student. Table 35 presents this information.

When sorted by process 88.9% of those who were cooled out and 96.4% of those who were not cooled out indicated that they were either very satisfied or satisfied with their experience as a community college student. Table 36 presents this information.

It appears that regardless of status or process students included in the sample were generally satisfied with their overall community college experience.
Table 32

**Frequency Distribution: Degree Obtained by Future Educational Plans**

<table>
<thead>
<tr>
<th>Degree Obtained</th>
<th>Four-year</th>
<th>No Four-year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate of Arts</td>
<td>49 (91.0)</td>
<td>5 (9.0)</td>
<td>54 (100.0)</td>
</tr>
<tr>
<td>Associate of Science</td>
<td>15 (43.0)</td>
<td>20 (57.0)</td>
<td>35 (100.0)</td>
</tr>
<tr>
<td>Certificate</td>
<td>6 (55.0)</td>
<td>5 (45.0)</td>
<td>11 (100.0)</td>
</tr>
<tr>
<td>None</td>
<td>48 (48.0)</td>
<td>52 (52.0)</td>
<td>100 (100.0)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>118 (59.0)</td>
<td>82 (41.0)</td>
<td>200 (100.0)</td>
</tr>
</tbody>
</table>

**Note.** Values presented are frequency totals. Numbers in parentheses indicate row percentages.

Table 33

**Frequency Distribution: Student Status by Future Educational Plans**

<table>
<thead>
<tr>
<th>Student Status</th>
<th>Four-year</th>
<th>No Four-year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropouts</td>
<td>48 (48.0)</td>
<td>52 (52.0)</td>
<td>100 (100.0)</td>
</tr>
<tr>
<td>Graduates</td>
<td>70 (70.0)</td>
<td>30 (30.0)</td>
<td>100 (100.0)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>118 (59.0)</td>
<td>82 (41.0)</td>
<td>200 (100.0)</td>
</tr>
</tbody>
</table>

**Note.** Values presented are frequency totals. Numbers in parentheses indicate row percentages.
Table 34

**Frequency Distribution: Process by Future Educational Plans**

<table>
<thead>
<tr>
<th>Process</th>
<th>Plans for Future Education</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Four-year</td>
<td>No Four-year</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Cooled Out</td>
<td>37 (59.0)</td>
<td>26 (41.0)</td>
<td>63 (100.0)</td>
<td></td>
</tr>
<tr>
<td>Not Cooled Out</td>
<td>81 (59.0)</td>
<td>56 (41.0)</td>
<td>137 (100.0)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>118 (59.0)</td>
<td>82 (41.0)</td>
<td>200 (100.0)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Values presented are frequency totals. Numbers in parentheses indicate row percentages.

Table 35

**Frequency Distribution: Student Status by Experience as a Community College Student**

<table>
<thead>
<tr>
<th>Experience</th>
<th>Satisfied</th>
<th>Disappointed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>90 (90.0)</td>
<td>10 (10.0)</td>
<td>100 (100.0)</td>
</tr>
<tr>
<td>Graduates</td>
<td>98 (98.0)</td>
<td>2 (2.0)</td>
<td>100 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>188 (94.0)</td>
<td>12 (6.0)</td>
<td>200 (100.0)</td>
</tr>
</tbody>
</table>

*Note.* Values presented are frequency totals. Numbers in parentheses indicate row percentages.
Table 36

Frequency Distribution: Process by Experience as a Community College Student

<table>
<thead>
<tr>
<th>Process</th>
<th>Satisfied</th>
<th>Disappointed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooled Out</td>
<td>56 (88.9)</td>
<td>7 (11.1)</td>
<td>63 (100.0)</td>
</tr>
<tr>
<td>Not Cooled Out</td>
<td>132 (96.4)</td>
<td>5 (3.6)</td>
<td>137 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>188 (94.0)</td>
<td>12 (6.0)</td>
<td>200 (100.0)</td>
</tr>
</tbody>
</table>

Note. Values presented are frequency totals. Numbers in parentheses indicate row percentages.

Summary of Chapter IV

Chapter IV has presented an analysis of the data which included a descriptive analysis of the sample drawn for study, results of hypotheses testing, and other related findings.

The descriptive analysis of the sample was presented in terms of the two factors involved with this study cross tabulated with the various levels of these two factors.

Hypotheses testing involved the use of three nonparametric statistical procedures; the chi-square test for goodness of fit, the chi-square test for independent samples, and the Fisher's exact test. In many instances it was necessary to preface and/or supplement the testing of
the six null hypotheses (presented in Chapter I) with other statistical analyses primarily to show whether or not an overall significant relationship existed between two factors and/or levels of factors before proceeding to test for specific differences or relationships. These supplementary analyses, as well as "other related findings," were included to provide more data to strengthen the overall interpretation and summary of results which is presented in Chapter V.
CHAPTER V

INTERPRETATION, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Interpretation of Results

The Overall Relationship Between Student Status and Process

According to results reported in Chapter IV, there appears to be a statistically significant relationship between student status and process. Proportionally, more dropouts followed the cooling out process and conversely more graduates did not follow the cooling out process (See Tables 11, 12, 13). This relationship was strengthened further by examining the composition (in terms of student status) of the total number of students who fell into the cooled out and not cooled out categories respectively. This analysis revealed that the cooled out category contained significantly more dropouts than graduates, and the not cooled out category contained significantly more graduates than dropouts (See Tables 14, 15).

In summary, it appears that based on these results students who have been filtered through the cooling out process are more likely to be classified as dropouts than graduates and those students who have not been through the cooling out process are more likely to be classified as graduates than dropouts.
The Relationship Between Race, Process, and Student Status

A statistically significant relationship was reported between race and process. Proportionally, a greater number of minorities followed the cooling out process than whites. Considering only minority students 59.3% were cooled out compared to a 27.2% rate of cooling out for white students (See Table 16).

Since the analysis presented in the preceding section established a strong association between the cooling out process and achieving dropout status this discovery takes on added significance.

To understand further the complex relationship between race, process, and student status, the reader is referred to Tables 25 and 28. A careful examination of Table 25 revealed that minority dropouts were more likely to have achieved that status through the cooling out process than were white dropouts. Only 37.2% of the white dropouts were cooled out compared to a 78.6% rate of cooling out for minority dropouts. A similar analysis was conducted between white and minority graduates and process. Results from this cross tabulation showed no statistically significant relationship. It appears that both white and minority graduates most likely achieved that status by going through similar processes. However, as observed earlier through the statistically significant relationship between student status and process, and now validated further through data
presented in Tables 19 and 20, students who have experienced the cooling out process are more likely to be classified as dropouts, and those who have not experienced the cooling out process are more likely to be classified as graduates. This appears true overall and true regardless of race.

In summary, both white and minority students who have experienced the cooling out process are more likely to be dropouts than those who have not; however, it appears that this phenomenon, proportionally, occurs significantly more often with minority students than with white students. Also it appears that both white and minority students who have not followed the cooling out process are more likely to be graduates than those who have; however, this phenomenon, proportionally, occurs with approximately the same frequency regardless of race.

The Relationship Between Gender, Process, and Student Status

Unlike the somewhat complex interaction reported between race, process, and student status, no statistically significant relationships were observed between gender and those same factors.

When gender was cross tabulated with process the relationship was not statistically significant. It appears that the probability of being cooled out is similar for both males and females (See Table 17).

When male and female dropouts were cross tabulated with process the reported chi-square statistic was not
significant. Table 26 revealed that 41.9% of all male dropouts were cooled out compared to a similar 43.9% for female dropouts. Another analysis was conducted between male and female graduates and process. Although this relationship was also not statistically significant, proportionally slightly more males achieved graduate status through the cooling out process than females. A percentage comparison revealed that 27.7% of the male graduates followed the cooling out process compared to 13.2% for female graduates (See Table 29).

Tables 21 and 22 further confirm that those students who followed the cooling out process are more likely to be classified as dropouts than graduates, and those students who have not followed the cooling out process are more likely to be classified as graduates than dropouts. This relationship has been observed regardless of race and now the same may be said regardless of gender.

In summary, it appears that the cooling out process does not discriminate based on gender. The frequency of cooling out seems to be relatively evenly distributed between males and females. None of the cross tabulations between gender, process, and student status were found to be statistically significant, however several inferences were made based on frequency distributions and percentages.
The Relationship Between Father's Occupation, Process, and Student Status

The overall relationship between father's occupation and process was not statistically significant. Considering only students from white collar families 29.6% were cooled out and 70.4% were not cooled out. A similar ratio was observed for students from blue collar families with 33.0% and 67.0% falling into the cooled out and not cooled out categories respectively (See Table 18).

When dropouts from white and blue collar families were cross tabulated with process the relationship was not statistically significant; however, proportionally more students from white collar families achieved dropout status by not going through the cooling out process than did dropouts from blue collar families (See Table 27). A similar analysis was conducted between graduates of white and blue collar families, and process. This relationship was also not statistically significant; however, an examination of Table 30 revealed an obvious link between graduate status and not going through the cooling out process for students from both white and blue collar families.

Table 23 provides more evidence that those who followed the cooling out process are more likely to be dropouts than graduates. This relationship has already been established for race and gender, and now applies regardless of father's occupation. This finding is based on the frequency distribution presented in Table 23 and not on statistical
significance. Table 24 on the other hand provides somewhat of a confirmation and contradiction concerning what has already been observed and stated about the relationship between not going through the cooling out process and achieving graduate status. The confirmation is that a large number of students from blue collar families achieved graduate status by not going through the cooling out process. The contradiction is that the same cannot be said about students from white collar families who do not go through the cooling out process. In fact a percentage comparison revealed that of the students from white collar families who were not cooled out 52.0% achieved dropout status and 48.0% achieved graduate status. This particular relationship which is presented in Table 24 was statistically significant.

In summary, an overall statistically significant relationship was not found between father's occupation and process. However, based on frequency distributions and not statistical significance it appears that dropouts from blue collar families were more likely to have been cooled out than dropouts from white collar families. Graduates from both white collar and blue collar families most likely did not follow the cooling out process. A statistically significant relationship was observed between father's occupation and student status when sorted by process to include only those who had been cooled out (See Table 24).
Other Related Findings

The following is a summary of "other related findings" which were presented in Chapter IV.

Educational goals and objectives. Of the 100 dropouts selected for study 35% indicated that although they had withdrawn from the institution they had fulfilled their primary goal or objective for attending. However, when sorted by race, only 7.1% of the minority dropouts compared to 39.5% of the white dropouts indicated they had fulfilled their goal or objective. All students who were classified as graduates, whether white or minority, indicated that they had achieved their primary goal or objective for attending the community college (See Table 31).

Future educational plans. A cross tabulation of graduates by degree obtained, indicated that 54% had achieved the Associate of Arts degree, 35% the Associate of Science degree, and 11% had achieved a certificate. When asked about their future plans for education, 91% of the Associate of Arts degree graduates, 43% of the Associate of Science degree graduates, and 55% of the certificate graduates indicated that they planned to complete a four-year degree sometime in the future. When sorted by student status 48% of all dropouts and 70% of all graduates indicated plans to someday complete a four-year degree (See Table 32, 33).
Experience as a community college student. When sorted by student status 90% of all dropouts and 98% of all graduates indicated that they were either "very satisfied" or "satisfied" with their experience as a community college student (See Table 35). When sorted by process 88.9% of those who were cooled out and 96.4% of those who were not cooled out indicated that they were either very satisfied or satisfied with their experience as a community college student (See Table 36).

Conclusions

The following conclusions seem warranted based on the results of this study.

1. The relationship between student status and process was statistically significant. The cooling out process appears to be linked to dropping out regardless of race, gender, or father's occupation.

2. The relationship between race and process was statistically significant. Proportionally, cooling out occurs significantly more often with minority students than with white students.

3. The relationship between gender and process was not statistically significant. The frequency of cooling out appears to be relatively evenly distributed between males and females.
4. The relationship between father's occupation and process was not statistically significant. The frequency of cooling out appears to be relatively evenly distributed between students of white and blue collar families.

5. Nearly one-third of the dropouts selected for study indicated that although they had dropped out they had fulfilled their goal or objective for attending the community college. However, this finding was not consistent across the variable of race. Only 7.1% of the minority dropouts indicated that they had achieved their primary goal or objective. This finding appears to support the general notion that reported rates of student attrition are inflated.

6. Almost one-half of the dropouts selected for study indicated that although they had dropped out they still planned to complete a four-year degree sometime in the future. This finding indicates that many former community college students who were labeled as dropouts may actually be stop-outs.

7. As expected a vast majority of graduates who had obtained the Associate of Arts degree planned to complete a four-year degree (91.0%). However, somewhat atypical was that 43% of the graduates who had obtained an Associate of Science degree, and 55% of the graduates who had obtained a certificate indicated that they planned to complete a four-year degree sometime in the
future. It appears that the terminal nature of the Associate of Science and certificate programs offered at the community college does not inhibit many students' aspirations to eventually achieve a four-year degree.

8. There appears to be no relationship between the cooling out process and plans to complete a four-year degree. The percentage of cooled out students who planned to complete a four-year degree was the same for students who were not cooled out (59.0%).

9. Most students were either "very satisfied" or "satisfied" with their experience as a community college student regardless of student status or process.

Discussion and Recommendations:

The purpose of this study as stated in Chapter I was to determine if there is a significant difference in relation to selected student characteristics between students who have followed the cooling out process and those who have not as measured by their graduation status from a two-year community college. The following discussion will attempt to place the results of this study, which were presented to answer this research question, in proper perspective. The discussion will focus on the historical value of this research by comparing and contrasting the results of this study with what has been already learned through the review
of related literature, and on its heuristic value by presenting recommendations for future action.

Discussion of Results

The cooling out function of the community college as described by Clark (1960b) appears to be alive but not well. Results presented here indicate that nearly one-third of all community college students may experience the cooling out process. This finding of course would not be inherently bad if the cooling out process were found to be effective in enhancing students' chances for success within the academic environment. Clark (1980), in his article "The 'Cooling Out' Function Revisited" admitted that if he were to do his analysis over, he would consider the effects of cooling out as well as the efforts to cool out.

In hindsight of two decades, what would I change in the original analysis if I had to do it over again? The most important change would be to have distinguished more clearly between effort and effectiveness in the cooling out process. It is one thing to observe the procedures constructed by colleges and the work they put into cooling out operations, and another to ascertain their effects on students, essentially answering the question whether the effort was effective or not. (p. 28)

This discussion addresses the cooling out process in terms of effort and effectiveness.

First of all, the effort of cooling out within Florida's 28 community colleges is quite obvious. The first two steps of the process which involve placement testing and mandatory developmental education have been legislatively
mandated and written into Florida State Board of Education rules. The third step which involves strict standards of academic progress is firmly planted in most policy manuals of the system's 28 community colleges. Therefore, the "overaspiring" student who enters a community college in Florida has no choice but to begin the cooling out process and hope to exit the institution as a survivor not a casualty. The results of this study found that the efficiency of the cooling out process to increase the overaspiring student's chances for survival within the academic environment to be discouraging at best. The cooling out process was found to be associated with student withdrawal from the community college. The reader should be cautioned at this point that only an association was observed; no attempt was made to show causal relationship.

This study certainly appears to add credence to Karabel's (1972) and Zwerling's (1976) assertions that the process has just an outward appearance of support for the "overintender," when in fact it is rigged against him. Could the cooling out process be the "grease" that keeps the revolving door spinning so freely? This observed association between cooling out and attrition also appears to confirm what Baird (1971) had suspected about the cooling out process. Although Baird's (1971) study reported a much lower rate of cooling out (11.4% for men, 14.3% for women) he conceded that those figures could be underestimates
because those students who had truly cooled out had probably dropped out, and were therefore not included in his sample.

This study did not fully address the global issue of cooling out as a class-based tracking process. However, although no overall statistically significant relationship was reported between father's occupation and cooling out, there was a rather strong association observed between the cooling out process and race. Therefore, further study may indicate that the cooling out process discriminates racially regardless of socioeconomic status.

Moore's (1975) assertion that women were often cooled from nontraditional to traditional programs of study simply because they were women was not tested in this study. However, no statistically significant relationship was found between cooling out and gender.

In light of some recent findings it is no great surprise that the cooling out process appears to be associated with student attrition. The success of the first two steps (viewed individually) to enhance student success and/or persistence at the community college has been questioned by two recent studies. McLeod (1985) found that placement test scores in mathematics were poor indicators of how well students will perform in subsequent mathematics courses. In fact McLeod (1985) reported that almost half of the correlations between test scores and grades were negative. McLeod (1985) concluded that alternative methods
of placement be studied especially those which base
placement on a variety of factors not just the results of
one test. Another study by Greenwood (1984) concluded that
there was no statistically significant difference in
persistence (in terms of completing freshman-level English)
between students who needed but did not enroll in a
developmental writing course and students who needed and
completed a developmental writing course. Greenwood (1984)
also reported that students who needed and enrolled in a
developmental writing course earned an associates degree at
approximately the same rate as students who needed but did
not enroll in a developmental writing course. If the
results of these two studies (Greenwood, 1984; McLeod, 1985)
indicate that individually the first two steps of the
cooling out process are not effective (at least within the
disciplines of mathematics and writing) why should the
combination of both as part of a process prove otherwise?

It appears that if progress is to be made in helping
students adjust their goals so that they are more in line
with ability, counseling must be improved and alternative
methods of assessment and placement must be explored.

The problems identified in this study are not new, in
fact they existed at least 16 years ago. Wattenbarger
(1970) in evaluating the various components of the community
college cited results of several studies and concluded that
It seems unlikely based on evidence from these studies that anyone could assume that the guidance and counseling programs which are currently in operation in community colleges could be considered adequate for the community college students. (pp. 25-26)

Emphasizing this point further Wattenbarger (1970) concluded that "There is no clear evidence to indicate how well community colleges are succeeding in helping people select appropriate education" (p. 28). Unfortunately, Wattenbarger's (1970) conclusions are as appropriate today as they were 16 years hence.

In conclusion, it seems appropriate to end where it all began with a statement by Clark (1980) which was used to describe the primary focus of this study.

Then, too, it probably would have helped to have carried the cooling out process one step further: after students move from transfer to terminal programs, or while they are being asked to do so, they often quickly move from college to a job or some other form of withdrawal. This would have hooked cooling out to the enormous attrition of community colleges and suggested a major two- or three-step flow in the denial of hope, lowering of aspirations, and disengagement. (p. 29)

Unfortunately, it does appear that the cooling out process is a factor (of unknown magnitude) which does not seem to enhance student completion of community college programs.

Recommendations

Based on the results of this study the cooling out process is a realistic phenomenon that impacts on student
achievement in the community college. Therefore, the following recommendations are made to enlighten professional staff and improve student support services.

1. Because of the nature of the community college all professional staff should become aware of the cooling out process.

2. Alternative methods of assessment and placement should be explored including techniques for determining individual self concept.

3. Attempts should be made to increase the status of developmental programs so that there is less negative stigma associated with those courses of study.

4. The practice of utilizing program advisors who have no formal training in guidance, counseling, or test interpretation for academic and career counseling positions within the community college should be examined.

5. Policies concerning standards of academic progress should be reviewed to determine their impact on student persistence.

Topics for Further Study

1. A study should be conducted to determine (a) why the cooling out process affects minority students significantly more negatively than white students and (b) what systems and procedures could be
implemented to assist minority students through this process.

2. A study should be conducted to determine what impact the individual steps of the cooling out process have on student persistence.

3. A study should be conducted to determine role perceptions of institutional personnel regarding the cooling out process.

4. A study should be conducted to determine if there is a relationship between the various steps in the cooling out process and a decline in the self concept.

5. A study should be conducted to determine if the cooling out process enhances educational opportunity based on individual differences.

6. A study should be conducted to determine if the cooling out process actually removes barriers to equal opportunity or merely contributes to social stratification.

7. This study should be replicated controlling for scholastic ability and high school academic achievement.
REFERENCES


BIOGRAPHICAL SKETCH

Michael Steven Kaliszkeski and his twin sister Patricia Irene were born May 19, 1950, in Guantanamo Bay, Cuba, on the United States Naval Station.

Because of his father's military career, Michael attended elementary schools in several states including Rhode Island, California, and Florida. He attended secondary school in Melbourne, Florida, where he graduated from Eau-Gallie High School in 1968. In the fall of 1968 he entered Brevard Community College and received the Associate of Arts degree in 1970. In 1972, he received the degree of Bachelor of Arts in Education with a major in middle school education from the University of Florida. As part of his program at the University of Florida and through an arrangement with the University of Manchester, Michael completed his final teaching internship at a British Junior School in Lancashire, England.

After completing his internship, Michael returned to Melbourne, Florida, where he taught mathematics and science at Stone Middle School from 1972-1977. At this same time he worked towards a Master of Education degree in guidance and counseling at Rollins College in Winter Park, Florida. He received this degree in 1977. From 1977-1984 Michael was
employed by Brevard Community College where he served as a guidance counselor and then coordinator of student services.

Michael is currently on professional leave from Brevard Community College completing requirements for the Doctor of Philosophy degree with a major in higher education administration at the University of Florida. He is presently employed as a research assistant with the Institute of Higher Education under the supervision of Dr. James L. Wattenbarger.

Michael is the 1983 recipient of the Florida Developmental Education Association's Outstanding Service Award and in 1986 he received the Leonard V. Koos Memorial Scholarship Award for outstanding research.
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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