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**A comparison of selected student outcomes in community  
college associate degree nursing programs using a competitive  
admissions process versus those using a modified open  
admissions process**

Banks, Teresa Windley, Ph.D.

The University of North Carolina at Greensboro, 1993

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Ann Arbor, MI 48106



A COMPARISON OF SELECTED STUDENT OUTCOMES IN COMMUNITY  
COLLEGE ASSOCIATE DEGREE NURSING PROGRAMS USING A  
COMPETITIVE ADMISSIONS PROCESS VERSUS THOSE  
USING A MODIFIED OPEN ADMISSIONS PROCESS

by

Teressa Windley Banks

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the Faculty of the Graduate School at  
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Approved by

  
Dissertation Advisor

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty  
of The Graduate School at The University of North Carolina at Greensboro.

Dissertation Advisor Robert L. Lidd

Committee Members James M. Lenoir  
Paul Trudgill  
Leif Menger

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**BANKS, TERESSA WINDLEY, Ph.D. A Comparison of Selected Student Outcomes in Community College Associate Degree Nursing Programs Using a Competitive Admissions Process Versus Those Using a Modified Open Admissions Process. (1993). Directed by Dr. Bert Goldman. 128pp.**

The purpose of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process. Community college nursing faculty are attempting to reconcile a need to choose the best and brightest nursing students in an environment traditionally committed to open admissions for all students.

Two admissions processes may be used to select students for entry into associate degree nursing programs - one, competitive admissions, ranks and accepts applicants ordinarily on the basis of past academic achievement and potential aptitude; and two, modified open admissions, accepts qualified applicants on the basis of date of fulfillment of admission requirements until all admissions spaces are filled.

Using a comparative retrospective design, two approaches were utilized to compare the two types of admissions procedures. First, one group of associate degree nursing programs using a modified open admissions process (n=8) was compared with a second group using a competitive admissions process (n=6) in terms of overall GPA, NCLEX-RN pass rates, and attrition rates. An independent t-test and chi-square analyses revealed no significant differences between the two groups regarding selected student outcomes.

Second, a third group of nursing programs (n=3) was examined before and after a competitive admissions process was instigated in regards to selected student outcomes. Chi-square analyses indicated a significant difference on the basis of attrition rate and NCLEX-RN pass rate before and after a competitive admissions process was instigated.

The analyzed data suggested that method of established admissions process for nursing students did not statistically differ in terms of selected student outcomes. However, nursing programs that change to a new type of admissions process may expect significant differences in student outcomes. Lewin's theory of change may explain these findings.

## CHAPTER 1

### INTRODUCTION

The intent of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

Nursing faculty and admissions officials in community colleges are struggling to decide whether to rank qualified applicants in terms of past achievement and potential aptitude or simply accept qualified students based on date of application. Contributing to this enrollment dilemma faced by community college personnel is the evident conflict between the open-door admissions policy inherent in the community college's mission and the acceptance of the brightest, most capable individuals with the greatest potential to succeed in higher education and successfully complete the National Council Licensure Examination for Registered Nurses (NCLEX-RN) (Yess, 1980).

An open-door policy in a community college essentially insures a non-selective student admissions method (Petty & Todd, 1985). Traditionally, students who applied for admission to the institution were accepted as long as resources and a space in the program were available (Petty & Todd). Since its inception, the community college has subscribed to this notion of an open-door admissions policy.

In 1990, 829 associate degree nursing programs supplied the nation with 64% (42,318) of the newly registered nurses (Rosenfeld, 1991). Associate degree nursing programs in North Carolina community colleges supplied 71% (1,234) of the newly registered nurses (RNs) in 1991, compared to 19% (327) of newly registered nurses provided by private colleges and nine state universities ("Community Colleges Supply," 1991).

### Statement of the Problem

The Bureau of Labor Statistics forecasts that by the year 2000, a need for 350,000 additional RNs will be required to fill new jobs created by the health care industry (Lewin, 1990). Community colleges must therefore, continue to graduate significant numbers of RNs to help meet the demands of an expanding health care industry and an aging population.

Even though one-third of the nation's nursing schools are located in the south (Rosenfeld, 1991), the southeastern region of the United States has the highest vacancy rate (12.8%) for hospital-based RNs (Doss, 1991). Hospital administrators are now facing stiff competition for RNs. New and seasoned RNs are choosing less stressful, less technical work places that offer better hours and more competitive salaries (Barkley, 1991). Employment at nursing homes, insurance companies, emergency care centers, school infirmaries, industries, and home health agencies are just a few of the alternatives from which RNs now have to choose (Barkley).

In addition to alternative areas of employment for RNs, decreases in nursing school graduates contributed to the dilemma of the nursing shortage faced by hospitals. Nursing school enrollments plunged from 250,553 in 1983 to 182,947 in 1987 - a 27% decrease over a four-year period of time (Rosenfeld, 1991). Hence, the demand for RNs heightened. Minor improvements in nursing school enrollment began in 1988 and by 1989, enrollment numbers increased significantly (Rosenfeld). Associate degree nursing programs have recovered from enrollment losses in 1987 and have had a 24% increase in enrollment numbers during the 1990 fiscal school year (Rosenfeld).

In 1990, nursing schools across the nation turned away thousands of students qualified for admission. Saint Petersburg (Florida) Junior College screened 540 applicants for 108 admission spaces ("Times Change," 1991). Locally, 600 people applied for 80 admission spaces in the associate degree nursing program at Guilford Technical Community College (GTCC), Jamestown, NC (Doss, 1991). Four years ago, GTCC had unfilled admission spaces in its associate degree nursing program (Barkley, 1991).

As associate degree nursing programs continue to supply the nation with the majority of new registered nurses (Rosenfeld, 1991), the need to recruit, select, and admit the most qualified students becomes critical as the population ages, new technologies emerge, and the level of health care increases in complexity. The recent popularity of the nursing profession and subsequent



increases in nursing school applicants has stimulated nurse educators to question current admission standards and policies, especially at the community college level.

Community college associate degree nursing programs are faced with a surplus of students exceeding enrollment trends of years past. Several factors explain the popularity of such programs. The current economic state of the country is one explanation for the increase in enrollment of associate degree nursing programs as well as other community college programs. The economic recession facing America today is adversely affecting job availability in certain disciplines (Lewin, 1990). Hiring freezes and fears of being laid off plague many workers during times of economic uncertainty. RNs typically do not have to worry about such hardships.

Second, community college associate degree nursing programs are relatively cheap in cost and relatively short in duration. Full-time students at one community college in North Carolina paid \$414.00 per year in tuition compared to \$1,492.00 per year in tuition and fees at a four-year state university (Plemmer, 1992). Community colleges can educate students more cheaply than four-year state supported universities. It costs the state of North Carolina about \$3,100.00 a year per student educated at a community college compared to \$7,380.00 per student educated at a state university ("Community Colleges Supply," 1991). In addition, students can acquire an associate in applied science degree in nursing from a community college in two years. At least four years is required to obtain a bachelor's degree in nursing at a university.

The average age of newly registered nurses is 31 years compared to age 24 1/2 in the early 1980's (Lewin, 1990). Over half of these new RNs are married and about half have children (Lewin) Becoming an RN as quickly as possible and as cheaply as possible becomes very important to this new breed of nursing student. In addition, the convenient locations of community colleges also appeal to people trying to juggle family demands, personal demands, and academic demands.

Third, the image of the nursing profession has improved and has become a valued career choice for people of all ages. Hospitals are substantiating the value of nurses by increasing salaries and treating them better. New RNs are earning \$24,000.00 to \$30,000.00 per year, an increase of thirty percent in the past four years (Doss, 1991). Experienced nurses can earn in excess of \$40,000.00 compared to \$25,000.00 a few years ago (Barkley, 1991).

Nurses are enjoying flexible hours, increased authority, provision of hospital-based child care centers (Barkley, 1991), sign-up bonuses, and tuition reimbursements (Lewin, 1990). Some hospitals are paying student nurses up to \$2,000.00 per year for nursing school tuition, books, uniforms, etc. in exchange for agreements to work at the hospital for a specified number of years following graduation (Barkley).

With more people applying for admission to associate degree nursing programs in North Carolina's community college system and budget cuts

restricting expansion, enrollment limits must be maintained even though local hospital personnel are shrieking "We need more nurses!"

If 600 people apply for 80 spaces in a community college's associate degree nursing program (Doss, 1991), the problem becomes one of selection - the 80 most qualified applicants could be admitted or the first 80 applicants who meet basic institution and program requirements could be awarded admission spaces.

As nursing faculty and admissions officials in community colleges decide whether to rank qualified applicants based on past achievement and potential aptitude or accept qualified students based on date of application, two issues must be addressed. First, competitive selection processes may repudiate the community college's open-door admissions policy; and second, an open admissions policy may produce students capable of successfully completing the demands of a rigorous nursing curriculum and ultimately becoming registered nurses (Yess, 1980).

#### Purpose of Study

The purpose of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

#### Research Question

In order to address the purpose of this study, the following question was investigated:

Are there significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process?

### Hypotheses

1. There is no significant difference in students' mean overall grade point averages between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.
2. There is no significant difference in attrition rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.
3. There is no significant difference in NCLEX-RN pass rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

### Research Design

To address the hypotheses of this study, a comparative retrospective design was used. The objective of a retrospective study is to link occurrences existing in the present with factors taking place in the past.

The study design compared selected student outcomes - mean overall grade point averages, attrition rates, and NCLEX-RN pass rates of associate degree nursing programs using a competitive admissions procedure with those using a modified open admissions procedure.

Two approaches were utilized to compare the two types of admissions procedures. First, two groups of North Carolina associate degree nursing programs were compared in terms of student outcomes. An independent t-test was used to analyze mean overall grade point averages; and chi-square analysis was used to analyze NCLEX-RN pass rates and attrition rates.

Second, selected student outcomes of a third group were examined before and after a competitive admissions procedure was instigated. An independent t-test was used to analyze overall mean grade point averages. Chi-square tests were used to analyze NCLEX-RN pass rates and attrition rates.

#### Definition of Terms

To facilitate the understanding of this research, several important terms have been defined.

Associate Degree Nursing Program. An associate degree nursing program is a technical program in a North Carolina community college that is accredited by the North Carolina Board of Nursing and has a designated curriculum code of T-059. The program requires two full years of study and awards the Associate in Applied Science degree upon completion. Graduates are eligible to take the licensure examination for registered nurses.

Competitive Admissions Procedure. A competitive admissions procedure is an admissions process utilized by some T-059 associate degree nursing programs. After applicants meet institution and program requirements, they receive points based on criteria established by the nursing program and are ordinarily ranked

based on total points received. Points are based on criteria such as essay scores, admissions tests, interview scores, county of residence, academic history, and/or health care experience. The top "x" number of applicants are then awarded admissions places in the associate degree nursing program.

Modified Open Admissions Procedure. A modified open admissions procedure (also referred to as first come, first served) is an admissions process utilized by some T-059 associate degree nursing programs. After applicants meet institution and program requirements, they are admitted into the nursing program until all admissions places are filled. The first "x" number of applicants meeting institution and program requirements are admitted to the nursing program.

Student Attrition. Student attrition is defined as students who do not graduate from a T-059 associate degree nursing program two years after admission to the program. Students who stop out (or fail-out) from the nursing program anytime after the first day of the nursing program are no longer in the program.

Overall Grade Point Average. The overall grade point average is a statistical mean derived by the summation of quality points (A = 4 points; B = 3 points; C = 2 points; D = 1 point; and F = 0 points) in the designated number of courses divided by the accumulated number of quarter hours the student has attempted at the time of graduation.

National Council Licensure Examination for Registered Nurses. The National Council Licensure Examination for Registered Nurses (also referred to as the NCLEX-RN) is a four-part, 300-item criterion referenced test designed to

measure minimum safe nursing practice. The NCLEX-RN is administered to graduates of associate, diploma, and baccalaureate degree nursing programs in July and February each year. Test-takers either "pass" or "fail" the examination. Graduates from nursing programs must "pass" the NCLEX-RN before they can practice as registered nurses.

Average Annual Full-Time Equivalents. Calculation of full-time equivalents (also referred to as FTE) represents the amount of time a typical full-time student attends class. The calculation of FTE standardizes community college enrollments of full- and part-time students. One FTE equals 16 hours of student membership in class, shop, or laboratory for 11 weeks (per quarter) or 44 weeks (per academic school year). To determine average annual FTE, the total student membership hours reported for the academic year is divided by 704 ("A Matter of Facts," 1992; Ijames, S., 1991).

Urbanization Classification. Urbanization classification is a method of categorizing counties in North Carolina as "urban" or "rural". A county in North Carolina is classified as "urban" if it has 45 percent or more of its population residing in urban areas. A rural county in North Carolina is one which has less than 45 percent of its population residing in urban areas (NC Department of Administration, 1990).

Geographical Classification. Geographical classification is a method of categorizing the location of a community college in North Carolina based on one of three geographical areas: coastal plain, Piedmont, or mountains. The three

geographical areas are delineated by physiographic provinces of the state (Radford & Bell, 1968).

### Limitations

The following limitations of this study were recognized. First, generalizations will be limited to T-059 associate degree nursing programs in North Carolina only. Second, the definition of "qualified applicant" will differ among T-059 associate degree nursing programs used in the study. Third, NCLEX-RN scores are reported as either "pass" or "fail", hence, only nonparametric tests may be used to analyze program differences for this student outcome. Fourth, retrospective research designs do not allow random assignment of individuals to different groups, therefore, a potential for selection bias exists.

### Conceptual Framework

Nursing faculty are repeatedly faced with the perplexity of training qualified individuals capable of meeting the demands of a rigorous nursing curriculum within the context of an institution's commitment to provide an education in an open-door manner.

Nursing faculty and admissions officials in community colleges are struggling to decide whether to rank qualified applicants in terms of past achievement and potential aptitude or simply accept students based on date of application. Contributing to this enrollment dilemma faced by community college personnel is the evident conflict between the open-door admissions policy inherent in the community college's mission and the acceptance of the brightest, most



capable individuals with the greatest potential to succeed in higher education and pass the National Council Licensure Examination for Registered Nurses (NCLEX-RN) (Yess, 1980).

An open-door policy in higher education essentially insures a non-selective student admissions method (Petty & Todd, 1985). Traditionally, students who applied for admission to the institution were accepted as long as resources and a space in the program were available (Petty & Todd). Since its inception, community colleges have subscribed to this notion of an open-door admissions policy, thus, guaranteeing a quality education to many within a community.

As a consequence of open admissions, community colleges have historically enrolled an enormous percentage of unqualified students lacking essential skills necessary for college level work (Capoor, 1983). When unqualified students are allowed to take a difficult class, the educator becomes responsible for eliminating individuals unable to meet the course's objectives.

Ebel (1982) indicates that it is unfair to allow applicants an opportunity to enter programs for which they are underprepared and unable to complete. He also asserts that the institution must not lower academic standards in order to facilitate underprepared individuals to succeed (Ebel). Easing institutional standards of quality on the pretense of being fair to students and allowing them to succeed is not in the best interest of the individual, higher education, and society (Ebel). Even in the best of economic times, no society has infinite resources for the support of an educational system (Ebel).

Community colleges typically have few requirements for institutional admission, but may maintain higher standards for particularly difficult programs such as nursing (Southerland, 1986). In response to high attrition rates and enrollment instability, many demanding programs in the community college system are incorporating a selective admissions procedure designed to differentiate well-qualified individuals with previously demonstrated academic success from those individuals at great risk for failure (Petty & Todd, 1985). Selective admissions is especially important when the supply of applicants outnumber an institution's demand for students (Capoor, 1983).

Selective admissions is not meant to deprive individuals of a college education, but to serve as a process of shifting the elimination of unqualified applicants from the actual course to the time of admission to the institution (Petty & Todd, 1985).

Southerland (1986, p. 9) identified four reasons for exercising selectivity in the community college. These include:

1. to increase the student's chances of later academic, employment, and/or social success,
2. to uphold the qualitative standards of the institution,
3. to use the institution's resources to serve as many as possible in a prudent manner while achieving maximum results, and
4. to protect the rights and safety of other members of the college environment, plus the rights and safety of those needing nursing care!

With more people applying for admission to associate degree nursing programs in North Carolina's community college system and budget cuts restricting expansion, enrollment limits must be maintained. It becomes important to select students who are academically capable of graduating and ultimately joining the work force as registered nurses.

An economic forecaster reports that nursing will be one of the fastest growing occupations in the 1990s (Cox, 1991). Based on employment projections from the U.S. Labor Department, the registered nurse (RN) profession ranks fifth in employment growth among 50 professional specialties (Cox). Specialists predict an employment growth of 2.8 percent for RNs until the year 2000 (Cox).

The U.S. Department of Health and Human Services projected a 50% shortage of baccalaureate prepared nurses for 1990 (Horns, O'Sullivan & Goodman, 1991). Even though 66,088 students graduated from basic RN nursing schools - a 7.2 percent increase from the previous year (Rosenfeld, 1991), the demand for RNs outnumbered supply by approximately 64,800 for that year (Dell & Duffey, 1990). The American health care system is, therefore, being faced with a very real and very critical shortage of RNs.

A 20% projected decrease in high school graduates from 1983 to 1993 further complicates the nursing shortage (Payne & Duffey, 1986). The general decline in potential college candidates coupled with increased career choices for the "90's woman", suggests nursing school applications should be down, yet, they

are not. In 1990, nursing schools across the nation turned away thousands of qualified students for admission.

Given the current shortage of nurses and the fact that associate degree nursing programs supplied the nation with 64% of the newly registered nurses in 1990 (Rosenfeld, 1991), the selection of qualified applicants likely to graduate from nursing schools becomes critical. As the number of nursing students failing to complete a degree program increases, the number of graduate nurses added to the work force decreases - thus potentiating an already critical shortage of RNs in the health care system (Oliver, 1985).

Successful completion of a two-, three-, or four-year nursing program prepares a student to provide nursing care in a variety of situations - long term care facilities, hospitals, doctor's offices, health departments, etc. Graduation from an outstanding nursing school, however, does not guarantee licensure as an RN. In fact, the NCLEX-RN is designed in such a manner that about a 10% failure rate is expected (Dell & Valine, 1990). Nursing faculty, therefore, must academically and emotionally prepare nursing students in a manner consistent with an ability to pass the National Council Licensure Examination for Registered Nurses.

Admission of unqualified students to a community college's associate degree nursing program is quite problematic. Students who are academically underprepared to meet the requirements of a difficult, demanding nursing school curriculum will eventually leave the program. According to Astin (1975), nursing

students have one of the highest attrition rates in both community colleges and four-year institutions. Average student attrition rates for associate degree nursing programs have been reported as high as 44% (Oliver, 1985). High attrition rates in associate degree nursing programs are detrimental to those programs with limited admissions spaces for students and those programs which admit students only once a year.

In terms of attrition rate comparisons, the most selective institutions such as Harvard and Princeton have a 95% student retention rate; while some inner city community colleges have under 20% student retention (Erikson & Strommer, 1991). Most state universities have as high as 50% attrition rates (Erikson & Strommer).

As nursing schools across the nation continue to turn away thousands of qualified applicants, admissions processes will be monitored with close scrutiny. Nursing programs that use an open admissions process often fill up quickly, forcing admissions officers to turn away well-qualified applicants who apply later (Petty & Todd, 1985). Consequently, an admission space, awarded to an unsuccessful student is denied to other applicants - applicants who may be more qualified and more likely to succeed (Weinstein, Brown, & Wahlstrom, 1979). As the number of nursing students failing to complete a degree program increases, the number of graduate nurses added to the work force decreases - thus potentiating an already critical shortage of RNs in the health care system (Oliver, 1985).

According to Rothman and Rothman (1977), the nurse educator has a two-fold accountability - he/she must meet the needs of students for a quality education and society's need for competent health care providers. This accountability begins with the recruitment, selection, and admission of the most qualified students who demonstrate the greatest potential for academic success and successful writing of the NCLEX-RN.

When an individual fails to complete a nursing program, everyone suffers - the individual, the family, the faculty, the institution, and the health care industry. A great deal of time, money, and energy have been spent by both the faculty and the unsuccessful student to educate a person who is unable to achieve the desired outcome of entering the work force as a registered nurse . . . And, it becomes a travesty when the unsuccessful individual was admitted to the nursing program merely to preserve the integrity of a community college's open-door policy.

#### Significance of Study

Nursing faculty in the community college system are attempting to reconcile a need to choose the best and brightest applicants for enrollment in nursing school in an environment traditionally committed to open admissions for all students.

Associate degree nursing programs in North Carolina provided 71% of the newly registered nurses in 1991 ("Community Colleges Supply," 1991). These two-year nursing programs must continue to graduate significant numbers of RNs

in order to offset the estimated need for 350,000 additional RNs by the year 2000 (Lewin, 1990).

In 1990, nursing schools across the nation turned away thousands of students for admission. Budget cuts, mandated by the General Assembly, would not allow for expansion of student enrollment; hence, many potential registered nurses were not accepted into the nursing program.

Nursing faculty began to evaluate their nursing programs and gave careful consideration to admissions criteria, specifically related to student outcomes and the critical nature of the nursing shortage. Some nursing programs chose to remain with a process using established criteria for admission and then admitted students who met the criteria as they applied until all admissions spaces were filled.

This method of selection is considered a modified open-door mainly because admissions criteria to the program are required in addition to the institutional requirements. Although this admissions method screens applicants for certain qualities, applicants are not ranked based on potential academic abilities. This method does not insure that the most qualified are admitted.

Capoor (1983) feels that a selective admissions process becomes critical when the supply of applicants outnumber the institution's demand for students.

According to Petty and Todd (1985), prescreening applicants at admission decreases institutional costs and enhances curriculum stability. Capoor (1983) found that it costs half as much money to educate a qualified individual who

meets the admissions criteria used in selective admissions processes than to educate the less capable applicant.

Petty and Todd (1985) suggest that as a college program becomes more selective with admissions, the attrition rate will decrease. Consequently, when retention of nursing students increases, the number of graduates and new registered nurses increases - much to the relief of local hospital administrators.

Previous academic ability has been identified as the best and most reliable predictor of potential performance or academic aptitude in college level course work (Werley & Fitzpatrick, 1984). High school grade point average and class rank are used frequently as measures of previous academic ability (Werley & Fitzpatrick).

In order to best assess the enormous quantities of applicants, associate degree nursing programs in North Carolina community colleges are moving towards a more competitive admissions process. In addition to examining the academic history of the applicant, nursing faculty are using a variety of other measures, ie., essays, individual interviews, nursing-oriented admissions tests, etc., to rank candidates in terms of potential academic success in nursing school.

According to Werley and Fitzpatrick (1984), recruitment, selection, and admission of potential student nurse applicants require substantial time, money, and effort.



Capoor (1984) determined that faculty could educate qualified students more cheaply than less able individuals. Petty and Todd (1985) noted an inverse relationship of degree of admissions selectivity with attrition rate.

An admissions policy can considerably affect the composition of an institution's student enrollment and also eventual student outcomes. A review of the literature revealed a need for further investigation regarding types of admissions processes and eventual student outcomes. Associate degree nursing programs are rapidly altering their admissions processes in order to better select capable nursing students. This research will examine selected student outcomes - mean overall grade point averages, attrition rates, and NCLEX-RN pass rates, in community college associate degree nursing programs using a competitive admissions process compared with those programs using a modified open admissions process.

### Organization of the Study

Chapter 1 of the study describes the topic and briefly introduces the issues of the community college's open-door policy, current supply and demand trends of registered nurses, and the enrollment dilemma faced by community college educators and admissions officers. Chapter 1 also includes the statement of the problem, the purpose, the significance of the research, limitations of the study, conceptual framework, and the organization of the study.

Chapter 2 contains an analysis, synthesis, and integration of the literature pertaining to a variety of interrelated concepts. This chapter examines the North

Carolina Community College System - its evolution, characteristics, and selected issues related to access and selectivity.

The nursing component of the review of the literature is presented next. The nature of the associate degree program is outlined and includes an overview of its purpose, comparison with other programs, and studies which have examined student outcomes. Finally, the idea of supply and demand is considered in light of the nursing shortage and nursing enrollment trends.

Chapter 3 includes the methodology for the study. The methodology section includes the research question, research hypotheses, and a research design developed to address the question and the hypotheses. A description of the population, data collection procedures, and data analysis are included.

Chapter 4 includes a description of the results. Data analysis, demographic data, and student outcomes before and after the initiation of competitive admissions processes are reported.

Chapter 5 includes a summary of the findings, conclusions, implications, and recommendations for future research.

## CHAPTER II

### REVIEW OF LITERATURE

#### Overview

Nursing faculty are repeatedly faced with the perplexity of training qualified individuals capable of meeting the demands of a rigorous nursing curriculum within the context of an institution's commitment to provide an education in an open-door manner.

Currently, community college associate degree nursing programs are faced with a surplus of students exceeding trends of years past. Nursing faculty and admissions officials in community colleges are struggling to decide whether to rank qualified applicants in terms of past achievement and potential aptitude or simply accept students based on date of application. Contributing to this enrollment dilemma faced by community college personnel is the evident conflict between the open-door admissions policy inherent in the community college's mission and the acceptance of the brightest, most capable individuals with the greatest potential to succeed in higher education and pass the National Council Licensure Examination for Registered Nurses (NCLEX-RN) (Yess, 1980).

The purpose of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

In order to address the purpose of this study, the following question was investigated:

Are there significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process?

#### The North Carolina Community College System

Evolution. According to Vaughan (1985b), "America's brand of democracy is founded on the belief that all people have the right and deserve the opportunity to achieve" (p. 24). The way most Americans achieve is through hard work, determination, and public education - especially higher education. Access to higher education for all people has not always been the case. In fact, only the elite in this country were afforded a higher education during the first two hundred fifty years of its existence. Influenced by several key events in American history, higher education evolved from a highly selective admissions process influenced by the European model to a more democratic system of higher education accessible to all (Vaughan).

The Morrill Act, established by Congress in 1862, was the first major step toward open access to higher education (Rudolph, 1990). As a result of this act, land grant institutions were initiated to provide a more comprehensive curriculum, including agriculture and engineering, for a wider range of people (Vaughan, 1985b).

The 1944 GI Bill of Rights further promoted the move towards open access in higher education (Vaughan, 1985b). The bill, enacted by the federal government, not only encouraged veterans to attend college, but also paid for them to do so. Not only did the post-World War II years bring an influx of former GIs into North Carolina's higher education system, the state also shifted from an agricultural to an industrial economy ("A Matter," 1992). North Carolina and the nation were in need of an alternative to the four-year university.

The Truman Commission Report, issued in 1947, officially endorsed the notion of open access and "proclaimed that as many as 49 percent of the college-age youth could successfully complete at least two years of education beyond high school" (Vaughan, 1985b, p. 19). The report advocated the development of publicly supported two-year colleges nationwide (Vaughan). The "community college", a term coined by the commission, would offer a comprehensive curriculum specific to the particular community preparing students to either enter the work force in two years or to transfer to a four-year school and earn a bachelor's degree.

In 1950, the State Superintendent of Public Instruction authorized a study of North Carolina's need for community colleges ("A Matter," 1992). The resulting report, written by Dr. Allan S. Hurlburt in 1952, proposed a plan for developing and financing state supported community colleges (Joyce, 1990). In 1957, the North Carolina General Assembly adopted the Community College Act and provided funding for community colleges ("A Matter").

The new generation college student entered higher education in the 1960s. These "baby boomers", the result of post World War II family reunions, assumed that attaining a higher education was a right for all Americans (Vaughan, 1985b). The Higher Education Act facilitated this assumption and provided financial assistance to all students who demonstrated financial need (Vaughan).

The existing four-year colleges and universities could not physically nor philosophically deal with the volume of people seeking enrollment (Vaughan, 1984). The community college proved willing and financially capable of easing the burden and enrolling those students ill-prepared for college level work.

The enrollment of academically weak students in the community college allowed four-year institutions continued selectivity in admissions, while endorsing the "popular liberal philosophy of universal higher education" and reconciling "the twin goals of academic excellence and open access" (Vaughan, 1984, p. 40). The community college became "philosophically, geographically, and economically" all things to all people (p. 38).

In 1969, the State Board of Education published a progress report of the first five years of the North Carolina Community College System ("Progress Report," 1969). The report included elements of the community college philosophy originating from the 1940's Truman Report and the 1950's Hulbert Report ("Progress Report"). Those elements continue to characterize the community college system of North Carolina as it exists today: educational opportunities at an inexpensive cost and at a convenient location, provision of a

comprehensive curriculum and an open-door policy for student admissions (Joyce, 1990).

Characteristics. An objective of the community college system is to provide inexpensive education to the community at a convenient location. In 1991, full-time students at one community college in North Carolina paid \$414.00 per year in tuition compared to \$1,492.00 per year in tuition and fees at a nearby four-year state university (Plemmer, 1992). Community colleges can educate students more cheaply than four-year state supported universities. It costs the state of North Carolina about \$3,100.00 a year per student educated at a community college compared to \$7,380.00 per student educated at a state university ("Community Colleges Supply," 1991). In addition, students can acquire a degree, such as an associate in applied science degree from a community college in two years. At least four years are required to obtain a bachelors degree at a university. Finally, community colleges are situated in easily accessible locations and within thirty miles of nearly all potential students (Joyce, 1990).

Another characteristic or basic feature of the community college system is the provision of a comprehensive curriculum with an emphasis on occupational training and adult education (Joyce, 1990). "The support of economic growth and prosperity through education" was the underlying basis for the development of the community college system ("A Matter", 1992, p. I-1). All 58 of the community colleges within the North Carolina system offer vocational/technical training and basic education to prepare adults for the work force ("A Matter," 1992).

The mission of the community college system as defined in the North Carolina General Statutes (115D) supports the importance of a comprehensive curriculum ("A Matter," 1992, p. I-1):

. . . the establishment, organization, and administration of educational institutions throughout the state offering courses of instruction in one or more of the general areas of two-year college parallel, technical, vocational, and adult education programs . . . The major purpose of each and every institution operating under the provisions of this Chapter shall be and shall continue to be the offering of vocational and technical education and training, and of basic, high school level, academic education needed in order to profit from vocational and technical education, for students who are high school graduates or who are beyond the compulsory age limit of the public school system and who have left the public schools.

In addition to meeting the occupational and adult education needs of the community, community colleges also offer college transfer programs, continuing education courses, and specialized programs designed to mirror the economic development of the individual community.

An open-door policy in higher education essentially insures a non-selective student admissions method (Petty & Todd, 1985). Traditionally, students who applied for admission to the institution were accepted as long as resources and a space in the program were available (Petty & Todd). Since its inception, community colleges have subscribed to this notion of an open-door admissions policy, thus, guaranteeing a quality education to many within a community.

At a conference in 1964, W. Dallas Herring, former chairman of the State Board of Education, explained the rationale for this policy (Wiggs, 1989, p.2):



The only valid philosophy for North Carolina is the philosophy of total education; a belief in the incomparable worth of all human beings, whose claim upon the state are equal before the law and equal before the bar of public opinion; whose talents (however great or however limited or however different from the traditional) the state needs and must develop to the fullest possible degree. That is why the doors to the institutions in North Carolina's system of community colleges must never be closed to anyone of suitable age who can learn what they teach. We must take the people where they are and carry them as far as they can go.

The Working Mission Statement of the North Carolina Community College System continues to preserve and support the open-door policy (Appendix A).

Access and Selectivity. Webster's Third New International Dictionary defines access as "permission, liberty, or ability to enter." Southerland (1986) asserts that "the permission to attend college is at the heart of the open-door philosophy" (p. 3). Open-door admissions are a vital component of American democracy because it provides an open access to higher education for all members of the social strata (Thompson, 1985). The unwed mother, the academically weak minority student, the poor laborer, and the recent divorcee have opportunities for a chance at education - a chance that would not have been available a generation ago. Access to education represents more than being able to enter a building; it also encompasses the notion that the individual has a reasonable chance of success (Vaughan, 1985a).

In maintaining an open admissions policy, the community college supports the belief in equality of opportunity and represents the "best expression in higher education of the egalitarian ideal of American life" (Vincent, 1981/1982, p. 12).

Access is the individual's right or freedom to try college-level work. The individual is allowed to start with a "clean slate" and the opportunity to prove his/her abilities to succeed and benefit from his/her academic efforts (Southerland, 1986).

The degree of access in an institution of higher education is dependent upon a variety of factors - the college's mission, location, curricula, costs, availability of student services, and faculty, as well as the student's past academic achievement and potential aptitude (Southerland, 1986). These factors indicate that access to an institution is dictated by the policies and procedures that govern the admissions process and the student's progression through the course of study (Southerland).

Currently, the concept of open access is changing and its importance is being questioned (Vaughan, 1984). In the wake of budget cuts, enrollment caps, and greater demands for accountability, advocates of the community college are realizing that the institution can no longer "be all things to all people" (Vaughan).

Traditionally, in an open-door institution, students were accepted in a non-selective manner as long as resources and a space in the program were available (Petty & Todd, 1985). As a consequence of open admissions, community colleges have historically enrolled an enormous percentage of unqualified students lacking essential skills necessary for college level work (Capoor, 1983).

Ebel (1982) indicates that it is unfair to allow applicants an opportunity to enter programs for which they are underprepared and unable to complete. He

also asserts that the institution must not lower academic standards in order to facilitate underprepared individuals to succeed (Ebel). Easing institutional standards of quality on the pretense of being fair to students and allowing them to succeed is not in the best interest of the individual, higher education, and society (Ebel). Even in the best of economic times, no society has infinite resources for the support of an educational system.

The demand for excellence in education is a pressing issue in contemporary higher education. Some feel community colleges must react positively and accountably to the movement toward higher levels of excellence in order to maintain its credibility as an effective teaching institution (Southerland, 1986). Others, on the other hand, feel that the community college must loyally remain true to its cause and defend the notion of open access for all students.

In order to respond to society's cries for excellence, efficiency, and accountability, Southerland (1986) suggests that the community college incorporate selectivity as a complement to access. Southerland defines selectivity as "any act of denying or restricting entry or of limiting, redirecting, or discontinuing access" (p. 8). By definition, selectivity implies the antithesis of access - the essential component of the community college's open-door philosophy. Southerland argues that when "applied for the right reasons, selectivity is an appropriate counterbalance to access" (p. 8).

Selective admissions is not meant to deprive individuals of a college education, but to serve as a process for shifting the elimination of unqualified

applicants from the actual course to the time of admission to the institution (Petty & Todd, 1985).

Southerland (1986, p. 9) identified four reasons for exercising selectivity in the community college. These include:

1. to increase the student's chances of later academic, employment, and/or social success,
2. to uphold the qualitative standards of the institution,
3. to use the institution's resources to serve as many as possible in a prudent manner while achieving maximum results, and
4. to protect the rights and safety of other members of the college environment.

Opponents of selective admissions at the community college level fear return to exclusionary practices utilized in an earlier era. Traditionally, institutions of higher education were regarded with more respect as the degree of student selectivity increased (Edwards, 1985). Hence, the well-to-do, academically prepared individual was highly sought by admissions officers, while the poor, academically-deprived individual was dismissed (Edwards). Community colleges must guard against adopting too high standards of admission lest many capable individuals will be excluded (Southerland, 1986).

In order for an institution to be selective and also fair in admissions decisions, criteria and standards must be established and maintained to ensure equal treatment to all who apply (Southerland, 1986). The selectivity or sorting of

individuals may occur at the institution level and/or at the program level.

Selectivity is not meant to deter the potential applicants from receiving a college education but as an indicator for where he/she is at academically and where he/she should be in order to reach his/her chosen goal.

Assessment of the individual's academic ability and potential allows correct placement into the appropriate program or class and, therefore, increases the chance of success. Community colleges typically have few requirements for institutional admission, but may maintain higher standards for particularly difficult programs such as nursing (Southerland, 1986). In response to high attrition rates and enrollment instability, many demanding programs in the community college system are incorporating a selective admissions procedure designed to differentiate well-qualified individuals with previously demonstrated academic success from those individuals at great risk for failure (Petty & Todd, 1985). Selective admissions is especially important when the supply of applicants outnumbers an institution's demand for students (Capoor, 1983).

#### Community College Admissions

"Open-door" Policy and Selectivity. As previously described, an open-door policy in a community college essentially insures a non-selective student admissions method (Petty & Todd, 1985). Traditionally, students who applied for admission to the institution were accepted as long as resources and a space in the program were available. The key elements or factors in curriculum selection were

career interests and goals of the students and his/her desire to attend college (Yess, 1980).

Selectivity within an open-door framework can be a viable and positive component to a community college's admission process (Yess, 1980). According to Petty and Todd (1985), prescreening applicants at admission decreases institutional costs and enhances curriculum stability. Capoor (1983) found that it costs half as much money to educate a qualified individual who meets the admissions criteria used in selective admissions processes than to educate the less capable applicant.

In 1990, nursing schools across the nation turned away thousands of students for admission. Budget cuts, mandated by the General Assembly, would not allow for expansion of student enrollment; hence, many potential registered nurses were not accepted into a nursing program.

Nursing faculty began to evaluate their nursing programs and gave careful consideration to admissions criteria, specifically related to student outcomes and the critical nature of the nursing shortage. Some nursing programs chose to remain with a process using established criteria for admission and then admit students who met the criteria as they applied until all admissions spaces were filled.

This method of selection is considered a modified open-door mainly because admissions criteria to the program are required in addition to the institutional requirements. Although this admissions method screens applicants

for certain qualities, applicants are not ranked based on potential academic abilities. This method does not insure that the most qualified are admitted.

In order to best assess the enormous quantities of applicants, some associate degree nursing programs in North Carolina community colleges are moving towards a more competitive admissions process. In addition to examining the academic history of the applicant, nursing faculty are using a variety of other measures, ie., essays, individual interviews, nursing-oriented admissions tests, etc., to rank candidates in terms of potential academic success in nursing school.

Methods. Society in general and members of the political and legal arena specifically have pressured college administrators and admissions officers to develop policies and procedures which judge college applicants fairly for admission (Loheyde, 1980). Loheyde defines fairness in this regard as "[the student's] reasonable opportunity to meet a particular admissions standard and whether imposition of the standard has an adverse impact on some students that is unrelated to the demands of the educational program" (p. 199).

To ensure fairness, the traditional method of selection has been to choose students with the highest potential for success. Loheyde (1980) argues that one must be careful because while a particular selection process may be fair to individuals, it may be unfair to groups or strata. To guarantee a fair selection of students for admission, a variety of criteria should be used in judging the individual's qualities or attributes.

Loheyde (1980, p. 198) identified four categories of standards that affect college admissions decisions:

1. administrative and educational prerequisites, or credit hours;
2. traditional indicators of academic competence, such as previous grades and standardized examinations;
3. personal qualities such as integrity, diligence, special accomplishments, interpersonal skills, and/or highly developed talent; and
4. background characteristics such as age, sex, place of residence, race, school previously attended, father/mother's occupation and/or religion.

High school grade point average (GPA) and high school rank appear to be the most important components in college admissions decisions (Talley, 1989).

Roueche, Baker, and Roueche (1987), however, report that high school GPAs are no longer indicative nor predictive of readiness for college-level work. Weighted averages, "a system whereby certain courses such as honors and advanced placement courses add a specific percentage increment of the base grade traditionally computed to the unweighted average" (Talley, p. 19) are often used. Hence, a GPA of 3.80 may reflect varying levels of achievement and aptitude for students at different schools.

The importance of high school rank is based on the notion that the higher the student is in rank in relation to other students in his/her class, the more proficient the student and the greater the potential for success in college (Rutledge, 1991). The validity of rank and its use in college admissions decisions



have been questioned. According to Rutledge, the actual rank of the student at high school graduation may be affected by a number of variables, ie., weighing of GPAs, a tie in ranks, differing class sizes, and small differences in GPA causing large differences in rank.

Evaluation of courses attempted and grades obtained may be a compliment to high school GPA and rank. College preparatory classes are highly encouraged if the student wishes to attend college.

Admissions decisions at the community college level are usually multi-dimensional in nature. Student applicants tend to be a reflection of the area or even the specific county. Applicants may vary in age - 18 to 85; may vary in academic preparation - an 18-year old individual recently graduating, a 50-year old member of the "class of 1943", and a "high school dropout" with a GED; and may vary in goal direction - the technical student majoring in nursing, the vocational student majoring in welding, and the college transfer student hoping to go to a university.

Therefore, community college administrators and admissions officers are charged with developing standards and policies fair to the minority student, the grandmother, and the recent high school graduate. They may not always have a high school GPA to assess or a high school rank to evaluate. Hence, an alternate method of evaluating achievement/aptitude is required to determine course and/or program placement - the standardized test.

Southerland (1986) asserts, " the wider the door to admission, the greater the need for diagnosis" (p. 13). The standardized test score may be used as a validation for the student's high school or college GPA (Logan, 1980) or may be used for entry level placement in college-level courses or programs. In addition, it also allows comparisons of academically differing students. Examples of standardized tests used in college admissions decisions include the Scholastic Aptitude Test (SAT) and the American College Test (ACT).

Petty and Todd (1985) found that the admissions (entrance) test was an extremely important determinant of successful admissions decisions. Tests which measured language skills seem to be more beneficial and consistently related to high GPA performance (Petty & Todd). The Comparative Guidance and Placement (CGP) Tests, the most widely used test by community colleges in North Carolina, displayed a strong predictive power in relation to GPA performance (Petty & Todd). Those tests which did not significantly relate to GPA included SAT Math, SAT Verbal, ACT, and the Nelson-Denny Total (Petty & Todd).

John Chandler, former President of the Association of American Colleges (cited in McPherson & Schapiro, 1990, p. 16) concludes:

The use of standardized tests holds great promise for elevating minimum standards of student performance. But if standardized tests assume too prominent a role in an institution, they can have a stultifying effect on teaching and learning. Such tests are not well suited for permitting a student to demonstrate . . . capacity for aesthetic judgment, critical thinking, moral sensibility, and other more subtle and elusive qualities of mind and character.

Grades, grade point averages, high school rank, and standardized test scores provide valuable quantitative data regarding a student's past academic accomplishments and/or predictions of academic aptitude, but do not reflect the individual's spirit, curiosity, determination, and drive.

"One important issue concerning the validity of traditional academic measures is the evidence suggesting that college grades and standardized scores are related to one another but bear little relationship to life success or performance in the real world" (Loheyde, 1980, p. 198). Hence, admissions tools such as the interview, the essay, and the letter of recommendation are often used in conjunction with grades and scores to determine the applicant's suitability for admission to the college or university.

Even though Hiss, Woodcock, and McGrath (1984a) found that the single most important predictor of GPA was the academic rating - a combination of transcript evaluation, standardized testing, class rank, etc. - early nursing studies revealed that academic measures tend to be poor indicators of clinical performance (Schwirian & Gortner, 1979). It was reasoned that academic standards only address elements of the cognitive domain, while success in the nursing profession also requires skills in the affective and psychomotor domains (Schwirian & Gortner). For this reason, many nursing procedures include measures to holistically examine the applicant as an individual and person - not merely a collection of sensory neurons and a brain. Letters of reference, written essays, and/or the interview are some of the strategies utilized to determine those

qualities important in being a successful nursing student and nurse (Schwirian & Gortner).

The use of the pre-admission interview is reported widely in the literature; its efficacy, however, is questionable (Weinstein, Brown, and Wahlstrom, 1980). Weinstein, Brown, and Wahlstrom (1979) found that interviews which determined the applicant's expectations and knowledge about nursing and the nursing program were most beneficial. Weinstein, Brown, and Wahlstrom (1980) noted a drop in student attrition for those programs using the interview for that particular purpose. The researchers felt that the decrease in attrition was mainly due to student self-evaluation of personal capabilities regarding course demands and his/her suitability for the program (Weinstein, Brown, and Wahlstrom, 1980).

Schwirian and Gortner (1979) described the interview as a vehicle for determining the applicant's motivation for a nursing career and as a means to clarify program expectations and what nursing is really about. Some nursing programs reported success in using the interview as a tool to judge maturity and candor of the applicant (Weinstein, Brown & Wahlstrom, 1979). Weinstein, Brown, and Wahlstrom cautioned that when used for evaluating "someone's idea of a healthy personality" (p. 45) or attempted to assess the applicant's interest in people, the interview was implicated in higher attrition rates for the program.

A cost/benefit analysis must be considered when selection procedures are used to determine student admissions (Weinstein, Brown, and Wahlstrom, 1980). Whenever admissions requirements are made more rigorous, an institution can

expect lower attrition rates (Weinstein, Brown, and Wahlstrom). An analysis of selection procedures must not only include dollars and cents, but also "the loss to society of potentially successful students who are denied admission (Weinstein, Brown, and Wahlstrom, p. 57).

The Successful Community College Student. Decisions regarding admissions to a college or university are based on a variety of measures: the individual's transcripts, standardized test scores, class rank, writing abilities in the essay, recommendations, and/or interview (Hiss, Woodcock & McGrath, 1984a). Differences in opinion regarding use, appropriateness, and validity of these measures abound (Hiss, Woodcock & McGrath).

Griffin (1980), in a study of 195 students from two North Carolina community colleges, determined characteristics consistent with and inconsistent with success during the first quarter of matriculation. Personality and biographical data accounted for 27% of the variance in first quarter GPA.

Students likely to do poorly in college (GPA below 2.00) typically demonstrated poor study habits, had difficulty in prioritization, and were not goal-oriented (Griffin, 1980). They tended to have a poor self-image and academic self-concept (Griffin). Those students who did poorly in school were likely to possess an external locus of control and feel that their efforts directed towards studying and school participation were unrelated to success in school (Griffin). In essence, the students felt that success or failure in school was due to an outside force - fate, luck, or instructors, over which they had no personal control (Griffin).

Petty and Todd (1985) noted that age was positively correlated and significantly related to GPA achievement; that is, older students were inclined to do better academically than younger students. The researchers also found that mature students who demonstrated a history of strong reading abilities and sound study skills were most likely to succeed in community college allied health programs (Petty & Todd).

Oliver (1985) studied the relationship of selected admissions variables to academic success of 67 associate degree nursing students. The researcher found that high school rank, high school biology grades, and English scores showed a significant relationship with first quarter GPA and eventual graduation outcomes (Oliver). Weinstein, Brown, and Wahlstrom's (1980) study supported the importance of science courses. The researchers determined that the number of pure and applied science courses that the applicants had completed prior to admission was the best predictor of later success in nursing school (Weinstein, Brown, and Wahlstrom). In addition, Oliver found a significant relationship between faculty predictions of first quarter GPAs and eventual outcomes with academic success based on academic records and interview (Oliver). The study also revealed characteristics of the successful student: older, part-time school attendance, and previous college work (Oliver).

Lengacher and Keller (1990), in a study of 114 associate degree nursing students, found that the best predictor for performance on the NCLEX-RN was the ACT score in English, and that the entrance GPA and English ACT

correlated with the exit GPA. Spahr's (1987) findings that academic success was dependent on the student's abilities to read and write are supportive of Lengacher and Keller's findings regarding the importance of knowledge and usage of the English language. Spahr also recommended that colleges establish a pre-admission assessment program and pay particular attention to high school transcripts and other records.

### Nursing Education

The Contemporary Nurse. Being a part of the health care industry of the 1990's, the registered nurse (hereafter, referred to as "nurse") is now finding himself/herself pushing buttons, pulling switches, entering client data into a computer, and caring for clients older and sicker than ever before. Today's nurse is responsible for making many decisions in the course of an eight-hour shift - ranging from relatively simple ones requiring few risks with fairly predictable outcomes to those necessitating high-level critical thinking in life-threatening situations with less predictable results. Hence, the nurse must be able to perform technical, interpersonal, and critical thinking skills simultaneously in an integrated, thoughtful process. Nurses with all levels of experience must call on a wide array of problem- solving skills.

As the nursing profession grows exceedingly complex within the context of a rapidly evolving health care field, students must be empowered with a solid foundation of concepts and principles to build upon (Myers, Stolte, Baker, Nishikawa & Sohler, 1991). Further, they must be challenged to become flexible,

creative, "self-directed, life-long learners who are consistently safe, competent, confident, and current in their nursing practice" (Callahan, 1992, p. 85).

According to Rothman and Rothman (1977), the nurse educator has a two-fold accountability - he/she must meet the needs of students for a quality education and society's need for competent health care providers. This accountability begins with the recruitment, selection, and admission of the most qualified students who demonstrate the greatest potential for academic success and successful writing of the National Council Licensure Examination - Registered Nurses (NCLEX-RN).

Educational Pathways. Presently, one may choose from several different educational pathways if he/she wishes to become a registered nurse. One such program, the diploma program, is typically affiliated with a hospital and is based on the Florence Nightengale training school model (Deloughery, 1991). Upon completion of the diploma program, the graduate is eligible to take the NCLEX-RN.

The bachelor of science degree in nursing (BSN) allows the individual to graduate with a four-year degree. The student also qualifies to take the NCLEX-RN.

The baccalaureate curriculum is grounded in a strong base of liberal arts, science courses and inquiry in order to liberate the mind (Deloughery, 1991) and provide an important foundation for nursing courses.



The BSN curriculum builds on the liberal arts background previously mentioned. In addition, the following courses are typically offered in the last two years of the curriculum: theory; research; care of adults, children, child-bearing family; psychiatric/mental-health; nursing management; and professional concepts with emphasis on critical thinking, decision-making and problem-solving (Deloughery, 1991).

The knowledge base obtained during BSN instruction prepares new graduates to function as care-givers to individuals, families, groups, and communities. The BSN prepared nurse also renders nursing care in structured and unstructured settings, and functions as a client advocate, a change agent, a teacher, and a leader (Deloughery, 1991).

The associate degree nursing (ADN) program allows an individual to obtain a two-year degree (an associate, an associate of science, or an associate in applied science). The student also qualifies to take the NCLEX-RN (Deloughery, 1991).

The general education courses, such as anatomy/physiology, general psychology, developmental psychology, English, and sociology, allow the student to meet degree requirements of the institution (typically a community or junior college) and provide an important foundation for nursing courses. The ADN curriculum builds on the aforementioned general education courses and includes the following nursing courses: adult and child health, maternity nursing, psychiatric/mental health nursing, and legal/ethical/professional issues of nursing

practice (Deloughery, 1991). The knowledge base obtained during ADN instruction prepares new graduates to function under direct supervision of a professional nurse in the roles of health care provider, communicator, client teacher, manager of care, and member of the profession (Deering-Flory & Neighbors, 1991).

According to Deloughery (1991), the nursing practice of a graduate from an associate degree program is directed toward the following (pp. 224-225):

1. Clients who need information or support to maintain health.
2. Clients who are in need of medical diagnostic evaluation and/or are experiencing acute or chronic illness.
3. Clients' responses to common, well-defined health problems.
4. Formulation of nursing diagnoses.
5. Nursing interventions selected from established nursing protocols where probable outcomes are predictable.
6. Individual clients, with consideration of the person's relationship to family, group, and community.
7. Safe performance of nursing skills that requires cognitive, psychomotor, and affective capabilities.
8. Structured care setting but primarily occurs within acute- and extended-care facilities.
9. Direct or indirect guidance by a more experienced registered nurse.

10. Direction of peers or other workers in nursing in selected aspects of care within the scope of practice of associate degree nursing.

11. Understanding of the roles and responsibilities of self and other workers within the employment setting.

The Evolution of ADN Education. The associate degree nursing program is a popular and important option in nursing education. In 1990, 829 associate degree nursing programs supplied the nation with 64% (42,318) of the newly registered nurses (Rosenfeld, 1991). Associate degree nursing programs in North Carolina community colleges supplied 71% (1,234) of the newly registered nurses (RNs) in 1991, compared to 19% (327) of newly registered nurses provided by private colleges and nine state universities ("Community Colleges Supply," 1991).

Associate degree nursing programs were first established in 1952 (Waters, 1990) in response to factors in American history leading up to a severe nursing shortage (Haase, 1990). One major factor contributing to the depletion of nurses in the work force was the second world war.

During the early 1940s, over 65,000 nurses served on active duty in the military, leaving civilian hospitals staffed predominantly by student nurses supervised by a limited number of overworked nurses (Haase, 1990). By 1944, 23% of civilian hospitals were forced to close down beds, wings, and operating rooms as a consequence of the dwindling supply of nurses (Haase).

In response to the severe shortage of nurses, the federal government established the Bolton Act in June, 1943 (Haase, 1990). As a result of this act,

students received a free nursing education as well as monthly stipends from the federal government (Haase). In addition, the Bolton Act decreased training time for nurses from three years to thirty months, a departure from the traditional hospital-based program (Haase). During its five years in existence, the Bolton Act increased nursing school enrollment by 30% and graduated 125,000 student nurses at a cost of \$160 million (Haase).

The startling advances in medicine and surgery also contributed to the nursing shortage during and immediately following the war (Haase, 1990). At a time of aggressive and heightened health care reform, new drugs were being discovered, surgical techniques perfected, more diseases considered treatable, and greater numbers of skilled nurses were needed (Haase). The passage of the Hill-Burton Act in 1946, an act which provided federal assistance in hospital construction, assisted in the vitality of the rapidly advancing health care industry, yet intensified the nursing shortage (Haase).

By the end of the 1940s, society perceived a need and an increased demand for nurses (Haase, 1990). Americans felt the effects of sub-optimal nursing care during the war and also noted the success in training nursing students in a shorter period of time (Haase). Leaders in government, physicians, hospital administrators, and nurses envisioned a method to improve American health care and resolve the nursing shortage - to educate nurses in two-year colleges.

In 1952 the first two ADN programs were initiated and by 1960 more than 60 were in existence (Waters, 1990). The new two-year format for nursing

education allowed nursing program directors and instructors to create a new curriculum and innovative teaching methods (Haase, 1990). For example, early ADN educators developed student-centered behavioral objectives which could be evaluated by the instructor, a departure from teacher or subject focused ones (Haase). These objectives influenced the selection of content and experiences, development of teaching strategies, and student evaluation. Diploma degree and baccalaureate degree program educators noted the usefulness and success of student outcomes in the new ADN programs and began incorporating them into their programs (Waters).

By the 1960s, the growth and expansion of the ADN programs were incredible. The ADN program was becoming so successful and popular that new ones were opening in the country every one to two weeks (Haase, 1990). Nursing leaders and members of the American Nurses Association (ANA), an organization designed to "improve working conditions and economic security of the nurse" and the National League for Nursing (NLN), an organization designed to regulate and set "standards of nursing education, entrance requirements for students, and accreditation of schools of nursing" (Deloughery, 1991, p.19) were beginning to fear that the quality of instruction in nursing education had been compromised by this new "renegade" phenomena - the ADN program (Waters, 1990).

On September 24, 1965, the ANA Board of Directors endorsed "A Position Paper on Educational Preparation for Nurse Practitioners and Assistants to Nurses" (Haase, 1990, p. 93) - a document that reflected the ANA's stand in

regards to nursing education. In essence, the position paper may be summarized as follows (Haase, p. 93):

1. . . . the education for all those who are licensed to practice nursing should take place in institutions of higher education [thus, eradicating hospital-based diploma programs].

2. . . . the minimum preparation for beginning professional practice . . . should be the baccalaureate degree in nursing.

3. . . . the associate degree in nursing would be the minimum preparation for beginning technical nursing practice.

4. . . . preparation for assistants in health care occupation should be short, intensive programs situated in educational settings and not merely on the job training situations.

Hence, the debate regarding "Entry Into Practice" originated. In essence, The ANA Position Paper of 1965 proposed differentiating credentials and work roles for graduates of ADN and BSN programs (Haase, 1990 p. 323).

As a result of the ANA's position statement, associate degree nursing educators grew concerned about the future of their programs, felt threatened, and responded quite vocally regarding their feelings. Curriculum development and teaching practices became more conventional, rapid growth of ADN programs levelled off, and curricula settled into stable patterns of instruction (Waters, 1990).

The Entry Into Practice issue continues to be a topic of interest among nursing educators at all levels, but because of the heated debates that ensued at

its onset, the recommendations of the American Nurses Association were never instigated. Associate degree nursing programs remain a popular and important type of nursing education.

Currently, community college associate degree nursing programs are faced with a surplus of students exceeding enrollment trends of years past. Several factors explain the popularity of such programs. The economic state of the country is one explanation for the increase in enrollment of associate degree nursing programs as well as other community college programs. The economic recession facing America today is adversely affecting job availability in certain disciplines (Lewin, 1990). Hiring freezes and fears of being laid off plague many workers during times of economic uncertainty. Nurses typically do not have to worry about such hardships.

Second, community college associate degree nursing programs are relatively cheap in cost and relatively short in duration. Full-time students at one community college in North Carolina paid \$414.00 per year in tuition compared to \$1,492.00 per year in tuition and fees at a four-year state university (Plemmer, 1992). Community colleges can educate students more cheaply than four-year state supported universities. It costs the state of North Carolina about \$3,100.00 a year per student educated at a community college compared to \$7,380.00 per student educated at a state university ("Community College Supply," 1991). In addition, students can acquire an associate in applied science degree in nursing

from a community college in two years. At least four years is required to obtain a bachelors degree in nursing at a university.

The average age of newly registered nurses is 31 years compared to age 24 1/2 in the early 1980's (Lewin, 1990). Over half of these new RNs are married and about half have children (Lewin). Becoming an RN as quickly as possible and as cheaply as possible becomes very important to this new breed of nursing student. In addition, the convenient locations of community colleges also appeal to people trying to juggle family demands, personal demands, and academic demands.

Third, the image of the nursing profession has improved and has become a valued career choice for people of all ages. Hospitals are substantiating the value of nurses by increasing salaries and treating them better. New RNs are earning \$24,000.00 to \$30,000.00 per year, an increase of thirty percent in the past four years (Doss, 1991). Experienced nurses can earn in excess of \$40,000.00 compared to \$25,000.00 a few years ago (Barkley).

Nurses are enjoying flexible hours, increased authority, provision of hospital-based child care centers (Barkley, 1991), sign-up bonuses, and tuition reimbursements (Lewin,1990). Some hospitals are paying student nurses up to \$2,000.00 per year for nursing school, books, uniforms, etc. in exchange for agreements to work at the hospital for a specified number of years following graduation (Barkley).



### The Supply and Demand of Registered Nurses

The supply of and demand for nurses by the health care industry is said to be cyclic in nature. According to Wilensky (1988), ". . . the current supply of RNs is at an all-time high, with labor participation of RNs higher than in any other recent period" (p. 24).

In addition, nursing school enrollments are up and admissions officers are having to turn thousands of qualified applicants away ("Times Change", 1991). Saint Petersburg (Florida) Junior College screened 540 applicants for 108 admission spaces ("Times Change"). Locally, 600 people applied for 80 admission spaces in the associate degree nursing program at Guilford Technical Community College (GTCC), Jamestown, NC (Doss, 1991). Four years ago, GTCC had unfilled admission spaces in its associate degree nursing program (Barkley, 1991).

Yet, since 1986, there has been a shortage of nurses (Ambrose, 1990). Unlike previous shortages, the current nursing shortage is demand-driven (Wilensky, 1988) - specifically a "derived demand" (Hassanein, 1991). Economists describe a derived demand as "services demanded not for direct final personal consumption but rather for their use in providing other goods and services" (Pappas & Hirschey, 1990, p. 87). In order to understand derived demand and attempt to restore equilibrium or "perfect balance in demand and supply" (Pappas & Hirschey, p. 106), one must determine underlying factors or causes of the imbalance.

The increased supply of RNs in the work force has not been adequate to keep up with an increased demand by the health care industry (Wilensky, 1988). Even though 66,088 students graduated from basic RN nursing schools in 1990 - a 7.2 percent increase from the previous year (Rosenfeld, 1991), the demand for RNs outnumbered supply by approximately 64,800 for that year (Dell & Valine, 1990).

One reason for this imbalance in the supply/demand of RNs is an increase in utilization of complex technologies (Wilensky, 1988). One might argue that increased technology should ease the workload and possibly replace RN positions as has been the case in the automobile industry. Medical care is labor intensive, however, and RNs are required 24 hours a day in the hospital to monitor the patient and prevent complications (Hassanein, 1991).

Second, because of his/her versatility and knowledge base, the role of the RN has been expanded in the health care industry (Wilensky, 1988). For example, RNs are now involved in quality assurance and utilization review, community based and outpatient services, and are also absorbing some of the responsibilities of the physician, respiratory therapist, and other members of the health care team (Hassanein, 1991).

Third, even though occupancy rates and lengths of stay for patients have decreased, the patients being cared for are sicker (Wilensky, 1988). This increase in severity of illness may be attributed to the complex multi-system disease processes of the rapidly aging population and the increased number of patients

diagnosed with AIDS, as well as the current advances in medical technology which are keeping people alive longer.

It has been suggested that the demand for registered nurses is expected to continue and even increase, but supply is not expected to keep up, hence a projected continuation of the nursing shortage (Williams, 1989).

An economic forecaster reports that nursing will be one of the fastest growing occupations in the 1990s (Cox, 1991). Based on employment projections from the U.S. Labor Department, the registered nurse (RN) profession ranks fifth in employment growth among 50 professional specialties (Cox). Specialists predict an employment growth of 2.8 percent for RNs until the year 2000 (Cox). Finally, the Bureau of Labor Statistics forecasts that by the year 2000, a need for 350,000 additional RNs will be required to fill new jobs created by the health care industry (Lewin, 1990).

With the escalating demand for registered nurses continuing, and the supply of nurses maintaining a status quo, the quality of patient care may be adversely affected (Hassanein, 1991) and hospitals may be forced to close down beds, wings or even the entire facility as was the case in the 1940s (Haase, 1990).

After analyzing the current nursing shortage and the issues of supply and demand, Hassanein (1991) offers the following insights and solutions. First, the wage rate for services rendered by the RN impacts on the number of RNs supplied and vacancy rates for hospital-based RNs. This suggests that in order to

increase the supply of RNs' services, hospitals should increase salaries comparable to other similar professions.

Second, the number of new graduates from RN programs reflects a statistically significant influence on the supply and employment of RNs in the hospital (Hassanein, 1991). Hassanein suggests that measures to increase the numbers of newly graduated RNs can increase the supply of RNs for employment.

Associate degree nursing programs in North Carolina provided 71% of the newly registered nurses in 1991 ("Community Colleges Supply," 1991). These two-year nursing programs must continue to graduate significant numbers of RNs in order to offset the estimated need for 350,000 additional RNs by the year 2000 (Lewin, 1990).

Given the current shortage of nurses and the fact that associate degree nursing programs supplied the nation with 64% of the newly registered nurses in 1990 (Rosenfeld, 1991), the selection of qualified applicants likely to graduate from nursing schools becomes critical. As the number of nursing students failing to complete a degree program increases, the number of graduate nurses added to the work force decreases - thus potentiating an already critical shortage of RNs in the health care system (Oliver, 1985).

As associate degree nursing programs continue to supply the nation with the majority of new registered nurses (Rosenfeld, 1991), the need to recruit, select, and admit the most qualified students becomes critical as the population ages, new technologies emerge, and the level of health care increases in

complexity. The recent popularity of the nursing profession and subsequent increases in nursing school applicants has stimulated nurse educators to question current admission standards and policies, especially at the community college level.

### Summary

The intent of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

Community college associate degree nursing programs are faced with a surplus of students exceeding trends of years past. Nursing faculty and admissions officials in community colleges are struggling to decide whether to rank qualified applicants in terms of past achievement and potential aptitude or simply accept qualified students based on date of application. Contributing to this enrollment dilemma faced by community college personnel is the evident conflict between the open-door admissions policy inherent in the community college's mission and the acceptance of the brightest, most capable individuals with the greatest potential to succeed in higher education and successfully complete the NCLEX-RN (Yess, 1980).

An open-door policy in a community college essentially insures a non-selective student admissions method (Petty & Todd, 1985). Traditionally, students who applied for admission to the institution were accepted as long as resources and a space in the program were available (Petty & Todd). Since its inception,

the community college has subscribed to this notion of an open-door admissions policy.

With more people applying for admission to associate degree nursing programs in North Carolina's community college system and budget cuts restricting expansion, enrollment limits must be maintained even though local hospital personnel are shrieking "We need more nurses!"

If 600 people apply for 80 spaces in a community college's associate degree nursing program (Doss, 1991), the problem becomes one of selection - the 80 most qualified applicants could be admitted or the first 80 applicants who meet basic institution and program requirements could be awarded admission spaces.

As nursing schools across the nation continue to turn away thousands of qualified applicants, admissions processes will be monitored with close scrutiny. Nursing programs that use an open admissions process often fill up quickly, forcing admissions officers to turn away well-qualified applicants who apply later (Petty & Todd, 1985). Consequently, an admission space, awarded to an unsuccessful student is denied to other applicants - applicants who may be more qualified and more likely to succeed (Weinstein, Brown, & Wahlstrom, 1979). As the number of nursing students failing to complete a degree program increases, the number of graduate nurses added to the work force decreases - thus potentiating an already critical shortage of RNs in the health care system (Oliver, 1985).

As nursing faculty and admissions officials in community colleges decide whether to rank qualified applicants based on past achievement and potential aptitude or accept qualified students based on date of application, two issues must be addressed. First, competitive selection processes may repudiate the community college's open-door admissions policy; and second, an open admissions policy may produce students capable of successfully completing the demands of a rigorous nursing curriculum and ultimately becoming registered nurses (Yess, 1980).

An admissions policy can considerably affect the composition of an institution's student enrollment and also eventual student outcomes. A review of the literature revealed a need for further investigation regarding types of admissions processes and eventual student outcomes. Associate degree nursing programs are rapidly altering their admissions processes in order to better select capable nursing students. This research examined selected student outcomes - mean overall grade point averages, attrition rates, and NCLEX-RN pass rates, in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions.

### CHAPTER III

#### METHODOLOGY

In the previous chapter, a review of literature revealed a need for further investigation of admissions procedures utilized by associate degree nursing programs and eventual student outcomes.

The purpose of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

In order to address the purpose of this study, the following question was investigated:

Are there significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process?

#### Hypotheses

1. There is no significant difference in students' mean overall grade point average between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.



2. There is no significant difference in attrition rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

3. There is no significant difference in NCLEX-RN pass rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

### Research Design

To address the hypotheses of this study, a comparative retrospective design was used. The objective of a retrospective study is to link occurrences existing in the present with factors taking place in the past.

The study design compared selected student outcomes - mean overall grade point averages, attrition rates, and NCLEX-RN pass rates of associate degree nursing programs using a competitive admissions procedure with those using a modified open admissions procedure.

Two approaches were utilized to compare the two types of admissions procedures. First, two groups of North Carolina associate degree nursing programs (referred to as Admissions Groups 1 and 2) were compared in terms of student outcomes. An independent t-test was used to analyze mean overall grade point averages; and chi-square analysis was used to analyze NCLEX-RN pass rates and attrition rates.

Second, selected student outcomes of a third group (referred to as Admissions Group 3) were examined before and after a competitive admissions

procedure was instigated. An independent t-test was used to analyze overall mean grade point averages. Chi-square tests were used to analyze NCLEX-RN pass rates and attrition rates.

### Population

The study population consisted of the thirty-six T-059 associate degree nursing programs in North Carolina's community college system.

The community colleges are geographically situated throughout the entire state: thirteen (36 percent) in the coastal plain; nineteen (53 percent) in the Piedmont; and four (11 percent) in the mountains. Fourteen (39 percent) of the community colleges are located in a county classified as "urban" and twenty-two (61 percent) are located in a county classified as "rural" (NC Department of Administration, 1990).

Average FTE is one method to describe a community college's relative size compared to other community colleges. The community colleges in the population generated the following average annual FTE for the 1990-1991 academic year: 0-1000 FTE, 1 (3 percent); 1001-2000 FTE, 15 (42 percent); 2001-3000 FTE, 11 (30 percent); and above 3000 FTE, 9 (25 percent) (Ijames, 1991).

Three groups were selected from the thirty-six associate degree nursing programs to be investigated (Table 1). This method, stratified sampling, is an acceptable method of determining participants for a sample. All institutions in each of the three groups were invited to participate in this study.

TABLE 1

Institutional Demographics: Comparison of Individual Community Colleges

Community College	County	Geographic	Urbanization	FTE (Ave. Annual)
<b>Admissions Group 1</b>				
Blue Ridge CC	Henderson	Mountain	Rural	1597
Central Piedmont CC	Mecklenberg	Piedmont	Urban	10048
Durham Technical CC	Durham	Piedmont	Urban	3457
Randolph CC	Randolph	Piedmont	Rural	1662
Rowan-Cabarrus CC	Rowan	Piedmont	Rural	2669
Sampson CC	Sampson	Coast	Rural	1309
Sandhills CC	Moore	Piedmont	Rural	2875
Western Piedmont CC	Burke	Mountain	Urban	2500
<b>Admissions Group 2</b>				
AB Technical CC	Buncombe	Mountain	Urban	3082
College of Albemarle	Pasquotank	Coast	Rural	1435
Craven CC	Craven	Coast	Urban	1934
Southeastern CC	Columbus	Coast	Rural	1497
Stanley CC	Stanley	Piedmont	Rural	1588
Wilkes CC	Wilkes	Mountain	Rural	2463
<b>Admissions Group 3</b>				
Davidson County CC	Davidson	Piedmont	Rural	2255
Rockingham CC	Rockingham	Piedmont	Rural	1790
Wake Technical CC	Wake	Piedmont	Urban	5348

Admissions Group 1. The first group (referred to as Admissions Group 1) consisted of those associate degree nursing programs that use a modified open admissions procedure to determine student enrollment. Ten programs continue to use this type of admissions procedure and eight agreed to participate in the study. They include: Blue Ridge Community College, Flat Rock; Central Piedmont Community College, Charlotte; Durham Technical Community College, Durham; Randolph Community College, Asheboro; Rowan-Cabarrus Community College, Salisbury; Sampson Community College, Clinton; Sandhills Community College, Pinehurst; and Western Piedmont Community College, Morganton. Two community colleges originally selected for this group, Forsyth Technical Community College and Fayetteville Technical Community College chose not to participate in the study.

Demographic and selected student outcomes were collected on all T-059 curricular students admitted during the fall quarters of 1989 and 1990 from each community college. The "average" student in Admissions Group 1 was white, female, and age 32. Table 2 further depicts student demographics for individual community colleges and aggregate totals for this group.

Table 3 lists program requirements necessary for admission as a T-059 student at each community college in Admissions Group 1.

TABLE 2

Admissions Group 1: Student Demographics 1989/1990 (n=853)

Community College	Number	Sex		Race			Mean Age
		Male	Female	White	Black	Other	
Blue Ridge CC	51	9.8%	90.2%	98.0%	1.9%	-	33
Central Pied. CC	183	9.3%	90.7%	81.4%	17.5%	1.1%	32
Durham Tech. CC	60	23.3%	76.7%	55.0%	40.0%	5.0%	34
Randolph CC	86	1.2%	98.8%	97.7%	2.3%	-	34
Rowan-Cabarrus CC	102	6.9%	93.1%	90.2%	7.8%	2.0%	30
Sampson CC	81	2.5%	97.5%	81.5%	16.0%	2.5%	32
Sandhills CC	155	9.7%	90.3%	84.5%	11.0%	4.5%	30
Western Pied. CC	135	14.8%	85.2%	90.0%	9.0%	1.0%	33
Mean		9.5%	90.5%	85.0%	13.0%	2.0%	32

Admissions Group 2. The second group (referred to as Admissions Group 2) consisted of those associate degree nursing programs that have used a competitive admissions procedure to determine student enrollment for at least 5 years. They include: Asheville-Buncombe Technical Community College, Asheville; Southeastern Community College, Whiteville; College of the Albemarle, Elizabeth City; Craven Community College, New Bern; Stanley Community College, Albemarle; and Wilkes Community College, Wilkesboro.

Demographic and selected student outcomes were collected on all T-059 curricular students admitted during the fall quarters of 1989 and 1990 from each community college. The "average" student in Admissions Group 2 was white, female, and age 31. Table 4 displays student demographics for individual community colleges and aggregate totals for this group.

TABLE 3

Admissions Group 1: Admissions Program Requirements

Community College	Placement Test(s)	Chemistry	Algebra	Biology	Math (HS)	Keyboard	Interview	Reference
Blue Ridge CC	*			*	*		*	*
Central Piedmont CC	*	*	*					
Durham Technical CC	*	*	*	*			*	
Randolph CC	*			*	*		*	
Rowan-Cabarrus CC	*	*	*	*		*	*	
Sampson CC	*	*	*	*			*	
Sandhills CC	*	*	*				*	
Western Piedmont CC	*		*				*	

TABLE 4

Admissions Group 2: Student Demographics 1989/1990 (n=492)

Community College	Number	Sex		Race			Mean Age
		Male	Female	White	Black	Other	
AB Technical CC	111	15.3%	84.7%	98.2%	1.0%	1.0%	33
College of Albemarle	60	3.3%	96.7%	90.0%	10.0%	-	31
Craven CC	87	2.3%	97.7%	92.0%	6.0%	2.0%	31
Southeastern CC	119	3.4%	96.7%	90.0%	9.2%	.8%	30
Stanley CC	45	9.0%	91.0%	100.0%	-	-	32
Wilkes CC	59	1.7%	98.35%	91.0%	9.0%	-	27
Mean		5.5%	94.5%	93.5%	5.9%	.6%	31

Table 5 provides an outline of the T-059 competitive admissions standards utilized by each community college in Admissions Group 2.

Admissions Group 3. The third group (referred to as Admissions Group 3) consisted of those associate degree nursing programs that have used a competitive admissions procedure to determine student enrollment since fall quarter, 1989. The 3 programs included in Admissions Group 3 are Davidson County Community College, Lexington; Rockingham Community College, Wentworth; and Wake Technical Community College, Raleigh.

Demographic and selected student outcomes were collected from each community college on all T-059 curricular students admitted during the fall quarter of 1987 and 1988 (when modified open admissions were used) and during the fall quarters of 1989 and 1990 (when competitive admissions were used). The "average" student in Admissions Group 3 was white, female, and age 32. Table 6

TABLE 5

Admissions Group 2: Competitive Admissions Standards

Admissions Standards	AB Tech CC	College of Albemarle	Craven CC	Southeastern CC	Stanley CC	Wilkes CC
Placement Test(s)	*	*	*	*	*	*
Course Work Algebra Biology Chemistry	* * *			* *	* * *	* * *
Health Related Work Certification HS Classes	* * *			*		
Academic History Transcript GPA	*	* *	*			*
Support Courses				*		
County of Residence			*			
Volunteer Work	*					
Subjective Interview References Uniqueness	* *		*		*	* *



displays student demographics for individual community colleges and aggregate totals of the admission years 1987/1988 and 1989/1990.

Data Collection Procedure.

After securing permission from the presidents and the identification of contact persons at each community college, the investigator proceeded with data collection.

With increasing student enrollments and the multiplicity of documentation now required, community colleges are taking advantage of technology inherent of this century - the computer. For Admissions Groups 1 and 2, the systems administrator, in collaboration with the investigator, used a computer to generate an aggregate data compilation of T-059 students admitted during the fall quarters of 1989 and 1990. The aggregate data for each specified year included the mean overall grade point average of T-059 students completing the program within two years, and the number of students beginning and completing the program within two years.

This aggregate data provided the investigator with two selected student outcomes - first, mean overall grade point averages for students admitted to the T-059 curricular program during the fall quarters of 1989 and 1990, and second, a method to determine attrition rates for students admitted to the T-059 curricular program during the fall quarters of 1989 and 1990.

TABLE 6

Admissions Group 3: Student Demographics 1987/1988 & 1989/1990 (n=315)

Student Demographics	Modified Open (1987/1988)				Competitive (1989/1990)			
	Davidson Co. CC	Rockingham CC	Wake Co. CC	Mean	Davidson Co. CC	Rockingham CC	Wake Co. CC	Mean
Number	83	49	143	-	102	77	136	-
Mean Age	34	32	31	32	34	32	31	32
Race								
Black	1.2%	10.2%	6.3%	5.5%	6.0%	8.0%	6.0%	6.3%
White	98.8%	89.8%	91.6%	93.5%	94.0%	92.0%	90.4%	92.0%
Other	-	-	2.0%	1.0%	-	-	3.7%	1.6%
Sex								
Male	7.2%	6.1%	4.2%	5.5%	7.0%	7.8%	6.0%	6.7%
Female	92.8%	93.9%	95.8%	94.5%	93.0%	92.2%	94.0%	93.3%

The student attrition was calculated by dividing the number of students who did not complete the T-059 curricular program in two years by the number of students who originally enrolled in the program. This quotient was multiplied by 100 - with the resulting product being the attrition rate.

Bi-annually, the North Carolina State Board of Nursing mails individual NCLEX-RN results to the test-takers and group NCLEX-RN results to each associate degree nursing program. In addition, NCLEX-RN results for all associate, diploma, and baccalaureate nursing programs are published in The Bulletin, a publication of the North Carolina State Board of Nursing.

The third student outcome, NCLEX-RN pass rate, was calculated by dividing the number of students who passed the NCLEX-RN upon graduating from the program two years after 1989 or 1990 fall admission, by the number of students who took the examination for the same year. This quotient was multiplied by 100 - with the resulting product being the NCLEX-RN pass rate.

For Admissions Group 3, data for the fall quarters of 1987, 1988, 1989, and 1990 were collected in the same manner as data collected for Admissions Groups 1 and 2.

Demographic data were collected for Admissions Groups 1, 2 and 3 in the same manner. Demographic data at the community college level included geographical classification, average annual FTE, and urbanization, all of which were derived from the literature. Demographic data at the T-059 level included admissions requirements obtained from the admissions officer and/or the

department chairperson. Demographic data at the student level included age, sex, and race collected from the department chairperson and/or computerized records.

Data Analysis Procedure.

Following data collection and compilation, descriptive and inferential statistical results were determined.

In order to test the study's hypotheses, selected student outcomes for Admissions Groups 1 and 2 were compared for students admitted in the fall quarters of 1989 and 1990. In addition, selected student outcomes of students admitted in the fall quarters of 1987 and 1988 were compared with selected student outcomes of students admitted in the fall quarters of 1989 and 1990 for Admissions Group 3.

Data collection of the first student outcome, overall grade point average, provided data at the interval level of measurement. Mean overall grade point averages of Admissions Groups 1 and 2 were tested for significant differences by an independent t-test. According to Brink & Wood (1983), the standard statistical analysis for determining statistical differences of the means of two groups is the t-test.

Data collection of the second and third student outcomes, attrition rate and NCLEX-RN pass rate, yielded data at the nominal level of measurement. Attrition rates and NCLEX-RN pass rates of each admission group were compared by chi-square tests. Two-by-two contingency tables were used for each student outcome. Chi-square analysis is designed to analyze data at the nominal

level and is therefore, appropriate for determining significant differences in the percentage of attrition rates and NCLEX-RN pass rates between the two admissions groups.

For Admissions Group 3, selected student outcomes of the students admitted for the years 1987 and 1988 were compared with those students admitted for the years 1989 and 1990. An independent t-test was used to test for significant differences between mean overall grade point averages, and chi-square tests were employed to test for significant differences in the percentage of attrition rates and in the percentage of NCLEX-RN pass rates between the two groupings of years.

In summary, in order to test the hypotheses for this study, the following data analysis was executed:

Hypothesis 1: There is no significant difference in students' mean overall grade point average between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

An independent t-test was used to determine if significant differences of mean overall grade point averages for the admissions years of 1989 and 1990 exist for each Admissions Groups 1 and 2 at the  $p=.05$  level. In addition, an independent t-test was used to determine if a significant difference exists between the mean overall grade point averages for Admissions Group 3's admissions years of 1987/1988 and 1989/1990 at the  $p=.05$  level.

Hypothesis 2: There is no significant difference in attrition rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

A chi-square test was used to determine if significant differences in frequency of attrition rates for the admissions years of 1989 and 1990 exist for Admissions Groups 1 and 2 at the  $p=.05$  level. In addition, a chi-square test was used to determine if a significant difference exists between the attrition rates for Admissions Group 3's admissions years of 1987/1988 and 1989/1990 at the  $p=.05$  level.

Hypothesis 3: There is no significant difference in NCLEX-RN pass rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

A chi-square test was used to determine if significant differences in frequency of NCLEX-RN pass/fail rates for the admissions years of 1989 and 1990 exist for Admissions Groups 1 and 2 at the  $p=.05$  level. In addition, a chi-square test was used to determine if a significant difference exists between the mean NCLEX-RN pass rates for admission group 3's admissions years of 1987/1988 and 1989/1990 at the  $p=.05$  level.

Demographic data e.g., community college geographical areas, annual FTE, urbanization of county, student gender, student race, and student age were described for Admissions Groups 1, 2, and 3.

## CHAPTER IV

### RESULTS

#### Introduction

The purpose of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

In order to address the purpose of this study, the following question was investigated:

Are there significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process?

A comparative retrospective study design was employed to compare selected student outcomes - mean overall grade point averages, attrition rates, and NCLEX-RN pass rates of associate degree nursing programs using a competitive admissions procedure with those using a modified open admissions procedure.

Two approaches were utilized to compare the two types of admissions procedures. First, two groups of North Carolina associate degree nursing programs (referred to as Admissions Groups 1 and 2) were compared in terms of student outcomes, and second, selected student outcomes of a third group

(referred to as Admissions Group 3) were examined before and after a competitive admissions procedure was instigated.

Participants in Admissions Group 1 and 2 were examined for statistical similarities or differences in selected demographics variables. For Admissions Group 3, the student admissions years of 1987/1988 and 1989/1990 were examined in the same manner.

This chapter contains a presentation of data used to answer the research question and to address each hypothesis. Each hypothesis is stated and then followed by pertinent summary statistics presented in a table. Highlights of the statistical testing, the outcome of the analysis, and the statistical decision are then discussed.

#### Demographics Data

Demographics data, including age, sex, and race were collected for all students comprising the three admissions groups. Based on an independent t-test at the 0.05 confidence level, there was no statistically significant difference in student age between Admissions Groups 1 and 2. Chi-square tests revealed that the two groups did significantly differ in terms of race and sex. There were statistically more black students (12.8%) and more males (9.4%) in Admissions Group 1 compared to Admissions Group 2 (5.82%, black students; 6.2%, males).

Based on an independent t-test and chi-square tests at the 0.05 confidence level, students representing admissions years 1987/1988 and 1989/1990 for Admissions Group 3 did not statistically differ in relation to age, sex or race.



## Hypotheses

Hypothesis One. The first hypothesis of this study stated that there is no significant difference in the student's mean overall grade point average between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

Table 7 presents a comparison of means for Admission Groups 1 (modified open admissions) and for Admissions Group 2 (competitive admissions) based on overall grade point average.

An independent t-test was performed to test for significant differences in the mean overall GPAs between the two groups. As noted in Table 7, the mean overall GPA for Admissions Group 1 was .296 compared to a value of 3.14 for Admissions Group 2. The critical value for t at the 0.05 level of confidence is 2.18. The computed t-value, -1.88 fell below 2.18, hence the result was not

TABLE 7

Admissions Group 1 and 2: Relationship of Overall Grade Point Average and Type of Admissions Process

Admissions Process	N	Mean	SD	Standard Error
Modified Open	8	2.96	0.1939	0.0685
Competitive	6	3.14	0.1510	0.0616
t-value=-1.88, d.f.=12, p=.30				

significant. The null hypothesis was not rejected, suggesting that the mean overall GPA for the community college associate degree nursing programs using a

modified open admissions procedure did not differ significantly from those programs using a competitive admissions procedure.

Table 8 presents a comparison of mean GPA's for Admissions Group 3 before and after a competitive admissions procedure was instigated.

An independent t-test was performed to test for significant differences in mean overall GPA's in Admissions Group 3 before and after adopting a competitive admissions procedure. As noted in Table 8, the mean overall GPA for Admissions Group 3 was 3.08 before competitive admissions was utilized and

TABLE 8

Admissions Group 3: Relationship of Overall Grade Point Average and Type of Admissions Process

Admissions Process	N	Mean	SD	Standard Error
Modified Open	3	3.08	0.2250	0.1299
Competitive	3	3.10	0.1012	0.0584

t-value=-.09, d.f.=2, p=.17

3.10 after its use. The critical value for t at the 0.05 level of confidence was 4.30. The computed t-value, -.09, fell below 4.30, hence the result was not significant. The null hypothesis was not rejected, implying that the mean overall GPA for those community college associate degree nursing programs using a modified open admissions process beforehand did not differ significantly after those programs began using a competitive admissions process.

Hypothesis Two. The second hypothesis of this study stated that there is no significant difference in attrition rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

Table 9 presents a comparison of proportions for Admissions Group 1 (modified open admissions) and for Admissions Group 2 (competitive admissions)

TABLE 9

Admissions Groups 1 and 2: Relationship of Student Attrition Rates and Type of Admissions Process

Student Outcomes	Modified Open Admissions (Admissions Group 1)	Competitive Admissions (Admissions Group 2)	Total
Attrition No.	406	204	610
Graduation No.	447	277	724
Total	853	481	1334

Chi-square=3.33, d.f.=1, p=0.07

based on the number of students who do not graduate from nursing school two years after enrollment.

A chi-square statistic was applied to the 2 x 2 contingency table depicted in Table 9 in order to test the significance of the different proportions within each cell. As noted in Table 9, the calculated value for chi-square was 3.33. Comparing this calculated value to a critical value of 3.84 at the 0.05 level of confidence, one notes that since the calculated chi-square did not equal to or exceed the critical value of chi-square, the result was not significant. The null

hypothesis was not rejected indicating that there was no significant difference between Admissions Groups 1 and 2 relative to attrition rates.

Table 10 presents a comparison of proportions for Admissions Group 3 based on student attrition and graduation rates before and after a competitive admissions process was initiated.

A chi-square statistic was applied to the 2 x 2 contingency table depicted in Table 10 in order to determine significance of difference among the cells. As observed in Table 10, the calculated value for chi-square was 11.87. Comparing this obtained value to a critical value of 3.84 at the 0.05 level of confidence, the obtained value of 11.87 was greater than the critical value, hence, the result was significant. The null hypothesis was rejected and indicated that there was a

TABLE 10

Admissions Group 3: Relationship of Student Attrition Rates and Type of Admissions Process

Student Outcomes	Modified Open Admissions (1987/1988)	Competitive Admissions (1989/1990)	Total
Attrition No.	149	126	275
Gradation No.	126	189	315
Total	275	315	590

Chi-square=11.87; d.f.=1; p=.0006

significant difference in attrition rates before and after a competitive admissions process was initiated for Admissions Group 3.

Hypothesis Three. The third hypothesis of this study stated that there is no significant difference in NCLEX-RN pass rates between community college

associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

Table 11 presents a comparison of means for Admissions Group 1 (modified open admissions) and for Admissions Group 2 (competitive admissions) based on NCLEX-RN pass rates. A chi-square statistic was applied to the 2 x 2

TABLE 11

Admissions Groups 1 and 2: Relationship of Student Outcomes on NCLEX-RN and Type of Admissions Process

Student Outcomes	Modified Open Admissions (Admissions Group 1)	Competitive Admissions (Admissions Group 2)	Total
NCLEX-RN Pass	517	351	868
NCLEX-RN Fail	22	17	39
Total	539	368	907

Chi-square=.15; d.f.=1; p=.69

contingency table portrayed in Table 11 in order to determine the significance of differences among cells. As noted in Table 11, the obtained value for chi-square was .15. When this obtained value was compared to a critical value of 3.84 at the 0.05 level of confidence, it was apparent that the result was not significant. The null hypothesis was not rejected indicating that there was no significant difference between Admissions Groups 1 and 2 relative to NCLEX-RN pass rates.

Table 12 presents a comparison of proportions for Admissions Group 3 based on NCLEX-RN pass rates before and after a competitive admissions process was instigated.

A chi-square statistic was applied to the 2 x 2 contingency table represented in Table 12 in order to determine significance of the differences among cells. As indicated in Table 12, the calculated value for chi-square was 4.57. When compared with a chi-square critical value of 3.84 at the 0.05 level of confidence, the obtained value was the greater of the two, hence, the result was deemed significant. The null hypothesis was rejected, indicating that there was a significant difference in NCLEX-RN pass rates before and after a competitive admissions process was instituted.

TABLE 12

Admissions Group 3: Relationship of Student Outcomes on NCLEX-RN and

Type of Admissions Process

Student Outcomes	Modified Open Admissions (1987/1988)	Competitive Admissions (1989/1990)	Total
NCLEX-RN Pass	143	208	351
NCLEX-RN Fail	13	7	20
Total	156	215	371

Chi-square=4.57; d.f.=1; p=.03

Additional Data Presentation

In order to more fully explore differences in selected student outcomes in this study, additional statistical analyses were deemed necessary. Chi-square tests and independent t-tests were used to compare data between Admissions Group 1 (modified open admissions) and Admissions Group 3 (prior to initiating competitive admissions), as well as data between Admissions Group 2 (competitive admissions) and Admissions Group 3 (after initiating competitive admissions).

This section of Chapter IV includes a presentation of this data involving each selected student outcome. Each selected student outcome is stated and then followed by pertinent summary statistics presented in a table. Highlights of the statistical testing, the outcome of the analysis, and the statistical decision are then discussed.

Grade Point Averages. The first selected student outcome examined is grade point average.

Table 13 presents a comparison of means for Admissions Group 1 (modified open admissions) and for Admissions Group 3 (modified open admissions) based on grade point average.

TABLE 13

Modified Open Admissions: Relationship of Overall Grade Point Average and Admissions Group

Admissions Process	N	Mean	SD	Standard Error
1	8	2.96	0.1939	0.0686
3	3	3.08	0.2250	0.1299

t-value=.88, d.f.=9; p=.32

An independent t-test was performed to test for significant differences in the mean overall GPAs between the two groups. As noted in Table 13, the mean overall GPA for Admissions Group 1 was 2.96 compared to a value of 3.08 for Admissions Group 3. The critical value for t at the 0.05 level of confidence is

2.26. The computed t-value, 0.88 fell below 2.26, hence the result was not significant.

This finding suggests that the mean overall GPA for those associate degree nursing programs using an open admissions process for five or more years (Admissions Group 1) did not differ significantly from associate degree nursing programs representative of Admissions Group 3 just before converting to a competitive admissions process.

Table 14 presents a comparison of means for Admissions Group 2 (competitive admissions) and for Admissions Group 3 (competitive admissions).

TABLE 14

Competitive Admissions: Relationship of Overall Grade Point Average and Admissions Group

Admissions Process	N	Mean	SD	Standard Error
2	6	3.14	0.1510	0.0685
3	3	3.10	0.1012	0.0584

t-value=-.48, d.f.=7, p=.34

An independent t-test was performed to test for significant differences in the mean overall GPAs between the two groups. As noted in Table 14, the mean overall GPA for Admissions Group 2 was 3.14 compared to a value of 3.10 for Admissions Group 3. The critical value for t at the 0.05 level of confidence is 2.37. The computed t-value, - 0.48 fell below 2.37, hence the result was not significant.



This finding suggests that the mean overall GPA for those associate degree nursing programs using a competitive admissions procedure for five or more years (Admissions Group 2) did not differ significantly from those associated degree nursing programs representative of Admissions Group 3 after adopting a competitive admissions procedure.

Attrition Rates. The second selected student outcome examined is attrition rates.

Table 15 presents a comparison of student attrition rates for Admissions Group 1 (modified open admissions) and student attrition rates for Admissions Group 3 (modified open admissions) based on the number of students who do not graduate from nursing school two years after enrollment.

TABLE 15

Modified Open Admissions: Relationship of Student Attrition Rates and Admissions Group

Student Outcomes	Modified Open Admissions		Total
	Admissions Group 1	Admissions Group 3	
Attrition No.	406	149	555
Graduation No.	447	126	573
Total	853	275	1128

Chi-square=3.61; d.f.=1; p=.057

A chi-square statistic was applied to the 2 x 2 contingency table depicted in Table 15 in order to test the significance of the different proportions within each cell. As noted in Table 15, the calculated value for chi-square was 3.61.

Comparing this calculated value to a critical value of 3.84 at the 0.05 level of confidence, one notes that since the calculated chi-square did not equal to or exceed the critical value of chi-square, the result was not significant.

This finding suggests that there was no significant difference between student attrition rates of associate degree nursing programs using an open admissions process for five or more years (Admissions Group 1) and student attrition rates of associate degree nursing programs representative of Admissions Group 3 just before converting to a competitive admissions procedure relative to attrition rates.

Table 16 presents a comparison of proportions for Admissions Group 2 (competitive admissions) and Admissions Group 3 (competitive admissions).

TABLE 16

Competitive Admissions: Relationship of Student Attrition Rates and Admissions Group

Student Outcomes	Modified Open Admissions		Total
	Admissions Group 2	Admissions Group 3	
Attrition No.	204	126	330
Graduation No.	277	189	466
Total	481	315	796

Chi-square=0.46; d.f.=1; p=.50

A chi-square statistic was applied to the 2 x 2 contingency table depicted in Table 16 in order to determine significance of difference among cells. As observed in Table 16, the calculated value for chi-square was 0.46. Comparing

this obtained value to a critical value of 3.84 at the 0.05 level of confidence, the obtained value of 0.46 was less than the critical value, hence the result was not significant.

This finding indicates that there was not a significant difference in attrition rates between associate degree nursing programs using a competitive admissions process for five or more years (Admissions Group 2) and associate degree nursing programs representative of Admissions Group 3 after moving to a competitive admissions process.

NCLEX-RN Pass Rates. The third selected student outcome examined is NCLEX-RN pass rates.

Table 17 presents a comparison of means for Admissions Group 1 (modified open admissions) and for Admissions Group 3 (modified open admissions) based on NCLEX-RN pass rates.

TABLE 17

Modified Open Admissions: Relationship of Student Outcomes on NCLEX-RN and Admissions Group

Student Outcomes	Modified Open Admissions		Total
	Admissions Group 1	Admissions Group 3	
NCLEX-RN Pass	517	143	660
NCLEX-RN Fail	22	13	35
Total	539	156	695

Chi-square=4.57; d.f.=1; p=0.03

A chi-square statistic was applied to the 2 x 2 contingency table portrayed in Table 17 in order to determine the significance of differences among cells. As noted in Table 17, the obtained value for chi-square was 4.57. When this obtained value was compared to a critical value of 3.84 at the 0.05 level of confidence, it was apparent that the result was significant.

This finding suggests that there is a significant difference in NCLEX-RN pass rates between associate degree nursing programs using an open admissions procedure for five or more years and associate degree nursing programs representative of Admissions Group 3 before moving to a competitive admissions procedure.

Table 18 presents a comparison of proportions for Admissions Group 2 (competitive admissions) and Admissions Group 3 (competitive admissions) based on NCLEX-RN pass rates.

TABLE 18

Competitive Admissions: Relationship of Student Outcomes on NCLEX-RN and Admissions Group

Student Outcomes	Modified Open Admissions		Total
	Admissions Group 2	Admissions Group 3	
NCLEX-RN Pass	351	208	559
NCLEX-RN Fail	17	7	24
Total	368	215	583

Chi-square=0.64; d.f.= 1; p=0.42

A chi-square statistic was applied to the 2 x 2 contingency table represented in Table 18 in order to determine significance of the differences among cells.

As indicated in Table 18, the calculated value for chi-square was .64. When compared with a chi-square critical value of 3.84 at the 0.05 level of confidence, the obtained value was the lesser of the two, hence, the result was deemed not significant.

The findings suggest that there was not a significant difference in NCLEX-RN pass rates between associate degree nursing programs using a competitive admissions procedure for five or more years (Admissions Group 2) and associate degree nursing programs representative of Admissions Group 3 after a competitive admissions procedure was initiated.

## CHAPTER V

### CONCLUSIONS

#### Introduction

Community college nursing faculty are attempting to reconcile a need to choose the best and brightest nursing students who will stay in the program, make good grades, graduate two years later, and enter the work force as skilled, creative, self-directed registered nurses capable of high-level decision-making, in an environment traditionally committed to open admissions for all students.

Two admissions processes may be used to select students for entry into associate degree nursing programs at community colleges. One choice, competitive admissions, ranks and accepts applicants ordinally on the basis of past academic achievement and potential aptitude. The other choice, modified open admissions, accepts qualified applicants on the basis of date of fulfillment of admission requirements and until all admissions spaces are filled.

Purpose. The intent of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

Research Question. The following research question resulted:

Are there significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process?

Hypotheses. In order to answer the research question, three hypotheses were investigated:

1. There is no significant difference in students' mean overall grade point averages between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

2. There is no significant difference in attrition rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

3. There is no significant difference in attrition rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

Research Design and Results. To address the hypotheses of this study, a comparative retrospective design was used. The design was used to compare selected student outcomes - mean overall grade point averages, attrition rates, and NCLEX-RN pass rates of associate degree nursing programs using a competitive admissions procedure with those using a modified open admissions procedure.

Two approaches were utilized to compare the two types of admissions procedures. First, two groups of North Carolina associate degree nursing

programs were compared in terms of student outcomes. An independent t-test was used to analyze mean overall grade point averages; and chi-square tests were used to analyze NCLEX-RN pass rates and attrition rates. Each of the analyses revealed no significant differences between the groups. Differences in this study must reach the 0.05 level of confidence to be considered significant.

Second, selected student outcomes of a third group were examined before and after a competitive admissions procedure was instigated. An independent t-test was used to analyze overall mean grade point averages - which proved to be nonsignificant. Chi-square tests were used to analyze NCLEX-RN pass rates and attrition rates - both of which were significant at the 0.05 confidence level.

#### General Conclusions.

This study attempted to determine whether type of admissions process - modified open admissions or competitive admissions, influenced selected student outcomes of nursing students.

Intuitively one would expect that students who were "hand-picked" for admission to a nursing program would more likely graduate in two years, attain higher terminal GPAs, and become registered nurses than would their counterparts, who were accepted based on date of fulfillment of entry requirements. However, the results of this study indicated that there were no significant differences in selected student outcomes between Admissions Group 1, which had used a modified open admissions procedure for at least five years and Admissions Group 2, which had used competitive admissions for at least five



years. Admissions Group 3, however examined two years before and two years after competitive admissions were initiated, did significantly differ in terms of two selected student outcomes - attrition rates and NCLEX-RN pass rates. The attrition rate was significantly greater for the two years preceding initiation of competitive admissions, and the NCLEX-RN pass rate was significantly greater for the two years following initiating competitive admissions.

These seemingly inconsistent and contradictory findings may be attributed to several factors - the theory of change, the entry level admissions requirements of Admissions Group 1, and statistically differing student demographics between Admissions Groups 1 and 2.

Change Theory. Lippit (cited in Kozier, Erb & Blais, 1992) defined planned change as an "intended, purposive attempt by an individual, group, organization, or larger social system to influence the status quo of itself, another organism, or a situation" (p. 211). Planned change is deliberate (Stevens, 1983), systematically assessed, carefully implemented, and has goals and objectives to direct it (Flynn & Heffron, 1984).

Kurt Lewin (1951) formulated a theory of change which describes the process and stages of planned change. "Unfreezing", the first stage, involves an identification and acknowledgment that change is needed. In essence, the person, group, or organization becomes aware of a problem or a better way of doing a task or procedure (Kozier, Erb & Blais, 1992).

In the second stage or "moving", the actual change occurs. During this stage, data about the problem are gathered (Kozier, Erb & Blais, 1992) via surveys, studies, and/or reviews of the literature. In an educational setting, the change is also examined in light of the manner and degree that it is compatible with the faculty's philosophy, the institution's mission, the available resources, and the community's support (Conley, 1973).

During the third stage, "refreezing", the new change is incorporated (Flynn & Heffron, 1984), stabilized, and integrated into the value system of the person, the group, or the organization involved in the change (Kozier, Erb & Blais, 1992). Absolute "refreezing" may take up to days, weeks, or years to complete.

Nursing programs in Admissions Groups 1 and 2 have been using their particular admissions processes for at least five years and some even ten to fifteen years. The admissions procedures are apparently well-established, stabilized, and integrated into the institution. There is an age-old cliché, "if it ain't broke, don't fix it" that possibly applies to the nursing programs in Admissions Groups 1 and 2. Five years (or longer in some cases) is ample time to fine-tune an admissions process especially when the student, the Board of Nursing, the institution, the community, the General Assembly, and the health care industry are directly involved in the end result - successful nursing student outcomes.

One reason why Admissions Groups 1 and 2 did not differ statistically in terms of selected student outcomes may be related to the effects of the

stabilization and integration of individual admissions processes within the institutions over time.

In 1989, the nursing programs comprising Admissions Group 3 moved from a modified open admissions process to a competitive one. Apparently members of the nursing faculty and administration believed that a need to change was in order. Could the reason have been an average attrition rate of 54% or that the average NCLEX-RN pass rate was 91.6% during the previous two years?

During the two years prior to initiation of competitive admissions, Admissions Group 3 significantly differed from Admissions Group 1 (modified open admissions) in terms of NCLEX-RN pass rate ( $p=.03$ ). In addition, even though mean attrition rates were not significantly different for the same two groups at the 0.05 probability level; they were significantly different at the 0.057 probability level.

Conley (1973) feels that change should not be taken lightly. Change becomes meaningful only when it leads to more effective functioning (Conley). "The introduction of change for the sake of change, in the absence of a clear perception of what improvements it is to effect and without evidence as to whether the expected improvement does indeed occur, becomes a dangerous experience in self-delusion" (Conley, p. 561).

At any rate, Admissions Group 3 did show significant differences in attrition rates and NCLEX-RN pass rates before and after competitive admissions were instigated. Average attrition rates for the three programs were reduced by

14% and average NCLEX-RN pass rates rose from 91.6% to 96.7%. In addition, Admissions Group 3 did not significantly differ from the other two Admissions Groups after a competitive admissions procedure was instigated. Just as change theory perhaps explained the absence of significant differences in selected student outcomes between Admissions Groups 1 and 2; so might it also explain the reason for significant differences in selected outcomes within Admissions Group 3.

A great deal of assessment, consultation, discussion, and problem-solving occurs whenever an organization, particularly a bureaucratic institution of higher education considers a change in policy or procedure. Change requires hard work, often meets resistance, and can be frightening to those persons comfortable with the status quo of the organization. As stated earlier, in order for planned change to occur, someone must perceive a problem in "the old way of doing things" or a better way of "doing things".

It is assumed, therefore, that the decision to radically change an admissions procedure in a nursing program does not originate overnight and/or on the whim of a single individual. Consequently, administrators of the nursing programs in Admissions Group 3 should expect positive and affirming results from the changes made in their admissions processes - as was the case demonstrated by the significant differences in NCLEX-RN pass rates and attrition rates noted in this study. Given the nature of change theory, one might surmise that these differences will likely stabilize and level off several years down the road and

remain comparable to other nursing programs with established admissions processes.

Brooten, Hayman, and Naylor (1978) describe the importance of planned change in nursing: "Participation in planned change demands a heavy investment of individual and collective time and energy. But the rewards are commensurate . . . Applied within nursing, it can help the profession clarify its purposes and increase its effectiveness in seeking to improve its own status and to create a better health care system for people" (p. 82).

Entrance Requirements of Admissions Group 1. When one hears that a nursing program, or any program for that matter, selects students for admission on the basis of date of fulfillment of entry requirements, one assumes that it is "easy" to get into the program and "easy" to stay in the program. This is not necessarily the case for those programs making up Admissions Group 1.

Community colleges typically have few requirements for general institutional admission, but may maintain higher standards for particularly difficult programs such as nursing (Southerland, 1986). Seventy-five percent of the nursing programs in Admissions Group 1 require high school/college chemistry; 62.5% require high school/college algebra; and 71% require high school/college biology as prerequisites to qualify for admission.

Weinstein, Brown, and Wahlstrom (1980) determined that the number of pure and applied science courses that applicants had completed prior to admission was the best predictor of later success in nursing school. Both algebra and

chemistry courses require students to possess critical thinking and high level formal reasoning abilities. For example, students must be able to solve for one or more unknowns in algebra and must be able to balance equations in chemistry to pass the courses. The required prerequisite courses alone could limit or restrict those who could qualify for admission to the programs.

Eighty-seven and a half percent of the nursing programs in Admissions Group 1 require an interview prior to qualification for admission to the program. This interview is not designed to limit admission, but as an information session for prospective students. Weinstein, Brown, and Wahlstrom (1980) found that interviews which determined the applicant's expectations and knowledge about nursing and the nursing program actually lowered student attrition. The researchers felt that the decrease in attrition was mainly due to student self-evaluation of personal capabilities regarding course requirements and his/her suitability for the program (Weinstein, Brown & Wahlstrom).

Southerland (1986) asserts, "the wider the door to admission, the greater the need for diagnosis" (p. 13). The standardized test score may be used as a validation for the student's high school or college GPA (Logan, 1980) or may be used for entry level placement in college-level courses or programs. In addition, it also allows comparisons of academically differing students.

All nursing programs representative of Admissions Group 1 require specific scores on standardized entrance tests in order to qualify for entry. Petty and

Todd (1985) found that the admissions (entrance) test was an extremely important determinant of successful admissions decisions.

Even though nursing faculty and/or admissions officers in Admissions Group 1 base admissions decisions on date of fulfillment of program requirements instead of choosing the top "x" number of applicants from the pool, the group still showed no significant difference in selected student outcomes when compared with Admissions Group 2. Apparently Admissions Group 1 relies on entry level requirements that are validated by the literature and appropriate for determining student enrollment.

Student Demographics. Because data analysis revealed that student demographics for Admissions Groups 1 and 2 were significantly different in terms of race and sex, one might conclude that the groups then were significantly different and the findings invalid. Two factors tend to negate this conclusion. First, student applicants tend to be a reflection of the area or even the specific county. This is especially true for the community college. As mentioned earlier, one of the most important characteristics of the community college is its easily accessible location within thirty miles of nearly all potential students (Joyce, 1990).

Second, society in general and members of the political and legal arenas specifically have pressured college administrators and admissions officers to develop policies and procedures which judge college applicants fairly for admission (Loheyde, 1980). Loheyde defines fairness in this regard as "[the student's] reasonable opportunity to meet a particular admissions standard and whether

imposition of the standard has an adverse impact on some students that is unrelated to the demands of the educational program" (p. 199). Therefore, those nursing faculty and/or admissions officers comprising Admissions Groups 1 and 2 are legally, morally, and ethically charged with applying admissions standards equally and fairly to each individual applicant regardless of sex, age, race, or nationality. Consequently, it is assumed that students in Admissions Groups 1 and 2 were judged on his/her merit alone and not based on any other quality previously mentioned. It is inferred that those programs with more black and/or male students did not skew nor invalidate the study design.

Students comprising Admissions Group 3 did not statistically differ before or after competitive admissions were instigated in terms of age, race, or sex.

#### Individual Hypotheses

Hypothesis 1. Hypothesis one states that there is no significant difference in students' mean overall grade point averages between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

Petty and Todd (1985) found that the admissions (entrance) test was an important determinant of successful admissions decisions. Tests which measured language skills seem to be more beneficial and consistently related to high GPA performance (Petty & Todd). The Comparative Guidance and Placement Tests, the most widely used tests by community colleges in North Carolina, displayed a strong predictive power in relation to GPA performance (Petty & Todd).



Mean GPA for Admissions Group 1 (2.96) and Admissions Group 2 (3.14) did not significantly differ, as was the case for Admissions Group 3 before (3.08) and after (3.10) a competitive admissions process was initiated. Apparently, entrance testing by community colleges of both Admissions Groups 1 and 2 contributed to non-significant results of the student outcome, GPA.

Petty and Todd (1985) also noted that age was positively correlated and significantly related to GPA achievement. The average student age in all three admissions groups was about 32 years.

Weinstein, Brown, and Wahlstrom (1980) determined that the number of pure and applied science courses that the applicants had completed prior to admission was the best predictor of later success in nursing school. The majority of nursing programs in Admissions Groups 1 and 2 required students to take biology and/or chemistry prior to entry - another factor that possibly contributed to the non-significant differences in mean GPAs.

Finally, both Admissions Groups 1 and 2 exhibited mean attrition rates in the mid 40s which likely included students with low GPAs. Cumulative GPAs of students who dropped out or failed-out were not included in aggregate GPA means.

Hypothesis 2. Hypothesis two states that there is no significant difference in attrition rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

The current nursing shortage, a demand-driven one, is predicted to continue and even increase (Williams, 1989). In 1991, 71% of the newly registered nurses in North Carolina were graduates of associate degree programs ("Community Colleges Supply", 1991). The community college, therefore, must continue to prepare and educate people to enter the nursing profession and more importantly, the healthcare workplace.

In this study, nursing programs representative of open admissions (Admissions Group 1) graduated 52.4% of its nursing students two years after admittance; while 57.5% of students graduated two years later from programs utilizing a competitive admissions process (Admissions Group 2). The two methods did not statistically differ in terms of student attrition rates.

Hassanein (1991) noted that the number of new graduates from RN programs reflect a statistically significant influence on the supply of and employment of RNs in the health care industry. Petty and Todd (1985) found an inverse relationship of degree of admissions selectivity with attrition rate. Consequently, as a college program becomes more selective with admissions, the attrition rate for that institution will decrease. When retention of nursing students increases, the number of graduates and potential registered nurses increases.

Admissions Group 3 did show a significant decrease in attrition rates after initiation of competitive admissions. In support of Petty and Todd's (1985) findings, an inverse relationship of degree of admissions selectivity with attrition rate occurred. Prior to competitive admissions, Admissions Group 3's attrition

rate was 54.2% and following adoption of competitive admissions, it dropped to 40%.

Hypothesis 3. Hypothesis three states that there is no significant difference in NCLEX-RN pass rates between community college associate degree nursing programs using a modified open admissions process and those using a competitive admissions process.

Graduation from a nursing program does not guarantee licensure as a registered nurse. In fact, the NCLEX-RN is designed in such a manner that about a 10% failure rate is expected (Dell & Valine, 1990). In preparing students for the NCLEX-RN, nursing faculty strive for a 100% pass rate. Millions of dollars are spent each year for NCLEX-RN review books, review courses, and tests designed to diagnose deficiencies in a student's knowledge base.

In this study, Admissions Groups 1 and 2 demonstrated pass rates at 95.9% and 95.3% respectively - both surpassing the 90% pass rate projected by the Board of Nursing. In this instance, the absence of a significant difference between the two groups indicated that method of student selection had no bearing on NCLEX-RN pass rates. The 45% plus average attrition rate may have contributed to the high NCLEX-RN pass rates in that students who had a potential for failure had previously left the program.

Admissions Group 3 did show a significant increase in NCLEX-RN pass rate results after initiation of competitive admissions. Prior to competitive admissions, the group averaged a 91.6% pass rate consistent with the Board of

Nursing's projection of a 90% pass rate. However, after moving to a competitive admissions process, the nursing programs' average NCLEX-RN pass rate rose to 96.7% significantly comparable to the other two groups.

Hassanein (1991) suggests that measures to increase the numbers of newly graduated RNs can increase the supply of RNs for employment. By instituting competitive admissions, the three nursing programs in Admissions Group 3 were able to lessen student attrition rates (as previously described) and increase NCLEX-RN pass rates, thus providing area hospitals with more nurses per graduating class.

#### Implications of Results

For Practice. In 1990, nursing schools across the nation turned away thousands of students qualified for admission. Budget cuts, mandated by the General Assembly, would not allow for expansion of student enrollment; hence, many potential registered nurses were not accepted into the nursing programs. Compounding the situation, a nursing shortage continues to plague hospitals in the area, state, and nation.

Nursing faculty began to evaluate their nursing programs and gave careful consideration to admissions criteria, specifically related to student outcomes and the critical nature of the nursing shortage. Some nursing programs chose to remain with a process using established criteria for admission and then admitted students who met the criteria as they applied until all admissions spaces were filled. This method of selection is considered a modified open-door mainly

because admissions criteria to the program are required in addition to the institutional requirements. Although this admissions method screens applicants for certain qualities, applicants are not ranked based on potential academic abilities. This method does not insure that the most qualified are admitted.

Nursing programs that used a modified open admissions process determined student enrollment based on the date applicants met institution and program requirements. In North Carolina, the program requirements typically consisted of satisfactory placement test scores, course work in high school/college chemistry, biology, and/or algebra, and an interview designed for information conveying only. According to the literature and the results from this study, a modified open admissions approach to nursing student selection can be successful and can yield students with adequate cumulative GPAs and capabilities for passing the NCLEX-RN.

The modified open admissions process does have its drawbacks for the nursing profession. Academic standards address only elements of the cognitive domain (Schwirian & Gortner, 1979). Success in the nursing profession also requires skills in the affective and psychomotor domains (Schwirian & Gortner). Nurses must not only know how to calculate and titrate intravenous infusions, they must also know how to deal with and manipulate complex technologies, be flexible and creative while rendering nursing care, and be able to communicate with the dying patient and/or the grieving parent. For this reason, some nursing programs

are incorporating the interview, the essay, and/or the letter of recommendation as part of the admissions process.

The nursing profession has always taken pride in being able to control and regulate its own practice. Certainly, nurses must follow and obey the laws and statutes established by the General Assembly and Congress. However, nurses do not have to answer to the American Medical Association, the pharmaceutical industry, or insurance companies. It appears that when nursing faculty choose to use a modified open admissions process for student selection, they give up a tremendous amount of autonomy and control over their profession.

Although academic ratings such as evaluation of high school/college transcripts, standardized test scores, and class rank have been linked to and predictive of grade point average (Hiss, Woodcock & McGrath, 1984a), early nursing studies have revealed that academic measures tend to be poor indicators of clinical performance (Schwirian & Gortner, 1979). Loheyde (1980) further asserts, "one important issue concerning the validity of traditional academic measures is the evidence suggesting that college grades and standardized test scores are related to one another but bear little relationship to life success or performance in the real world" (p. 198).

Nursing faculty who rely on modified open admissions procedures give up the chance to determine who will enter the nursing profession. By adding that extra intrapersonal element, such as the interview or the essay, nursing faculty are

in a better position to choose holistically those individuals suited for the profession.

The competitive admissions process in nursing student selection seems to incorporate the best of both worlds - a method to successfully select the brightest and most capable students and a means to select those students possessing qualities indicative of a caring nurse. Competitive admissions appears better because it makes it possible to choose people with personal qualities that enhance nursing apart from those measured on traditional tests.

According to Rothman and Rothman (1977), the nurse educator has a two-fold accountability - he/she must meet the needs of students for a quality education and society's need for competent health care providers. This accountability begins with the recruitment, selection, and admission of the most qualified students who demonstrate the greatest potential for academic success and success on the NCLEX-RN.

For Theory. Nursing faculty and admissions officers in community colleges are struggling to decide whether to rank qualified applicants in terms of past achievement and potential aptitude or simply accept qualified students based on the date admissions requirements were met. Contributing to this enrollment dilemma faced by community college personnel is the evident conflict between the open-door admissions policy inherent in the community college's mission and the acceptance of the brightest, most capable individuals with the greatest potential to

succeed in higher education and successfully complete the NCLEX-RN (Yess, 1980).

In maintaining an open admissions policy, the community college supports the belief in equality of opportunity and represents the "best expression in higher education of the egalitarian ideal of American life" (Vincent, 1981/1982, p. 12).

Traditionally, in an open-door institution, students were accepted in a non-selective manner as long as resources and a space in the program were available (Petty & Todd, 1985). In keeping with this notion of an open-door institution, administrators, nursing faculty, and admissions officers in some community colleges continue to maintain a "non-selective" admissions process and claim to be supportive of open access.

In fact, findings from this study indicate that nursing programs using this "non-selective" method of determining nursing student admissions did not differ statistically from those nursing programs using competitive admissions standards in regard to selected student outcomes. Community college catalogues and admissions policies frequently boast of "maintaining an open admissions policy in the spirit of the community college's mission". Upon further inspection, however, one notes that additional requirements are sometimes added to the more demanding programs, such as nursing. These requirements may include satisfactory standardized test scores and prerequisite courses in chemistry, biology, and/or algebra - which was the case in this study.



According to Southerland (1986), the degree of access in an institution of higher education is dependent upon a variety of factors - the college's mission, location, curricula and, costs, as well as the student's past academic achievement and potential aptitude. These factors indicate that access to an institution is dictated by the policies and procedures that govern the admissions process and the student's progression through the course of study (Southerland).

Opponents of selective admissions at the community college fear a return to exclusionary practices in higher education, when only the well-to-do, academically prepared individual was highly sought by admissions officers, while the poor, academically-deprived individual was dismissed (Edwards, 1985).

This researcher suggests that programs maintaining strict entry requirements, such as prerequisite course work in algebra and chemistry and minimum acceptable standardized test scores, while excluding personal qualities such as integrity, diligence, interpersonal skills, and/or special accomplishments from the admissions decision equation, are just as guilty (if not more so) of exclusionary practices as those programs using a competitive admissions process. The non-selective, modified open admissions approach seems to cater to those individuals who "do well" on tests, can solve for an unknown algebraically, and/or can balance a chemistry equation.

Vaughan (1985) suggests that higher education has evolved from a highly selective admissions process influenced by the European model to a more democratic system of higher education accessible to all.

Advocates of selective admissions encourage the use of a variety of criteria to determine student enrollment. Academic standards, it seems, only address elements of the cognitive domain, while success in the nursing profession also requires skills in the affective and psychomotor domains (Schwirian & Gortner, 1979). For this reason, many nursing procedures include measures to examine holistically the applicant as an individual and person - not merely a collection of sensory neurons and a brain. Letters of reference, written essays, and/or the interview are some of the strategies utilized to determine those qualities important in being a successful nursing student and nurse (Schwirian & Gortner). In some instances, selective admissions may be more in line with a "true democratic system of higher education accessible to all" than some schools of nursing which are practicing an "exclusionary, non-selective" form of student selection.

#### Recommendations for Further Research

The purpose of this study was to investigate whether there were significant differences in selected student outcomes in community college associate degree nursing programs using a competitive admissions process compared to those programs using a modified open admissions process.

The results of this study indicated that there were no significant differences in selected student outcomes between Admissions Group 1, which had used a modified open admissions procedure for at least five years and Admissions Group 2, which had used competitive admissions for at least five years. Admissions Group 3, however, comprised of three nursing programs examined two years

before and two years after competitive admissions were initiated did significantly differ in terms of two selected student outcomes - attrition rate and NCLEX-RN pass rates.

Findings of this study suggest the need for further examination of admissions processes used by associate degree nurse educators, locally and on a state-wide basis.

Indications of short-term gains and benefits from nursing programs moving from modified open admissions processes to competitive admissions processes suggest the relevance of policy and/or procedure changes in admissions standards when the need arises. This may be true for nursing programs or other demanding programs in the community college system.

Because this was a retrospective study that evaluated quantitative data "after the fact", it would be interesting to do a case study and qualitatively and quantitatively follow a nursing program before initiating, during initiation, and after initiating a competitive admissions procedure. Not only would academic data such as GPAs, attrition rates, and NCLEX-RN pass rates be examined, but the researcher could attempt to measure those qualities that make up a person's spirit and drive.

It would be interesting to follow-up on those programs in Admissions Group 3 and determine long-term effects of changing to competitive admissions and how they compare with other established admissions policy results.

Finally, it would be beneficial to the nursing profession if graduates from both types of programs were followed after graduation and evaluated/compared in terms of job performance, job satisfaction, and other similar measures.

In summary, the recruitment, selection, and retention of quality nursing students being prepared to join the workforce as registered nurses must not be taken lightly. Nurse educators must continually assess and evaluate current policies and procedures regarding admission and retention of students, collect data - both qualitatively and quantitatively, and be ready to modify and or change current practices. In considering planned change, the most important thing to consider is what is best for the student, the program, the institution, and the nursing profession.

## BIBLIOGRAPHY

A matter of facts - the North Carolina community college system fact book.

(1992). Raleigh, NC: Department of Community Colleges.

Allen, C., Higgs, Z., & Holloway, J. (1988). Identifying students at risk for academic difficulty. Journal of Professional Nursing, 4, 113-118.

Ambrose, Y. (1990, December). Nursing in 2001: are you ready? Nursing Management, pp. 45-46.

Anderson, R. (1985). Can community colleges offer opportunity and excellence? American Association Community Junior College Journal, 56(2), 41.

Astin, A. (1971). Predicting academic performance in college. New York: Macmillan Company.

Astin, A. (1975). Preventing students from dropping out. San Francisco: Jossey-Bass.

Barkley, M. (1991, March 4). Scarce nurses have hospital recruiters scrambling. Greensboro News and Record, pp. B1-B2.

Baumol, W. & Blinder, A. (1988). Economics - principles and policies: macroeconomics (4th ed.). Orlando: Harcourt Brace Jovanovich.

Bell, C. (1984, Fall). Grades as a predictor of attrition. Community College Review, pp. 13-19.

Bohrer, B. & Lucas, J. (1981). Study of admission requirements at a select group of community colleges in the United States. (Report No. JC-810-

- 600). Palatine, IL: William Rainey Harper College. (ERIC Document NO. ED 207 664).
- Bowles, F. (1963). Access to higher education. New York: Columbia University Press.
- Breland, H. (1979). Population validity and college entrance measures. New York: The College Board.
- Brink, P. & Wood, M. (1983). Basic steps in planning nursing research, from question to proposal. Monterey, CA: Wadsworth Inc.
- Brooten, D., Hayman, L. & Naylor, M. (1978). Leadership for change: a guide for the frustrated nurse. Philadelphia: J.B. Lippincott.
- Burgess, M. & Duffey, M. (1969). The prediction of success in a collegiate program of nursing. Nursing Research, 18(1), 68-72.
- Callahan, M. (1992). Thinking skills - an assessment model for ADN in the '90's. Journal of Nursing Education, 85-87.
- Capoor, M. (1983). Evaluation of open access versus selected admission to the nursing program in a community college. (Report No. HE-016-517). Proceedings of the Annual Forum of the Association for Institutional Research. Toronto, Ontario, Canada: Association for Institutional Research. (ERIC Document No. ED 232 593).
- Carnegie Council on Policy Studies in Higher Education (1977). Selective admissions in higher education. San Francisco: Jossey-Bass, Inc.

- Clemence, B. (1978). How predictive are admissions criteria? Journal of Nursing Education, 17, 5-10.
- Cohen, A. & Brawer, F. (1989). The American community college. San Francisco: Jossey-Bass Inc.
- Community colleges supply more nurses. (1991, August 31). Greensboro News and Record, p. B6.
- Conley, V. (1973). Curriculum and instruction in nursing. Boston: Little, Brown, and Company, Inc.
- Cox, K. (1991, November). 1990's offers nurses healthy job growth. North Carolina Healthcare, p. 3.
- Crawford, S. (1991). Program admissions criteria: time for a new approach. American Association Community Junior College Journal, 61(5), 63.
- Deering-Flory, R. & Neighbors, M. (1991). NLN competencies for the associate degree nurse: are the new graduates meeting them? Nursing and Health Care, 12(9), 474-479.
- Dell, M. & Duffey, M. (1990). Explaining differences in NCLEX-RN scores with certain cognitive and non-cognitive factors for new baccalaureate nurse graduates. Journal of Nursing Education, 29(5), 158-162.
- Dell, M. & Valine, W. (1990). Explaining differences in NCLEX-RN scores with certain cognitive and non-cognitive factors for new baccalaureate nurse graduates. Journal of Nursing Education, 29, 158-162.

- Deloughery, G. (ed.). (1991). Issues and trends in nursing. St. Louis: C.V. Mosby Co.
- Dodge, S. (1991). Nursing schools intensify their recruiting efforts, offer tuition assistance to attract more students. The Chronicle of Higher Education, 37(18), A35 - A36.
- Doss, J. (1991, August 12). U.S. needs nurses; schools need space. Greensboro News and Record, p. B1.
- Durham, G. & Syverson, S. (1983, Fall). Wait lists: The limbo of the college application process. The Journal of College Admissions, pp. 3 - 9.
- Dyal, J. & Karatjas, N. (1985). Basic economics. New York: Macmillan Publishing Co.
- Ebel, R. (1982). Selective admission: whether and how. The College Board Review, 123, 22-36.
- Educational guide chart - the North Carolina community college system. (1992). Raleigh, NC: NC Department of Community Colleges.
- Edwards, F. (1985). Can community colleges offer opportunity and excellence? American Association Community Junior College Journal, 56(2), 41 - 42.
- Eller, V. (1990). Nursing admission/enrollment survey for associate degree and practical nursing programs North Carolina community college system 1990-1991. Raleigh, NC: Department of Community Colleges.



- Ellison, D., Scherubel, J. & Yocum, C. (1985). Evaluation of an applicant review process. Journal of Professional Nursing, 1, 300-305.
- Erdmann, D. (1983, Summer). An examination of factors influencing student choice in the college selection process. Journal of College Admissions, pp. 3-6.
- Erikson, B. & Strommer, D. (1991). Teaching college freshmen. San Francisco: Jossey-Bass Publishers.
- Findt, W. & Sullins, W. (1990, Spring). North Carolina community college goals for the future. Community College Review, pp. 40-46.
- Flynn, J. & Heffron, P. (1984). Nursing: from concept to practice. Bowie, MD: Robert J. Brady Co.
- Fonte, R. (1990/1991, December/January). Is our image going out the "open door?" American Association Community Junior College Journal, 61(3), 47.
- Friss, L. (1988). The nursing shortage: do we dislike it enough to cure it? Inquiry, 25, 232-242.
- Geis, M. (1990). Diffusion of associate degree nursing programs among U.S. community colleges. Journal of Nursing Education, 29, 176-182.
- Green, K. (1987). The educational "pipeline" in nursing. Journal of Professional Nursing, 3, 247-257.

- Griffin, J. (1980, Summer). Underachieving students in community colleges: common personality and biographical characteristics. Community College Review, pp. 15-19.
- Grubbs, L. (1989). The response of higher education to the shortage of nursing school applicants. Journal of Nursing Education, 28, 295-297.
- Haase, P. (1990). The origins and rise of associate degree nursing education. Durham, NC: Duke University Press.
- Hall, J. & Stevens, P. (1991, March/April). The nursing shortage in the context of national health care. Nursing Outlook, pp. 69-72.
- Hassanein, S. (1991). On the shortage of registered nurses: an economic analysis of the RN market. Nursing & Health Care, 12(3), 152 -156.
- Hegyvary, S. (1990). Addressing supply and demand. Journal of Professional Nursing, 6, 71.
- Hess, R. (1989, April). What the nurses know. Nursing Management, pp. 28-29.
- Hiss, W., Woodcock, E., & McGrath, A. (1984a, Spring). At least 20 questions: academic criteria, personal qualities, and college admissions - part I. Journal of College Admissions, pp. 3-6.
- Hiss, W., Woodcock, E., & McGrath, A. (1984b, Summer). At least 20 questions: academic criteria, personal qualities, and college admissions - part II. Journal of College Admissions, pp. 8-13.

- Horns, P., O'Sullivan, P., & Goodman, R. (1991). The use of progressive indicators as predictors of NCLEX-RN success and performance of BSN graduates. Journal of Nursing Education, 30(1), 9-14.
- Ijames, S. (1991). Annual statistical report 1990-1991 -North Carolina Community College System. Raleigh, NC: NC Department of Community Colleges.
- Jaeger, R. (1990). Statistics - a spectator sport. Newbury Park, CA: SAGE Publications.
- Johnson, B. (1984, Fall). Valid testing model for admissions - placement. Community College Review, pp. 8-12.
- Joyce, R. (1990, Spring). North Carolina's community college system: running it and paying for it. Popular Government, 55(4), 2 -12.
- Kissinger, J. & Munjas, B. (1982, January). Predictors of student success. Nursing Outlook, pp. 53-55.
- Kozier, B., Erb, G. & Blais, K. (1992). Concepts and issues in nursing practice. Redwood City, CA: Addison-Wesley Nursing.
- Lehrer, E., White, W., & Young, W. (1991). The three avenues to a registered nurse license - a comparative analysis. Journal of Human Resources, 26, 362-379.
- Lengacher, C. & Keller, R. (1990). Academic predictors of success in the NCLEX-RN examination for associate degree nursing students. Journal of Nursing Education, 29, 163-169.

- Lenning, O., Beal, P., & Sauer, K. (1980). Retention and attrition: evidence for action and research. Boulder CO: National Center for Higher Education Management Systems.
- Lewin, K. (1951). Field theory in social science. New York: Harper & Row, Publishers, Inc.
- Lewin, T. (1990, December 28). Big gain in nursing students lifts hopes amid a shortage. New York Times, p. A1.
- Lockhart, E. (1990, Winter). Heavy grades? A study on weighted grades. Journal of College Admissions, pp. 9 - 16.
- Logan, S. (1980). Use of standardized tests in admission decisions. College and University, 55, 202-212.
- Loheyde, K. (1980). Considerations for decision-making in selected admissions. College and University, 55, 197-201.
- Lorenzo, A. (1991, February/March). Anticipating our future purpose. American Association Community Junior College Journal, 61(4), 42-45.
- Lutz, S. (1991, September 2). Campaign employs star power to combat nursing shortage. Modern Healthcare, pp. 30-31.
- Manthey, M. (1989, April). Vulnerable no more. Nursing Management, 20, p. 26.
- McPherson, M. & Schapiro, M. (1990). Selective admission and the public interest. New York: College Board Publications.

- Melcolm, N., Venn, R., & Bausell, R. (1981). The prediction of state board test pool examinations scores within an integrated curriculum. Journal of Nursing Education, 20(5), 24 - 28.
- Miller, I. (1983, Fall). Higher Education: the demography of opportunity. Journal of College Admissions, pp. 10 - 13.
- Myers, S., Stolte, K., Baker, C., Nishikawa, H. & Sohler, R. (1991). A process-driven curriculum in nursing education. Nursing & Health Care, 12, 460 - 463.
- National League for Nursing. State-approved schools of nursing R.N. (Publ. No. 19-2412) New York: Division of Research.
- Noel, L., Levitz, R., Saluri, D. (1985). Increasing student retention. San Francisco: Jossey-Bass Publishers.
- North Carolina Department of Administration. (1990). Regional directions - economic trends in North Carolina. Raleigh, NC: Office of Policy and Planning.
- Nursing enrollments rebound across the nation. (1990). American Journal of Nursing, 191(10), 99, 106.
- Oliver, D. (1985). Academic success of associate degree nursing students. Journal of Nursing Education, 24(5), 197-206.
- Owen, S. & Feldhusen, J. (1970). Effectiveness of three models of multivariate prediction of academic success in nursing education. Nursing Research, 19(6), 517 -525.

- Pantages, T. & Creedon, C. (1978). Studies of attrition: 1950 - 1975. Review of Educational Research, 48, 49 - 101.
- Pappas, J. & Hirschey, M. (1990). Managerial economics (6th ed.) Chicago: Holt, Rinehart and Winston, Inc.
- Payne, M. & Duffey, M. (1986). An investigation of the predictability of NCLEX scores of BSN graduates. Journal of Professional Nursing, 2, 326-332.
- Perez, T. (1977). Investigation of academic moderator variables to predict success on state board of nursing examinations in a baccalaureate nursing program. Journals of Nursing Education, 16(8), 16 - 23.
- Petty, N. & Todd, A. (1985). A model to improve the success rate of students in selected health career programs in the North Carolina community college system. (Report No. CE-043-699). Charlotte, NC: Central Piedmont Community College. (ERIC Document Reproduction Service No. ED 267 186).
- Phelps, D. (1990/1991, December/January). Access, equity, opportunity. American Association Community Junior College Journal, 61(3), 34-37.
- Plemmer, A. (1992, January 13). Community colleges capping enrollment. Greensboro News and Record, pp. 131-132.
- Progress report of the community college system of North Carolina: first five years 1963 - 1968. (1969). Raleigh, NC: State Board of Education.

- Puyear, D. & Vaughan, G. (Eds.). (1985). Maintaining institutional integrity.  
San Francisco: Jossey-Bass Inc.
- Radford, A. & Bell, C. (1968). Manual of the vascular flora of the Carolinas.  
Chapel Hill: University of North Carolina Press.
- Reimels, E. (1991, July-September). Nurses and business. Business and  
Economics Review, pp. 29-31.
- Richardson, R. (1982). Open access and institutional policy: time for  
reexamination. Community College Review, 10(4), 47 - 51.
- Rosenfeld, P. (1991). Trends in contemporary nursing education. Nursing  
Datasource 1991 (Publication No. 19-2420) New York: National  
League for Nursing.
- Rothman, D. & Rothman, N. (1977). The professional nurse and the law.  
Boston: Little, Brown & Co.
- Roueche, J., Baker III, G., & Roueche, S. (1987, April/May). Open door or  
revolving door? American Association of Community and Junior  
College Journal, 57(5), 22-26.
- Rounds, J. & Anderson, D. (1984/1985, Winter). Entrance assessment and  
student success. Community College Review, pp. 10-15.
- Rudolph, F. (1990). The American college and university. Athens, GA:  
University of Georgia Press.
- Rutledge, B. (1991, Fall). An alternative to ranking high school students.  
Journal of College Admissions, pp. 5-6.

- Schwirian, P. & Gortner, S. (1979, May). How nursing schools predict their successful graduates. Nursing Outlook, pp. 352-358.
- Sharples, D. (1985). Can community colleges offer opportunity and excellence? American Association Community Junior College Journal, 56(2), 42 - 43.
- Smith, V. (1990). Nursing student attrition and implications for pre-admission advisement. Journal of Nursing Education, 29, 215-218.
- Southerland, A. (1986). Access versus selectivity in the community college. Horizons Issues Monograph Series (Contract No. 400-83-0030) Washington DC: American Association of Community and Junior Colleges.
- Spahr, A. (1987). The relationship between grades earned in introductory nursing courses and several predictor variables: an exploratory study. (Report No. JC-870-309). Cicero, IL: Morton College. (ERIC Document No. ED 283 568).
- Stevens, K. (1983). Power and influence - a sourcebook for nurses. New York: John Wiley & Sons.
- Stronck, D. (1979, September). Predicting student performance from college admission criteria. Nursing Outlook, pp. 604-607.
- Talley, N. (1989, Fall). Weighted averages and college admission. The Journal of College Admissions, pp. 19 - 21.



- Talley, N. & Mohr, J. (1991, Summer). Weighted averages, computer screening, and college admission in public colleges and universities. The Journal of College Admissions, pp. 9 - 11.
- Tan, D. (1991, Summer). Grades as predictors of college and career success. Journal of College Admissions, pp. 12-15.
- Thompson, C. (1985, Spring). Maintaining quality with open access. Community College Review, pp. 10 - 14.
- Thurber, F., Hollingsworth, A., Brown, L. & Whitaker, S. (1989, May/June). The faculty advisor. Nurse Educator, pp. 27 - 29.
- Times change: schools can't admit all the applicants. (1991). American Journal of Nursing, 191(10), 99, 106.
- Vaughan, G. (1984, March). Balancing open access and quality. Change, 16(2), 38-44.
- Vaughan, G. (1985a). Can community colleges offer opportunity and excellence? American Association Community Junior College Journal, 56(2), 43.
- Vaughan, G. (1985b). Maintaining open access and comprehensiveness. In D. Puyear (Ed.), Maintaining Institutional Integrity (pp. 17-28). San Francisco: Jossey-Bass Inc.
- Vincent, W. (1981/1982, December/January). In support of open admissions. Community and Junior College, 12-13.
- Waters, V. (1990). Associate degree nursing and curriculum revolution II. Journal of Nursing Education, 29, 322-325.

- Wechsler, H. (1977). The qualified student - a history of selective college admission in America. New York: John Wiley and Sons, Inc.
- Weinstein, M., Brown, L., & Wahlstrom, M. (1979). Selection procedures and attrition. Journal of Nursing Education, 18(4), 38-46.
- Weinstein, E., Brown, I. & Wahlstrom, M. (1980). Characteristics of the successful nursing student. Journal of Nursing Education, 19, 53-59.
- Werley, H. & Fitzpatrick, J. (1984). Research on nursing students. Annual Review of Nursing Research, 2, 211-237.
- White, S. (1989, Fall). The myth of the American dream: whatever happened to honesty in college admission? Journal of College Admissions, pp. 29-31.
- Wiggs, J. (1989). The community college system in North Carolina: a silver anniversary history, 1963 - 1988. Raleigh, NC: Department of Community Colleges.
- Wilensky, G. (1988, September 5). Nursing shortage - more complex than it seems. Hospitals, 62(17), 24.
- Williams, C. (1989). The nursing shortage and research opportunities. Journal of Professional Nursing, 5, 5.
- Wittmeyer, A., Camiscioni, J. & Purdy, P. (1971). A longitudinal study of attrition and academic performance in a collegiate nursing program. Nursing Research, 20(4), 339 - 347.

Wold, J. & Worth, C. (1990). Baccalaureate student nurse success prediction: a replication. Journal of Nursing Education, 29(2), 84 - 89.

Yess, J. (1980). Predictions of success in community college nursing education. Journal of Nursing Education, 19(9), 19-24.

## APPENDIX A

The Working Mission Statement of the North CarolinaCommunity College System

The North Carolina Community College System is a statewide organization of public two-year post-secondary educational institutions with an open-door admissions policy. Its mission is to provide adults in North Carolina with quality and convenient learning opportunities consistent with identified student and community needs. These opportunities are accessible to all adults regardless of age, sex, socio-economic status, ethnic origin, race, religion, or handicap. Educational and training programs are designed to enhance the personal, social, and economic potential of the individual and to produce measurable benefits to the state. The system fulfills this mission by providing: vocational programs and courses for students desiring to prepare for skilled trades or to upgrade their job skills;

technical programs and courses that meet the career needs of individuals;

transferable programs and courses for students desiring to attend a senior college or university;

special occupational training and upgrading programs and services for businesses, industries, and agencies;

programs and courses in adult education, high school completion, and continuing education;

counseling, career guidance, job placement services, and other programs essential to developing the potential of individual students;

programs and services to enrich the quality of community life;

effective and cooperative relationships with the schools, colleges, universities, government agencies, and employers across the state, and

sound management practices and systematic planning to allocate the resources required to achieve the stated objectives of the North Carolina Community College System.

Adopted by the State Board of Community Colleges, September 1987

Source: North Carolina Community College System Fact Book, 1992, Section I - Pages 1 and 2.

## APPENDIX B

Letter to Contact Person

[DATE]

[NAME]  
[ADDRESS]

[SALUTATION]

Thank you for agreeing to serve as contact person for my research data collection at Wilkes Community College.

As we discussed on Monday, Dale O'Bryant, Davidson County Community College's PRIME system's administrator e-mailed a copy of a program to the system's administrator at your community college. This program should expedite the necessary data collection process for my research.

I need for you to:

- authorize Wilkes Community College's PRIME system's administrator to execute the data collection program.
- send me a copy of the data print-out generated from the aforementioned program.
- send me a copy of your policy, selection criteria, and/or other materials used for T-059 student admissions.

For your convenience, I am enclosing an addressed envelop for the previously requested information and will be happy to reimburse your school for postage.

Thank you in advance for mailing the data to me within the next two weeks. I may be reached at (704) 249-8186 (Ext. 316).

Sincerely,

Teressa W. Banks, RN MSN

Enclosure