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A Study of the Ability, Achievement, Demographic, and Social Interaction Characteristics of Three Groups of Students: Dropouts, Marginals, and High Achievers

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A STUDY OF THE ABILITY, ACHIEVEMENT, DEMOGRAPHIC, AND SOCIAL INTERACTION CHARACTERISTICS OF THREE GROUPS OF STUDENTS: DROPOUTS, MARGINALS, AND HIGH ACHIEVERS

by

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A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Education
Department of Educational Leadership

Western Michigan University
Kalamazoo, Michigan
April 1983

A STUDY OF THE ABILITY, ACHIEVEMENT, DEMOGRAPHIC, AND SOCIAL INTERACTION CHARACTERISTICS OF THREE GROUPS OF STUDENTS: DROPOUTS, MARGINALS, AND HIGH ACHIEVERS

Judy Stewart, Ed.D.

Western Michigan University, 1983

In this study the ability, achievement, demographic, and social interaction characteristics of three groups of baccalaureate nursing students were investigated. The three groups of students studied were dropouts, marginals, and high achievers. The purpose of the study was to identify predominant characteristics of dropout and marginal students that would act to direct the development of programs in nursing education.

The population studied consisted of the Nazareth College 1981-1982 freshman, sophomore, junior, and senior nursing students. In addition, the 1976-1980 graduating nursing classes were studied, including the freshman through senior year data for these classes.

The results of the data analysis offered mixed support for the hypotheses proposed. The ability scores of marginal students were lower than high achievers. This was also true of dropouts and non-dropouts, but those differences were not consistently significant at the .05 alpha level. Marginal groups were found to perform lower than high achievers on achievement tests, and a direct relationship was found to exist between achievement test scores and State Board Exam performance. In addition, marginal students scored lower than

high achievers on State Board Exams.

The demographic variables measured in this study did not help define dropout, marginal, or high achieving student characteristics, as the student group was found to be a homogenous one. The hypotheses predicting that marginal students would more likely be involved than high achieving students in social interactions which detract from concentrating on studies (i.e., employment, time spent in travel) were not supported by the data. In addition, social interaction that might act to give support to students (i.e., support services, community activities) was not found to be different from the high achieving group than for the marginal group.

Possible explanations for the findings were discussed, implications for nursing education proposed, and suggestions for further research developed.

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Western Michigan University ED.D. 1983

ACKNOWLEDGMENTS

I would like to thank my committee, Dr. U. Smidchens, Dr. C. Sheffer, Dr. L. Schlack, and Dr. B. Burian, for their assistance to me during my dissertation work. Their contribution to my learning was very important to me, and to the quality of the final product!

I would like to say a very special thank you to Dr. Bob Brashear, who was always ready to answer questions and who helped me untangle all computer problems, no matter how complex.

Lastly, I say thank you to my husband, Gary, who has always said, "You can become anything that you choose to become"; and has been there when needed to reinforce my belief in myself, and to take more than his share of the load.

Judy Stewart

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CHAPTER I

PURPOSE OF THE STUDY

Introduction

This study subjected to exploratory investigation the ability, achievement, demographic, and social interaction characteristics of three groups of nursing students: dropouts, marginals, and high achievers. The differences between these groups were investigated with the purpose of identifying predominant characteristics of dropout and marginal students that could guide decisions about nursing program change.

The underlying assumption of this study is that mental functioning is not a fixed and predetermined human characteristic. While the genes may establish limits for an individual's potential for mental development, individuals rarely reach their potential within the range available for growth (Hunt, 1961). Nationally, freshman college students have shown a decline in academic and achievement ability scores and have shown evidence of poor and incomplete cognitive development through the formal operational stages (Killian, 1979). It is in this stage that a person develops problem-solving skills (Piaget, 1973). Incomplete cognitive development does not reflect potential for development but will, combined with other demographic and social interaction characteristics (Elton & Rose, 1970; Munro, 1980), interrupt academic success.

Colleges and universities have placed great importance on the matter of academic performance. In the last quarter century, studies have shown little or no relationship between academic success and job performance (Cox, 1971). Consequently, it is reasonable to pursue alternative learning programs for those dropout and marginal students who choose nursing as a career, since the literature does not show that these marginal and dropout students are doomed to poor job performance.

It should be assumed that learning objectives for baccalaureate nursing education will not change as there are critical terminal behaviors which are essential to the practice of professional nursing (Schwirian, 1977). However, alternative nursing education programs can be developed which take into consideration student characteristics that interfere with progression of students through the program and which have high academic standards for graduates (Stevens, 1971).

Rationale for Study Focus

The study of ability, achievement, demographic, and social interaction characteristics has received considerable attention in education and nursing literature (Schwirian, 1977). Three factors indicate that additional study of student characteristics is appropriate. First, student characteristics continue to be an important focus of study because of the complexity of human development and its interaction with current nursing and education issues. Secondly, student characteristics are changing and the number of marginal students is growing (Carnegie Commission, 1980; Wilson & Levy, 1978).

Thirdly, student enrollments are dropping. These three factors are important because:

1. There is a practical need to maintain enrollments so that graduates are available to reverse the current acute nursing shortage.

2. There is an obligation for this nation to identify the best means for accomplishing the optimal human development of every American (Bonham, 1980).

3. Failure or fear of failure consumes large amounts of a student's energy and detracts from the quality of life experienced. The basic human need to achieve self-actualization and/or accomplish goals often is not met (Maslow, 1954).

4. A large amount of faculty time and energy is consumed with the marginal student who requires a great deal of remediation to succeed.

5. The student's economic resources are wasted.

6. Marginal achievement as an undergraduate does not mean that job performance will be borderline. The student who achieves in a marginal way can contribute significantly to the nursing profession (Gilmour, Perry, & Hagerty, 1974).

Ability and achievement studies show that high achieving high school students do meet with success in college (Backman & Steindler, 1971), and that there is a direct relationship between achievement in the program and success on State Board Exams (Deardorff, Denney, & Miller, 1976; Wolfe & Bryant, 1978). Changes have occurred in higher education and nursing, however, that prevent using the

approach of raising admission and progression standards in order to deal with dropout and marginal behavior.

The following are some of the changes that are significant:

1. The pragmatic move in small private colleges to maintain enrollments by establishing open admission standards has served its purpose and continues to be important in order to provide adequate financial support for institutions.

2. National enrollments, in some academic fields, are dropping as fewer women are choosing traditionally female professions. Many women are, instead, entering those professions that can provide greater economic reward, along with professional goal accomplishment (Aiken, 1982).

3. There are fewer college age students available to enroll due to population changes (Rouche, 1977).

4. Increasing numbers of adult learners are attending college while continuing to work full or part time. These persons are often responsible for the economic support of families and for child rearing while they pursue a higher education. Raising achievement standards without altering program sequence would only make it difficult or impossible for potentially capable adult students to succeed. Further understanding of human development and its relationship to student characteristics becomes essential.

Early in the history of the study of learning, theorists described mental ability as a fixed and predetermined human characteristic (Jensen, 1973). Further study has shown that although the genes set limits on an individual's potential for mental development,

individuals rarely reach their potential within the range available for growth (Hunt, 1961). Nursing educators have operated on the belief that mental ability is fixed and predetermined. They have established (nationally) admission and progression standards that favor those students who can demonstrate significant academic ability at the time of admission. Few nursing programs assume special responsibility for any development of mental ability outside of that development that occurs with maturation and exposure to additional learning. Research has shown that a significant percentage of college freshmen have not completed their cognitive development through the formal operational stage (Killian, 1979). Many nursing programs operate on the assumption that mental ability must be developed prior to entry into the program; however, it is clear that the validity of this assumption should be questioned (Gilmour et al., 1974).

Demographic and social interaction characteristics of students act to further complicate the understanding of dropout and marginal behavior in higher education. The Carnegie Commission (1980) reported that while the number of college age students (18-22 years) is dropping, the number of older persons who are married, who have children, and who work while studying, is increasing. Demographic characteristics have been the subject of research studies that suggest that characteristics such as age, marital status, children, and employment do affect the success of students in college (Li-Chen & Wooster, 1979; Schwirian, 1977). Since older students are likely to enroll in greater numbers in the coming years, it is

important to identify demographic and social interaction characteristics as they occur in the target groups of concern in this study.

It is clear that the educational approaches to dropout and marginal behavior of the 70's, by some higher education institutions, are not appropriate for the decade of the 80's. Changes in student characteristics have occurred within the nursing profession and in education, both nationally and locally, that point to the need for additional study of student characteristics. Educators should be able to understand the distinction between those who fail and those who succeed. This understanding can, in turn, help to guide decisions about program change which can assist individuals to perform at or close to their potential.

Problem Statement

This study investigated the ability, achievement, demographic, and social interaction characteristics of three groups of students: dropouts, marginals, and high achievers. The purpose of the study was to identify characteristics of dropout and marginal students that could guide decisions about nursing education change.

Outline of the Study

Chapter II is a review of pertinent theoretical literature and research findings related to each of the variables involved in the study. Chapter III outlines the methodology used to carry out the study. Chapter IV includes a presentation of the data and the data analysis narrative. Chapter V includes a discussion of the

limitations of the study, interpretations of the data analysis, and the recommendations for nursing education.

CHAPTER II

CONTEXT OF THE PROBLEM

Introduction

The nursing profession is concerned with successful nursing performance. Practicing nurses must be able to deliver quality care and to contribute to a developing profession. Thus, the admission and progression of students in nursing education is of vital concern so that the preparation of competent nurses for the practice of nursing is ensured. This very important concern has generated many studies of the characteristics of students that predict success in academia and in job performance.

In 1975 the U.S. Department of Health, Education and Welfare, Public Health Service, Division of Nursing, undertook an expansive study designed to meet three needs:

> 1. to reasses the state of the art on the prediction of nursing clinical performance
>
> 2. to obtain current information from [nursing] educational programs about prediction criteria
>
> 3. to evaluate the relative merits of the school's predictive criteria through review of actual performance in the first job after graduation. (Schwirian, 1977, p. 1)

The results of this extensive study, very briefly summarized, show that nursing educators nationally continue to use measures of cognitive attributes and achievement to admit students into nursing programs. Eighty percent of the respondents listed academic

achievement as the criteria for identifying the most promising individuals in their graduating classes (Schwirian, 1977).

The emphasis on finding the person who has well developed academic skill prior to admission into the nursing program is clearly evident in the literature. This emphasis has led to efforts to focus on those characteristics which, when used as admission criteria, exclude a potentially capable group of students. Stevens (1971) discussed this phenomena by stating that persons who have an inferior educational background may have much to offer nursing and they also may need career opportunities. The nursing profession must accept its social obligation to provide access to the field of nursing for groups who have previously been excluded, and at the same time deal with shortage of nurses. DeTornyay and Russell (1978) discussed the historical fact that nursing schools attempt to select those students who present the least possible risk, and they suggest that nursing should look for a more heterogeneous student group to enrich nursing and make it more reflective of the diversity of American life. The bulk of the literature, however, reinforces the focus on student cognitive attributes and achievements and does not speak to programs that enhance the use of human potential, nor does it speak to the questionable relationships between academic achievement and job performance (Brandt & Methany, 1968; Cox, 1971; Hoyt, 1966; Thorndike, 1963).

Economic and social conditions have developed in the 1980's which have affected higher education and the characteristics of students in higher education. The national rate of inflation and the

movement toward tax limitation has led to drastic budget cuts for state and federal support of higher education. There is less money available for student financial aid and persons are seeking a less expensive education.

Another factor affecting enrollment in small private colleges is the current tendency of students who do enroll to choose admission into large universities because of the belief that a university setting will bestow prestige, and that "bigger is better." Such beliefs are seldom based on valid criteria which indicate the quality of an educational program.

The women's equal right's movement has resulted in a focus on equal educational and employment opportunities, and this has affected enrollment on a national basis. Women are now entering those educational programs that were previously male dominated and that provide substantial financial reward. Women must pursue careers that provide for economic security as a larger number of families in the United States are headed by women (Lysaught, 1981).

In order to counteract the above described affect on enrollments, small private colleges have lowered their admission standards (Carnegie Commission, 1980). This lowering of admission standards along with a well documented change in student characteristics, that includes an increased number of marginal students, has caused nursing educators much concern. Nursing educators have begun to use ability and achievement scores as predictors of success in nursing education. To counteract the negative trend of lowering academic requirements for admission into nursing, nursing educators have

raised admission requirements. This approach to dealing with ability and achievement problems, by raising admission requirements, has resulted in fewer students enrolling so that fewer graduates are now available to meet the need for nurses in the health care system. In addition, the raising of admission requirements has not met the need for utilizing the human potential of many who desire a nursing education. It ignores research which shows that ability and achievement tests do not predict job performance.

Literature related to ability, achievement, demographic, and social interaction characteristics are presented in the following section in order to build on the rationale introduced in Chapter I which establishes the need for a study of current characteristics of nursing students.

Ability

Ability is defined, for the purposes of this study, as skill that is necessary for success in academia and is commonly measured by the American College Testing Program, or ACT. A number of studies show that the ACT scores can be used as predictors of nursing student academic success (Elton & Rose, 1970; Kovac, 1970; Munday & Hoyt, 1965; Wittmeyer, 1971). In addition it has been found that the ACT score is a predictor of success on State Board License Exams (Miller, 1968).

It is important to recognize that the academic abilities measured by the ACT are basic to academic achievement of students in nursing education, and students with low scores will predictably

struggle with academic course work. At the same time, it must be stressed that the ACT scores do not define all dimensions of inherent, or innate, ability. Nor do such scores define the potential to develop ability within the confines of biological inherited limits.

The definition and measurement of innate mental ability or intelligence has received a great deal of attention since the early 1900's. Hunt (1961) provided an overview of theories which, prior to World War II, examined mental ability as a unidimensional capacity which increased at a fixed rate to a predetermined level. However, Hunt maintained that regardless of the limits that genes may set on an individual's potential for intellectual development, the potential within that limitation is rarely reached, nor is it fixed at the level commonly measured by current testing modes. The significance of Hunt's position must be underscored as it provides important foundation information for decision making in the use of ACT scores in nursing education.

Wechsler (1958) elaborated on the definition of innate mental ability or intelligence and discussed the limitations of measuring intelligence.

> Intelligence operationally defined is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment. It is aggregate or global because it is composed of elements or abilities, which, though not entirely independent, are qualitatively different. By measurement of those abilities, we evaluate intelligence. But intelligence is not identical with the mere sum of these abilities, however, conclusive. There are three important reasons for this:

> 1. The ultimate products of intelligent behavior are a function not only of the number of abilities or their quality but also of the way in which they are combined, that is their configuration.
>
> 2. Factors other than intellectual ability, for example, those of drive and incentive are involved in intelligent behavior.
>
> 3. Finally, while different orders of intelligent behavior may require varying degrees of intellectual ability, an excess of any given ability may add relatively little to the effectiveness of the behavior as a whole. (p. 7)

The tests given by American College Testing Service are not interchangeable with the IQ testing devised by Binet and Wechsler; however, the format and abilities measured do overlap. Nursing educators have relied on ACT test results as reliable indicators of academic ability by using them to select able students for entry into nursing without considering the limitations of the measurements of ability (Schwirian, 1977).

The limitations of ability measures are clear.

1. They measure only one kind of talent--intellectual (particularly verbal and math) achievement.

2. They minimize the importance of nonintellectual, including motivational, factors.

3. They define talent out of context without reference to actual situations in which talented performance takes place (Holland & Aston, 1979).

While the definition of intelligence remains controversial, ample evidence is available to support the idea that measurement of ability should not be used to define innate intelligence nor should

they be used as sole criteria for limiting a person's academic program choices.

Given the complex nature of mental ability and the limitations of ability measurement, there is support for examining the ability of students as a developmental process. Fine (1975) urged educators to look at the human mind as something that never stops growing. Special abilities continue to accumulate throughout a lifetime. One's intelligence continues to grow, change, develop, and redevelop as long as one lives.

A number of key theorists, who have studied human behavior and motivation, give support to the statement that student ability is a developmental process (Allport, 1961; Maslow, 1954; Rogers, 1961). A common and widely accepted theme that can be drawn from theories presented by Allport (1961), Maslow (1954), and Rogers (1961) is that the human being has great potential to become self-actualized or a fully functioning person. The self is described as being constantly engaged in a quest for new growth, new development, and new challenges. People move in different directions of achieving and reaching their highest potential. It is upon the process of "moving to develop" that educators must focus.

Research done by Killian (1979) identified a lack of cognitive development of freshman college students that leads to poor academic performance. Programs that have successfully facilitated students' cognitive development have been identified (Killian, 1979; Lincoln, 1978; Whimbey, 1980). These programs give support to educators for providing programs that use ability scores as a means of channeling

students into enrichment programs rather than using ability scores as evidence that students cannot develop and succeed in academia.

Nationally, the majority of freshman college students are required to take the ACT or a similar academic ability test. The ACT English usage test measures the student's understanding of the conventions of standard written English and use of basic elements of expository writing including punctuation, grammar, sentence structure, diction, style, logic, and organization (ACT, 1977). The mathematics usage test measures the student's mathematical reasoning ability and emphasizes the solution of practical quantitative problems rather than memorization of formulas, knowledge of techniques, or computational skill (ACT, 1977). The scores from these tests are often used to advise students regarding remediation needed.

Nationally, there is a well documented decline in ACT scores (Copperman, 1978; Eurich, 1980; Lipsitz, 1977). Over the last 11 years there has been an average of 3% per year national decline in ACT test scores. However, the percentage of students who score in the high range of 26-36 has remained at 14% during the 11-year period. The percentage of students scoring in the low range of 1-15 has increased from 27% to 33% during the same 11-year period (Fergusen, 1977). It has been established that the test score decline cannot be attributed to changes in test construction or to changes in students' innate ability or aptitude, (i.e., capability to develop the ability). The decline is, instead, thought to be effected by school, family, and societal change (Harnischfeger & Wiley, 1978).

In summary, the following are inadequacies identified in nursing research in the area of ability scores and the prediction of success in nursing education and nursing practice:

1. The studies done suggest that the ACT's do predict success on State Board Exams and achievement tests; however, little discussion is included in the theoretical framework used to emphasize practical interpretations that can be made of ability scores. The limitation of such testing tools are inadequately discussed.

2. The authors of some studies suggest that students use the ACT scores to prepare or remediate; however, little attention is given to approaches for remediation. The authors make the assumption that increasing student awareness will result in successful achievement.

3. Little emphasis in the studies is given to the possibility that students have great potential for personal development. Greater emphasis is given to using predictors (ACT scores) to identify "able" applicants.

Ability characteristics of nursing students clearly merit further study so that a data base will be available for future research which will address these inadequacies.

Achievement

Ability scores are related to achievement scores in that, whenever one measures what a person can do, samples of present behavior are obtained (Hilgard, 1962). An awareness of this outcome is important to educators in utilizing ability and achievement scores;

however, the overlap is not so significant as to rule out the use of the individual scores in defining a given student's characteristics and determining appropriate admission and progression activities.

Achievement will be defined for the purpose of this study as a demonstration of learning in a specialized area of study. It is commonly measured in nursing education by the achievement test prepared by the National League for Nursing (NLN). As with ability, concern for the achievement of nursing students has generated a number of studies to identify the significance of the NLN test scores.

Research has shown that the NLN scores can be used to predict success on State Board Exams (Baldwin, Mowbry, & Taylor, 1968; Bell & Martindill, 1976; Muhlenkamp, 1971; Shelley, Kennamer, & Raile, 1976). The significance of the studies did not lead to changes in nursing education that would assist the student who has lower scores. The inadequacies listed under the ability section of this chapter are seen also in the nursing education literature related to achievement.

Pottinger (1979) stated that it is difficult to refute the commonly held notion that an academic credential represents at least minimal level of job competence, in spite of the fact that there is significant empirical evidence to show that credentials are not causally linked and often not correlated with actual performance in the world of work (Brandt & Methany, 1968; Cox 1971; Hoyt, 1966; Thorndike, 1963).

Throughout any nursing program nursing students take achievement tests prepared by the National League for Nursing. The basic

science NLN achievement tests measure a student's knowledge of facts and principles that are relevant to patient care (NLN, 1979). The nursing NLN achievement tests also measure a student's learning in specialized areas of content. These tests include items that measure facts and principles and their application in the care of patients experiencing health care needs (NLN, 1979).

All nursing graduates of baccalaureate programs in the United States must take a licensing exam for registration. This requirement exists to protect the general public and confirm for registered nurses that they can embark on a career with professional confidence (Smith, 1976). In effect the test is an achievement test to establish minimum level competency for nurses. It measures five areas of content: medical-surgical, pediatrics, obstetrics, community health, and psychiatric-mental health.

In summary, the use of both ability and achievement scores must be carefully studied so that all students, both successful and unsuccessful test takers, benefit from the information gained from such testing. Consideration must be given to theories of human development which suggest need for students to develop problem solving skill before they can accomplish learning which demands behavior beyond that stage (Klausmeier & Goodwin, 1971). Evidence of the human biological drive toward mastery should be considered (Diggory, 1972). The assumption that use of achievement test scores to "weed out" students leads to a satisfactory method for producing clinicians who can perform on the job must be examined (Rogers, 1961).

Demographic and Social Interaction Characteristics

The demographic and social interaction characteristics of concern in this study are: age, marital status, children, employment, time involved and frequency of weekends away, time involvement in use of support services, student life activities, and community activities. These characteristics were chosen for study because of their significance to understanding the distinction between those who fail and those who succeed in academia.

The Carnegie Commission (1980) has prepared an extensive study of enrollments in higher education that discusses the demographic changes predicted to occur in the coming decade. The changes predicted to occur include:

1. The number of students who "stop in" and then "stop out" will increase.
2. The number of adults will increase.
3. The number of part-time students will increase.
4. The military and job market inducements will change.

A study done by Zorn (1980) gives support to the Carnegie Commission findings. Zorn examined the demographic characteristics of 210 nursing students at Youngstown University in 1978. It was found that there was an increase in the percentage of enrolled adults who were registered and who had returned to complete their baccalaureate degree. The largest percentage were married and working. The average age of the returning students was 32.7.

Demographic characteristics do interact to affect the ability and achievement scores of students. Li-Chen and Wooster (1979) found that married students without children have higher achievement scores than married students with children. This suggests that it is not the state of marriage which interferes with achievement, but that the extra time-consuming responsibilities of children and/or employment may interfere in a measurable way. Moore and Pentecost (1979) listed financial needs and employment as one of four major problems that interfere with the student's ability to succeed.

Bisconti (1978), in a study of marriage, career, and job satisfaction, found that married women had a higher level of job satisfaction than nonmarried respondents; and that this relationship was strongest (i.e., job satisfaction and marriage) among persons who had relatively low salaries and were not highly achievement oriented. One explanation for this finding is that marriage and family provide additional interests and sources of satisfaction. The more interests one has external to the employment, the less importance one attributes to negative features of the job. While job performance and job satisfaction have both been shown to have little relationship to ability and achievement scores, there is some support for the significance of demographic and social interaction characteristics affecting nursing practice. Academic programs (courses and experiences) that take into account the concerns of student demographic and social interaction characteristics are desirable so that the ability and achievement characteristics of students, particularly those with low ACT scores, can be developed.

Dropouts

The fact that the number of students seeking admission to college is declining was addressed in the introduction of this chapter as a problem of national concern in higher education. The student who drops out of college is of particular concern to the nursing profession. The nursing profession cannot afford to lose the talent of students whose academic and demographic backgrounds may not provide opportunity for them to achieve in the traditional college environment.

Munro (1980) has provided a comprehensive review of the literature that identifies variables of significance regarding dropouts from nursing education. The Munro model for predicting which nursing students will persist and which will drop out included variables studied earlier by Spady (1970), Terenzini and Pascarella (1978), and Tinto (1975). Spady (1970), Terenzini and Pascarella (1978), and Tinto (1975) examined the significance of social and academic integration in student attrition decisions. Academic integration was defined by these researchers as experiences relating directly to intellectual development. Social integration was defined as experiences relating to social life on campus. Spady (1970) and Tinto (1975) viewed the social and academic integration of an individual and a student's interaction with these systems as the primary determinants of persistence. Terenzini and Pascarella (1978) used these two variables and found that academic integration may be more important than social integration for

students who make dropout decisions. Munro (1980), whose model was built from this earlier research, found that for baccalaureate nursing students academic integration had the strongest direct effects on persistence in nursing.

Aitken (1982) attempted to add to the empirical evidence regarding dropouts by testing a complex model based on the premise that a student's decision to remain in higher education is directly determined by aspects of the student's academic experience. The variables measured to calculate Aitken's retention formula include academic satisfaction, living satisfaction, and academic performance. While it was found that the formula did predict retention, it is debatable whether the author's goal to provide a workable model for routine use by institutions was accomplished. The formula is highly complex and requires the measurement of multiple satisfaction variables. The measurement tools used by Aitken are costly and time consuming. Additionally, the validity of the measurement tools is questionable as it can be shown that the measurement of "satisfaction" is a difficult task.

In a study completed by Ramist (1981) students listed the following reasons for dropping out of college: (a) academic matters; (b) financial difficulties; (c) motivational problems; (d) personal considerations; (e) full-time jobs; (f) need for new, practical non-academic experiences; and (g) lack of initial degree obtainment goals. These very practical reasons are consistent with the broad variables studied by the previously quoted researchers. The items in the list suggest factors that interfere with academic progression.

Further, the items suggest some valid reasons for dropping out of college that are not within the capacity of the educational institution to alter.

It is clear that it is not within the power of a college to retain every student who may choose to drop out. However, enrollment declines suggest the pragmatic need to study the reasons that students drop out in order to determine whether changes in academic programming would result in the retention of some dropouts. Research to determine significant variables affecting the attrition of students is inconclusive. Dropout behavior has been linked with a student's academic integration or academic experiences both before entering college and with social integration or social experiences after entering college. The goal of this study was to identify those characteristics of dropouts that can be related to components of the nursing program which, if altered, would result in fewer dropouts. It is the position of this researcher that the time has come to invest energy in research that can be used to make college academic program change, rather than to develop complex models which will not submit to valid measurement. A model to predict who and how many students will drop out of college is not, in the view of this researcher, the most productive goal. Rather, a productive approach is suggested in this study for identifying student characteristics which are likely to provide information which results in improved and relevant academic program development decisions.

Significance of Findings

The study of ability, achievement, demographic, and social interaction characteristics in three groups of nursing students, dropouts, marginal, and high achieving, has special significance to the Nazareth College Baccalaureate Nursing program. The average ability score of the Nazareth College nursing student has declined over the 12-year period of the program's existence. For example, the mean ACT math score of the 1970 graduating class was 24. This number has gradually decreased over the years so that the mean ACT math score for the 1981 graduation class was 17.98 (Stewart, 1982).

A review of the Nazareth College nursing students' NLN Achievement scores reveals that mean scores remain below the 50th percentile each year and in each content area. The State Board Examination scores of the Nazareth College graduates have been declining. During the 1970-75 time period, the mean percentage of failure for Nazareth graduates was 6.9%; and during the 1976-78 time period, the mean percentage of failure was 18.4%. No study of demographic or social interaction characteristics has been done at Nazareth College.

The results of this study provide data upon which changes in the Nazareth College Nursing Program can be based. There is some evidence to indicate that there may be need for alternative programs for students with special needs. Program development efforts must be prioritized because of the restraints caused by the economic conditions in higher education institutions and because of lack of qualified professors in nursing education.

Student characteristics as identified in this study can provide direction for the development of program alternatives. The programs chosen to reduce dropout and marginal behavior should depend on the specific student characteristics identified and should differ depending on the characteristics for the dropout and marginal groups. A predominance of low ability in dropouts, for example, might lead to the development of remediation in the academic skills area. A high number of travel and work hours might lead to changes such as reducing course loads and spreading the academic program over 5 years instead of 4 to allow for work and travel time.

Table 1 lists the student characteristics and suggested directions for academic program development that each characteristic may indicate.

Table 1

Student Characteristics and Suggested Directions for Academic Program Development

Characteristic	Direction for program development
I. Ability scores low	I. Summer remediation programs geared toward increasing skills, and formal operational development must be pursued. Programs such as Stress on Analytical Reasoning (SOAR) should be studied for prenursing students' participation. Fund raising to make this option a reasonable one for students should be considered.
II. Achievement scores low	II. This characteristic should be studied as it occurs with the ability characteristic which contributes to low achievement. Approaches such as the following could be pursued:

Table 1--Continued

Characteristic	Direction for program development
	A. Test taking skills B. Study skills. C. Independent learning modules that provide the learning of major concepts and subconcepts in the nursing curriculum. D. A self-evaluation process that allows students to independently evaluate achievement to determine success of remediation.
III. A percentage of students who are older, have children, and are married	III. A profile study should be undertaken for this group to clearly identify aspects of the academic program which contribute to success and aspects which cause problems.
IV. Large amounts of time spent in travel away from campus or employment	IV. The following approaches might be considered: A. Alternative scheduling that avoids using Monday 7:00 a.m. to 3:00 p.m. as clinical practice learning hours (use a latter part of the week or weekend and evening hours also) B. Development of independent learning modules that allow students to proceed at an independent pace C. Preplan for a 5-year program
V. Lack of social interaction	V. A. Additional profile data should be gathered to define the weaknesses B. Data gathered should be communicated to administrators responsible for the student life activity so that activities can be offered which are likely to broaden social interaction experiences

Table 1--Continued

Characteristic	Direction for program development
	Concern for retention of students should facilitate the revision of approaches to insuring social interaction.
	C. Faculty development could be undertaken to promote understanding of how to help students help themselves (Davidhizar, 1982)
VI. Lack of change in marginal status from freshman year to senior year	VI. A. Tutorial program for students in the nursing program should be developed
	B. Application of the concept of mastery learning with alternative learning activities that fit individual learning modes or styles should be explored

Summary

The dependent variables of ability, achievement, demographic, and social interaction characteristics were discussed in detail including:

1. A definition of variable terms.

2. Research related to the variables that provides insight into program planning.

3. Identification of subjects not addressed in the literature which are important to the appropriate development of effective, relevant academic programs.

4. Significance of the findings.

The nursing profession has studied the variables affecting successful performance in nursing education programs. The research shows that ability and achievement scores do predict success in academia and on State Board Exams. The prediction of successful job performance has been a more difficult task, and ability and achievement scores are not useful in determining which graduates will be successful in the practice of nursing. Demographic and social interaction variables have been studied, and although the conclusions are not concise, it is clear that demographic and social interaction characteristics do affect the academic performance of students. The focus of research related to ability, achievement, and demographic-social interaction characteristics has been, overwhelmingly, to identify the able student who can succeed. While nurses give credence to the client in the health care setting as being a "developing" person, little of this philosophy has been transferred to the education setting in the consideration of the admission criteria for students.

Nurse educators have responded to the research related to ability and achievement scores by raising admission standards so that those who enter nursing education programs must have previously well developed academic skills. Very little attention has been given the need to open the profession to a wider variety of persons by providing experiences within the education program that would promote development of academic skills. Support for this focus can be found in literature which provides evidence that the human person is capable of developing far beyond the self-established limitation

or the limitations established as a result of attitudes within society. This study examined the ability, achievement, demographic, and social interaction characteristics of three groups of students: dropouts, marginal, and high achievers. The study results provide data upon which program change decisions can be based. In addition, ability and achievement characteristics are examined from the perspective of using ACT scores as indications of needed development rather than to eliminate undesirable applicants. This focus can result in benefits to the profession as a wider variety of persons should be able to contribute to the accomplishment of goals within the health care system.

From this discussion the following hypotheses are stated.

Hypotheses

Ability

1. The means of the ability scores of marginal students are lower than the means of the ability scores of high achievers.

2. The means of the ability scores of dropouts are lower than the means of the ability scores of nondropouts.

Achievement

3. The means of the achievement scores of marginal students are lower than the means of the achievement scores of high achievers.

4. There is a direct relationship between junior level achievement scores, senior level achievement scores, and graduate level

State Board Exam scores.

5. The means of the State Board Exam scores of marginal students are lower than the means of the State Board Exam scores of high achievers.

Demographic

6. The mean age of marginal students is lower than the mean age of high achievers.

7. The percentage of married marginal students is lower than the percentage of married high achievers.

8. Marginal students have a larger number of children than high achieving students.

Social Interaction

9. The mean number of hours of employment is higher for marginal students than for high achievers.

10. The number of hours spent in travel to work and school is higher for marginal students than for high achievers.

11. The number of weekends spent away from campus is higher for marginal students than for high achievers.

12. The involvement in support services is less for marginal students than for high achievers.

13. The involvement in student life activities is lower for marginal students than for high achievers.

14. The involvement in community activities is less for marginal students than for high achievers.

CHAPTER III

METHODOLOGY

This study used an exploratory design to investigate the ability, achievement, demographic, and social interaction characteristics of three groups of baccalaureate nursing students: dropouts, marginals, and high achievers. The purpose of the study was to identify predominant characteristics of dropout and marginal students which could guide the development of academic programs in nursing education.

Subjects Studied

The currently enrolled Nazareth College nursing students and the Nazareth College nursing graduating classes of 1976-1980 were the subjects utilized in this study. Data pertinent to this study were taken from the student's academic record for each year that the student was enrolled in the nursing program. Freshman level GPA, ability scores, and achievement scores and sophomore, junior, and senior level GPA's and achievement scores were used to test the hypotheses of concern in this study. Data were collected on the following groups:

Academic year	Number
1981-82 Freshmen	65
Sophomores (freshman-sophomore data)	72
Juniors (freshman to junior data)	74

Academic year	Number
1981-82 Seniors (freshman to senior data)	49
1979-80 Seniors (freshman-senior year data)	59
1978-79 Seniors (freshman-senior year data)	50
1977-78 Seniors (freshman-senior year data)	39
1976-77 Seniors (freshman-senior year data)	36
1975=76 Seniors (freshman-senior year data)	30

Because of the recent national changes in student characteristics, it was important to examine the currently enrolled student population. There has been no attempt made at Nazareth College to preserve student demographic and social interaction information. The address list for graduating seniors was found to be incomplete making it impossible to survey entirely by mail. Hence, the survey of current students was mandated. The graduating classes of 1976-80 also were studied. This was necessary because of the State Board policy revision that currently returns State Board Exam results to the educational institution without names. The seniors currently enrolled at Nazareth were approached with the request to give permission to release State Board Exam results. Only 16 seniors were willing to sign the release form. Thus, it was necessary to examine the 1976-80 graduating classes whose names were released with test results prior to State Board policy change. In addition, it was necessary to examine the 1976-80 group of students from the freshman year to the senior year to determine if the marginal student group in the freshman year was comprised of the same students on each level throughout the program.

Data Collection Procedures

Ability and achievement data were found to be available in the Nazareth College records in April 1982. The dropout group was identified in September 1982 when final enrollments were determined. The demographic data was obtained in April 1982 from a survey which was done with current students. All students were congregated in one setting for the purpose of obtaining data. A survey was put in the mailbox of those students who did not attend class, with a request to return the completed survey to the nursing office. The survey was carried out in two separate settings in the freshman class because of the poor attendance in the class chosen to collect data. A total of 174 surveys were completed and returned (see Appendix A).

Independent Variables--Marginals, Dropouts, and High Achievers

Grades for nursing courses were used as the independent variable in this study because unlike many college courses, each nursing course grade represents a measurement of clinical performance. It is this measure of clinical performance that has been shown to be the best predictor of success in practice (Hecht, 1974). Within each nursing course, and on each level (i.e., sophomore, junior, and senior), the student experiences clinical learning during which he/she is responsible for nursing practice. Because it has been shown that performance is the best predictor of success on the job, it can be assumed that high achieving students can act as models for

potential dropout and marginal students.

For purposes of this study, high achievers were defined as those students who had a 3.5-4.0 GPA in nursing courses. Marginal students were those students who had a 2.0-2.5 GPA in nursing courses. Dropouts were those students who terminated in nursing courses at any point in the year.

Dependent Variable--Ability

The ACT mathematics, English, social sciences, natural sciences, and comprehensive test scores were used as a measure of ability. Freshman students at Nazareth take these tests before entering their freshman year. In addition, the National League for Nursing Pre-nursing Guidance Scores were included in the assessment of ability. These tests are taken prior to entry into the freshman year and are designed to measure academic ability. The National League for Nursing (1979) stated that a score in the 50th percentile or below indicates a need for remediation. Since 1979 Nazareth College freshman prenursing students have been asked but not required to take these tests at designated centers throughout the state and nation. Approximately 75% comply with this request and scores are sent to the nursing office and kept on record for use by advisors.

A third set of ability scores were available for the 1979-81 freshmen included in this study. During the freshman orientation week, professor-made mathematics and English tests have been administered by Nazareth faculty. The scores from these tests are utilized by the advising office to identify those students who are

recommended to take courses designed to provide remedial learning in math and English. Students scoring below the 60th percentile in the math test and "below average" on the English-writing test are recommended to remediate.

Dependent Variable--Achievement

The NLN achievement scores were used as a measure of achievement. The chemistry and anatomy tests were taken after the freshman year and the physiology, microbiology, and nutrition tests were taken after the sophomore year. The pediatrics, obstetrics, and medical-surgical tests were taken after the junior year, and community health and psychiatric-mental health tests were taken after the senior year. The purpose of the NLN achievement test is to measure knowledge and limited application of knowledge in special areas of learning. These scores have not been used for progression criteria by Nazareth College nursing faculty. However, students who scored below the 50th percentile have been encouraged to use these scores as one indication of their level of achievement and of test-taking ability. Such encouragement seems appropriate given the research results that show NLN achievement to be a predictor of success on State Board Exams.

The State Board Exam, which is administered by the State Licensing Bureau to graduates of nursing schools, is designed to measure minimal competence and thus to protect the public from unsafe practitioners. State Board Exam scores were used in this study as a measure of achievement. The test has been revised

recently. Consequently, the 1982 graduates took an updated version. (The 1982 scores were not available for this study due to the revised policy prohibiting release of names with scores.) The 1976-1980 scores included in this study are discussed in light of the fact that the tests were in acute need of revision.

Dependent Variable--Demographic and Social Interaction Characteristics

The demographic and social interaction characteristics of age, marital status, hours of employment, number of children, travel time to work and school, frequency of weekends home, involvement in community activities, use of Nazareth support services, and participation in student life activities were measured in this study. These characteristics were chosen for measurement because they are related to facets of the nursing education program that could be altered or alternatives offered if their presence is related to dropout or marginal performance.

It has been proposed that academic persistence may be a result of social interaction experience after entering college rather than academic skill brought to college (Tinto, 1975). The time spent in family activities, job, travel, and social activities provides a sense of the amount of student social interaction. Such information could defend changes in the college sponsored social activities which, as presently sponsored, are difficult for commuting students to experience. An example of an unnecessary burden for commuting students involves the characteristics of distance from hometown and

frequency of weekends home. Nursing students are currently assigned to patient care in a clinical setting on Monday and Tuesday from 7:00 a.m. to 3:00 p.m. Faculty have voiced the belief that many students go home for the weekend and are often unprepared for clinical practice on Monday morning. If a high percentage of marginal students experience long hours of travel and family responsibilities on weekends, it might be possible to change the clinical days, thus promoting a time schedule to allow for preclinical preparation. Another example is the employment characteristic. If employment is related to dropout or marginal performance, alternatives to the current "lock step" course sequencing may be considered so that a student may have the option of taking a lighter academic load while maintaining employment.

Demographic data that might be of interest but that would not lead to program change (i.e., family income or mother's level of education) were not collected.

Data Analysis Plan

The following statistical analyses were completed in testing the hypotheses using a probability level of .05 for committing a Type I error (alpha):

Ability

Hypothesis 1: The means of the ability scores of marginal students are lower than the means of the ability scores of high achievers.

The marginal and high achieving student groups were defined by use of the nursing course GPA. Marginal students were those students who had a GPA of 2.0-2.5, and high achievers those students with a GPA of 3.5-4.0.

The hypotheses which relate to ability scores were tested in the following manner. The means of the ability scores of marginal student groups and high achiever student groups were determined. Three levels of student data were studied: the 1981-82 freshmen, 1981-82 sophomores, and 1981-82 juniors. The marginal and high achiever mean scores of five ACT ability scores, three Nazareth College ability scores, and four National League for Nursing Prenursing guidance ability scores were compared. A *t* test was used to determine significant difference between the mean scores of the marginal student and high achieving student groups.

Hypothesis 2: The means of the ability scores of dropouts are lower than the means of the ability scores of nondropouts.

The means of the ability scores of dropouts and nondropouts were compared in three groups of students: 1981 freshmen, 1980 freshmen (1981 sophomores), and 1979 freshmen (1981 juniors). Because it was determined that the majority of dropout behavior occurs in the freshman year, it was decided to use this level of student to test Hypothesis 2. The majority of students who drop out after the freshman year reenter to repeat the course and proceed through the program. Again, the *t* test was used to analyze the difference between the means of the ability scores of dropout and nondropout groups.

Achievement

Hypothesis 3: The means of the achievement scores of marginal students are lower than the means of the achievement scores of high achievers.

The means of the achievement scores for marginal and high achieving student groups were determined. The 1981 sophomore and 1981 junior data were studied to test this hypothesis. The *t* test was again used to determine significant differences between groups.

Hypothesis 4: There is a direct relationship between junior level achievement scores, senior level achievement scores, and graduate level State Board Exam scores.

The Pearson product-moment correlation coefficient statistical analysis was used to analyze the National League for Nursing Achievement Test scores and the State Board Exam scores for the 1976-1980 graduates in testing Hypothesis 4. This statistical analysis provides an index that describes the extent to which variables are related. The testing of this hypothesis in this manner gave information as to change in level of achievement that occurs as a result of progressing through the program.

Hypothesis 5: The means of the State Board Exam scores of marginal students are lower than the means of the State Board Exam scores of high achievers.

A *t* test was used with Hypothesis 5 to determine the difference between marginal and high achieving student groups on State Board Test Pool Exams. The means of the State Board Test Pool Exams for

the 1976-1980 marginal and high achieving groups were compared.

Demographic

Hypothesis 6: There is a difference between the mean age of marginal students and the mean age of high achievers.

Hypothesis 7: There is a difference between the percentage of married and the percentage of unmarried marginal students and high achievers.

Hypothesis 8: Marginal students have a larger number of children than high achieving students.

The demographic data were analyzed in a discussion of the frequency, percentage, and central tendency data. Because the preliminary data review showed the group to be homogeneous, the differences between the marginal group and high achieving group were not studied. Rather, the data were analyzed by looking for changes from level to level (freshman level to senior level) and by drawing conclusions from the presence of a given characteristic for the majority of students.

Social Interaction

Hypothesis 9: The mean number of hours of employment is higher for marginal students than for high achievers.

Hypothesis 10: The number of hours spent in travel to work and school is higher for marginal students than for high achievers.

Hypothesis 11: The number of weekends spent away from campus is higher for marginal students than for high achievers.

Hypothesis 12: The involvement in support services is less for marginal students than for high achievers.

Hypothesis 13: The involvement in student life activities is lower for marginal students than for high achievers.

Hypothesis 14: The involvement in community activities is less for marginal students than for high achievers.

The social interaction data were analyzed in a discussion of the frequency, percentage, and central tendency data. In addition, the *t* test was used to determine significant differences between marginal and high achieving groups on these social interaction variables.

Summary

The methodology used to investigate the ability, achievement, demographic, and social interaction characteristics of three groups of baccalaureate nursing students, dropout, marginal, and high achievers, was presented in this chapter. The hypotheses of concern in this study were listed, and the data analysis plan outlined.

CHAPTER IV

RESULTS

This data analysis chapter consists of two sections: (1) analysis of the 14 main hypotheses, and (2) summary of data analysis.

Analysis of 14 Main Hypotheses

Ability

Hypothesis 1. The means of the ability scores of marginal students are lower than the means of the ability scores of high achievers.

For the purpose of testing Hypothesis 1 the marginal (2.0-2.5 nursing GPA) and high achieving (3.5-4.0 nursing GPA) students were identified in the following student groups:

	N
1981 Freshmen	65
1981 Sophomores	71
1981 Juniors	71

A preliminary review of the 1981 senior student data showed no marginal group. Consequently, this group of students was not included in the data analysis for this hypothesis. In addition, the National League for Nursing Prenursing Guidance ability scores and the Nazareth College professor-made test ability scores were available only after 1979.

The means of the ability scores (ACT, NLN, and Nazareth tests) for marginal and high achieving groups are presented in Tables 2, 3, and 4. These tables present the number of students in each group, means, standard deviation, t ratio, and probability levels for the differences between the means of the ability scores for the marginal and high achieving groups. Those probability levels marked with an asterisk indicate significant difference between groups at the .05 level.

From Table 2, which presents the means of the American College Testing ability scores for 1981 freshmen, sophomore, and junior marginal and high achieving students, the following conclusions can be drawn:

1. Test scores for 1981 junior and 1981 sophomore students show a significant difference, at the .05 level, between the marginal and high achieving groups on their freshman English ability test, with the high achievers scoring significantly higher than marginal students.

The 1981 freshman student scores, however, did not show a significant difference (at the .05 level) between the means of the marginal and high achieving students on the English ACT ability scores.

2. Test scores for 1981 freshman and 1981 sophomore students show a significant difference (at the .05 level) between the marginal and high achieving groups on the means of the freshmen ACT math ability tests, with the high achievers scoring significantly higher than marginal students. This was not true of the 1981 junior group on the math ability test. The mean score of the high

Table 2

Summary of t Tests for Differences Between Marginal and High Achieving Nursing Students on American College Testing Ability Scores

	N	M	SD	t	p
		English			
1981 Freshmen					
Marginal	9	19.11	4.51	.9773	.17
High achievers	10	20.80	2.93		
df = 17					
1981 Sophomores					
Marginal	4	17.01	2.16	4.317	.004*
High achievers	3	22.67	.57		
df = 5					
1981 Juniors					
Marginal	17	16.88	3.49	2.464	.01*
High achievers	3	22.23	3.21		
df = 18					
		Math			
1981 Freshmen					
Marginal	9	15.11	5.32	2.805	.005*
High achievers	10	21.00	3.77		
df = 17					
1981 Sophomores					
Marginal	4	10.75	6.85	4.05	.005*
High achievers	3	27.33	1.15		
df = 5					
1981 Juniors					
Marginal	17	17.88	5.32	1.392	.09
High achievers	3	22.39	3.69		
df = 18					

Table 2--Continued

	N	M	SD	t	p
Social Sciences					
1981 Freshmen					
Marginal	9	14.89	6.27	1.250	.11
High achievers	10	18.10	4.90		
df = 17					
1981 Sohpomores					
Marginal	4	10.29	4.78	4.783	.003*
High achievers	3	24.67	2.08		
df = 5					
1981 Juniors					
Marginal	17	9.17	9.48	-.76	.23
High achievers	3	4.83	4.07		
df = 18					
Natural Sciences					
1981 Freshmen					
Marginal	9	20.25	4.65	1.950	.03*
High achievers	10	23.90	3.54		
df = 17					
1981 Sophomores					
Marginal	4	18.03	3.59	3.667	.005*
High achievers	3	26.67	2.08		
df = 5					
1981 Juniors					
Marginal	17	20.35	4.45	1.83	.04*
High achievers	3	25.53	4.89		
df = 18					

Table 2--Continued

	N	M	SD	t	p
		Composite			
1981 Freshmen					
Marginal	9	17.56	4.53	2.127	.02*
High achievers	10	20.90	1.96		
df = 17					
1981 Sophomores					
Marginal	4	14.37	3.19	5.74	.001*
High achievers	3	25.33	.57		
df = 5					
1981 Juniors					
Marginal	17	17.82	3.61	2.376	.01*
High achievers	3	23.28	4.12		
df = 18					

*p < .05.

achieving group of the 1981 junior students was higher than the marginal group on the math test. However, the difference between groups was not significant at the .05 level.

3. The means of the social sciences ACT ability scores show a significant difference in the 1981 sophomore group only. The high achievers' mean scores were higher (but not significant at the .05 level) than marginal students, with one exception. On the 1981 junior social sciences test the high achievers scored lower than marginal students. The means of the natural science ACT ability scores for marginal and high achieving groups show significant differences

Table 3

Summary of t Tests for Differences Between Marginal and High Achieving Nursing Students on Nazareth College Test Ability Scores

	N	M	SD	t	p
		English			
1981 Freshmen					
Marginal	9	70.59	12.31	1.652	.06
High achievers	10	77.63	5.28		
df = 17					
1981 Sophomores					
Marginal	4	65.76	14.71	.803	.23
High achievers	3	73.03	5.16		
df = 5					
1981 Juniors					
Marginal	17	70.29	5.65	1.101	.14
High achievers	3	74.05	3.41		
df = 18					
		Math A			
1981 Freshmen					
Marginal	9	66.84	17.69	.566	.29
High achievers	10	70.96	13.93		
df = 17					
1981 Sophomores					
Marginal	4	55.50	7.14	2.28	.04*
High achievers	3	74.68	15.00		
df = 5					
1981 Juniors					
Marginal	17	62.24	16.24	.865	.20
High achievers	3	70.66	8.09		
df = 18					

Table 3--Continued

	N	M	SD	t	p
		Math B[a]			
1981 Freshmen					
Marginal	9	45.86	14.36	.872	.20
High achievers	10	51.47	13.69		
df = 17					
1981 Sophomores					
Marginal	4	46.90	8.60	.845	.22
High achievers	3	51.20	.63		
df = 5					

[a]Data for 1981 juniors are not available.

*p < .05.

for all three classes, 1981 freshmen, sophomores, and juniors.

4. The means of the composite ACT ability scores for high achieving students were significantly higher than the means for the marginal groups in all 3 years: 1981 freshmen, 1981 sophomores, and 1981 juniors.

Table 3 presents the means scores for the Nazareth College professor-made math and English ability tests for marginal and high achieving students in the 1981 freshman, 1981 sophomore, and 1981 junior groups. From Table 3, it can be inferred that there is no significant difference at the .05 level between marginals and high achievers. High achievers scored higher than marginal students in each year, but the difference was not statistically significant at

Table 4

Summary of t Tests for Differences Between Marginal and High Achieving Nursing Students on National League for Nursing Ability Scores

	N	M	SD	t	p
Verbal					
1981 Freshmen					
Marginal	9	45.05	26.88	.2457	.40
High achievers	10	47.31	10.94		
df = 17					
1981 Sophomores					
Marginal	4	36.37	9.38	2.07	.05*
High achievers	3	48.32	3.18		
df = 5					
1981 Juniors					
Marginal	17	42.23	28.00	.42	.34
High achievers	3	49.30	5.80		
df = 18					
Mathematics					
1981 Freshmen					
Marginal	9	49.51	18.40	2.95	.005*
High achievers	10	69.05	9.38		
df = 17					
1981 Sophomores					
Marginal	4	50.88	.75	-.84	.22
High achievers	3	50.50	.00		
df = 5					
1981 Juniors					
Marginal	17	36.90	16.94	.80	.22
High achievers	3	45.11	8.56		
df = 18					

Table 4--Continued

	N	M	SD	t	p
		Science			
1981 Freshmen					
Marginal	9	47.97	21.56	1.58	.07
High achievers	10	61.69	16.17		
df = 17					
1981 Sophomores					
Marginal	4	30.43	16.45	2.35	.03*
High achievers	3	53.49	2.15		
df = 5					
1981 Juniors					
Marginal	17	29.58	18.96	1.31	.10
High achievers	3	45.30	19.66		
df = 18					
		Composite			
1981 Freshmen					
Marginal	9	48.26	24.35	1.84	.04*
High achievers	10	63.44	8.90		
df = 17					
1981 Sophomores					
Marginal	4	28.71	17.28	2.12	.02*
High achievers	3	61.24	12.78		
df = 5					
1981 Juniors					
Marginal	17	37.03	14.03	1.69	.05*
High achievers	3	53.83	26.13		
df = 18					

*$p < .05$.

the .05 level, with the exception of the math A test for 1981 sophomores.

Table 4 presents the means for the National League for Nursing Prenursing Guidance Exam ability scores for marginal and high achieving students in the 1981 freshman, 1981 sophomore, and 1981 junior groups.

From Table 4 it can be inferred that the difference in means of the verbal and science scores between marginal and high achieving students for all three groups analyzed was not significant at the .05 level with only two exceptions, the verbal and science tests for the 1981 sophomore group. While the high achievers scored consistently higher than marginal students, the difference was not significant, for an alpha of .05, for the majority of means studied.

The 1981 freshman high achievers scored significantly higher than marginals on the NLN math ability scores; and the 1981 freshman, sophomore, and junior high achievers scored significantly higher than marginal students on the composite test. The remaining comparisons for the math tests show no significant difference at the .05 level.

In summary, Hypothesis 1 was supported only in part by the data. The marginal students did score significantly lower than high achievers on a larger proportion of the ACT ability tests. The marginal students scored significantly lower than high achieving students on only one of the Nazareth College ability tests. Six of the 12 sets of means of NLN ability test scores showed statistically significant difference.

Hypothesis 2. The means of the ability scores of dropouts are lower than the means of the ability scores of nondropouts.

For the purpose of testing Hypothesis 2 the dropouts and nondropouts in three freshman groups were studied: 1979 freshman, 1980 freshman, and 1981 freshman. This was necessary because dropout groups are small after students enter the nursing major, or after the freshman year. After entering the nursing major, students who drop-out generally reenter to repeat courses and, therefore, cannot be classified as dropouts. The majority of dropout behavior occurs at Nazareth College after the first semester of freshman year. The means of the American College Testing ability scores, Nazareth College professor-made test ability scores, and National League for Nursing Prenursing Guidance Exam ability scores for dropouts and nondropouts are presented in Tables 5, 6, and 7. The tables present the number of students in each group, mean, standard deviation, *t* ratios, and the probability level for the differences between the means of the ability scores for dropout and nondropout groups. Those probability levels marked with an asterisk indicate significant difference between groups at the .05 level.

Presented in Table 5 are the means of the American College test scores for the 1979-1981 freshman dropout and nondropout groups. From Table 5 it can be inferred that the 1981 freshman group showed no significant difference between the means on four of the five ACT scores for dropout and nondropout groups. All of the nondropout means are higher than the corresponding dropout means; however, the difference is not significant at the .05 level. The 1980 freshman

Table 5

Summary of t Tests for Differences Between Dropouts and Nondropouts on American College Test Ability Scores

	N	M	SD	t	p
		English			
1981 Freshmen					
Dropouts	27	17.82	5.04	1.876	.03*
Nondropouts	38	19.92	3.92		
df = 63					
1980 Freshmen					
Dropouts	35	16.54	4.23	3.250	.001*
Nondropouts	36	19.47	3.32		
df = 69					
1979 Freshmen					
Dropouts	26	17.57	3.78	1.896	.03*
Nondropouts	44	19.30	3.64		
df = 68					
		Math			
1981 Freshmen					
Dropouts	27	17.51	4.56	.5874	.28
Nondropouts	38	18.32	6.04		
df = 63					
1980 Freshmen					
Dropouts	35	15.54	5.38	2.07	.02*
Nondropouts	36	18.42	6.26		
df = 69					
1979 Freshmen					
Dropouts	26	17.28	6.05	1.042	.15
Nondropouts	44	18.72	5.29		
df = 68					

Table 5--Continued

	N	M	SD	t	p
Social Sciences					
1981 Freshmen					
Dropouts	27	16.66	6.03	.3157	.49
Nondropouts	38	16.71	6.35		
df = 63					
1980 Freshmen					
Dropouts	35	16.38	5.89	1.039	.15
Nondropouts	36	17.90	6.42		
df = 69					
1979 Freshmen					
Dropouts	26	14.02	5.10	-4.283	.00*
Nondropouts	44	6.76	7.68		
df = 68					
Natural Sciences					
1981 Freshmen					
Dropouts	27	21.72	5.57	.2642	.40
Nondropouts	38	22.05	4.60		
df = 63					
1980 Freshmen					
Dropouts	35	19.89	5.06	2.24	.01*
Nondropouts	36	22.34	4.10		
df = 69					
1979 Freshmen					
Dropouts	26	20.48	3.85	1.565	.06
Nondropouts	44	22.27	4.98		
df = 68					

Table 5--Continued

	N	M	SD	t	p
			Composite		
1981 Freshmen					
Dropouts	27	18.63	4.20	.6772	.25
Nondropouts	38	19.34	4.20		
df = 63					
1980 Freshmen					
Dropouts	35	17.26	3.85	2.62	.005*
Nondropouts	36	19.68	3.93		
df = 69					
1979 Freshmen					
Dropouts	26	17.57	3.63	2.188	.02*
Nondropouts	44	19.63	3.89		
df = 68					

*$p < .05$.

group showed a significant difference between dropout and non-dropout mean scores on four of the five ACT ability scores. The means of the social science ACT scores of dropouts and nondropouts for 1980 freshmen showed no significant difference although the non-dropout mean score was the higher of the two groups. The 1979 freshman group shows a significant difference between means for dropout and nondropout on the English and composite ACT; or two of the five tests only. All of the nondropout scores are higher than dropouts with the exception of the social sciences. The mean of the social science ACT ability test for the 1979 freshman nondropout

Table 6

Summary of t Tests for Differences Between Dropouts and Nondropouts on Nazareth College Test Ability Scores

	N	M	SD	t	p
		English			
1981 Freshmen					
Dropouts	27	71.37	7.47	1.616	.06
Nondropouts	38	74.65	8.44		
df = 63					
1980 Freshmen					
Dropouts	35	68.26	10.97	1.58	.06
Nondropouts	36	71.79	7.54		
df = 69					
1979 Freshmen					
Dropouts	26	71.01	6.87	1.200	.12
Nondropouts	44	72.78	5.74		
df = 68					
		Math A			
1981 Freshmen					
Dropouts	27	65.29	13.50	1.886	.03*
Nondropouts	38	72.29	15.58		
df = 63					
1980 Freshmen					
Dropouts	35	61.72	13.31	2.709	.005*
Nondropouts	36	70.20	13.07		
df = 69					
1979 Freshmen					
Dropouts	26	64.27	11.94	.9433	.17
Nondropouts	44	67.27	13.38		
df = 68					

Table 6--Continued

	N	M	SD	t	p
		Math B			
1981 Freshmen					
Dropouts	27	48.23	23.87	.7438	.23
Nondropouts	38	52.35	20.67		
df = 63					
1980 Freshmen					
Dropouts	35	49.53	6.23	1.75	.04*
Nondropouts	36	52.83	9.31		
df = 69					
1979 Freshmen					
Dropouts	26	36.27	20.11	1.93	.03*
Nondropouts	44	45.78	19.66		
df = 68					

*p < .05.

group is lower than the dropout group.

Table 6 presents the means of the Nazareth College ability tests for dropout and nondropout groups in the 1979-1981 freshman classes. The 1981 freshmen showed no significant difference between two of the three test means of the Nazareth College ability test scores for dropouts and nondropouts. The scores for nondropouts are higher than dropouts; however, the difference is not significant at the .05 level. The 1980 freshmen showed a significant difference between means of the math A and B tests for nondropouts and dropouts but no significant difference between the English mean scores.

Table 7

Summary of t Tests for Differences Between Dropouts and Nondropouts on National League for Nursing Test Ability Scores

	N	M	SD	t	p
		Verbal			
1981 Freshmen					
Dropouts	27	49.56	18.37	-.5157	.30
Nondropouts	38	47.02	20.39		
df = 63					
1980 Freshmen					
Dropouts	35	48.54	6.97	1.839	.04*
Nondropouts	36	52.40	10.33		
df = 69					
1979 Freshmen					
Dropouts	26	33.11	17.51	2.406	.005*
Nondropouts	44	44.00	18.73		
df = 68					
		Math			
1981 Freshmen					
Dropouts	27	62.49	21.70	1.019	.16
Nondropouts	38	67.59	17.95		
df = 63					
1980 Freshmen					
Dropouts	35	39.59	14.04	3.321	.0005*
Nondropouts	36	53.17	19.85		
df = 69					
1979 Freshmen					
Dropouts	26	26.41	18.87	2.318	.01*
Nondropouts	44	38.19	21.45		
df = 68					

Table 7--Continued

	N	M	SD	t	p
Sciences					
1981 Freshmen					
Dropouts	27	52.46	21.38	.7954	.21
Nondropouts	38	56.38	18.36		
df = 63					
1980 Freshmen					
Dropouts	35	54.40	18.85	.8640	.20
Nondropouts	36	58.64	22.33		
df = 69					
1979 Freshmen					
Dropouts	26	39.74	20.46	1.928	.03*
Nondropouts	44	49.00	18.79		
df = 68					
Composite					
1981 Freshmen					
Dropouts	27	56.80	19.16	.5466	.29
Nondropouts	38	59.40	18.75		
df = 63					
1980 Freshmen					
Dropouts	35	48.50	16.92	2.49	.005*
Nondropouts	36	59.07	18.74		
df = 69					
1979 Freshmen					
Dropouts	26	32.91	18.17	2.90	.02*
Nondropouts	44	42.60	17.81		
df = 68					

*p < .05.

The 1979 freshmen showed a significant difference between means of the math B test for dropouts and nondropouts but no significant differences between the English and math A mean scores. Again, the 1979-1980 nondropout means of the scores were higher than dropout means, but not significantly higher, with the exception of the two tests mentioned.

Table 7 presents the means of the National League for Nursing Prenursing Guidance Exam scores for dropout and nondropout groups in the 1979-1981 freshman classes.

The 1981 freshmen showed no significant differences between all four test means of the NLN scores for dropouts and nondropouts. The mean scores of the nondropouts were lower than dropouts for three of the four tests with this 1981 group of freshmen. The 1980 freshmen showed a significant difference between means of the math, verbal, and composite NLN scores for dropout and nondropout groups. On the remaining science test the 1980 nondropouts scored higher but the difference was not significant at the .05 level. The 1979 freshman group showed a significant difference between means of all four NLN test scores for dropout and nondropout groups with nondropouts scoring consistently higher than dropouts on each test.

In summary, Hypothesis 2 was supported only in part by the data. The comparison of means of the ACT scores for dropouts and nondropouts shows inconsistent support for the hypothesis, with the 1980 freshmen being the only class in which four of the five comparisons showed nondropouts to have significantly higher ACT scores than

dropouts. The means of the Nazareth College ability tests showed no consistent significant differences between dropout and nondropout groups (four of the nine comparisons made were significantly different at the .05 level). The means of the NLN ability scores showed consistent significant difference between dropout and non-dropout groups in two classes studied: 1979 and 1980.

Achievement

Hypothesis 3. The means of the achievement scores of marginal students are lower than the means of the achievement scores of high achievers.

For the purpose of testing Hypothesis 3 the marginal (2.0-2.5 nursing GPA) and high achieving (3.5-4.0 nursing GAP) students were identified in the following student groups:

	N
1981 Sophomores	71
1981 Juniors	71

These two classes are the only groups for which National League for Nursing achievement test scores were available.

The means of the National League for Nursing anatomy and physiology, nutrition, chemistry, microbiology, medical surgical, and family test scores for marginal and high achieving groups are presented in Tables 8 and 9. Presented in these tables are the number in each group, means, standard deviation, *t* ratio, and probability levels for the differences between the means of the achievement scores for marginal and high achieving groups. Those probability

Table 8

Summary of t Tests for Differences Between Marginal and High Achieving Students on National League for Nursing Achievement Test Scores

	N	M	SD	t	p
Anatomy and Physiology					
1981 Sophomores					
Marginal	4	4.25	5.43	4.61	.003*
High achievers	3	29.44	9.14		
df = 5					
1981 Juniors					
Marginal	17	41.96	16.08	1.666	.06
High achievers	3	58.36	11.86		
df = 18					
Nutrition					
1981 Sophomores					
Marginal	4	27.25	20.74	2.455	.03*
High achievers	3	62.73	15.82		
df = 5					
1981 Juniors					
Marginal	17	13.82	15.22	2.179	.02*
High achievers	3	34.94	17.37		
df = 18					
Chemistry[a]					
1981 Juniors					
Marginal	17	41.86	20.83	.790	.22
High achievers	3	51.86	13.99		
df = 18					

Table 8--Continued

	N	M	SD	t	p
		Microbiology[a]			
1981 Juniors					
Marginal	17	32.41	19.22	3.542	.001*
High achievers	3	76.48	24.42		
df = 18					

[a]Data were not available for 1981 sophomores for either chemistry or microbiology.

*$p < .05$.

levels marked with an asterisk indicate significant difference between groups at the .05 level.

From Table 8, in which are presented the means of the NLN achievement basic science test scores for 1981 sophomore and 1981 junior marginal and high achievers, the following conclusions can be drawn:

1. The 1981 sophomores show significant difference, at the .05 level, between the marginal and high achieving groups on both means of the NLN achievement tests available for this group.

2. The 1981 juniors show significant difference, at the .05 level, between the marginal and high achieving groups on two (nutrition and microbiology) of the four means of the NLN achievement tests available. Means for high achievers of the NLN scores are higher than means of scores for marginal students. However, the means of the anatomy and physiology and the chemistry do not show

Table 9

Summary of *t* Tests for Differences Between Marginal and High Achieving Students on National League for Nursing Achievement Test Scores

	N	M	SD	t	p
Medical-Surgical A					
1981 Juniors[a]					
Marginal	17	30.39	19.39	3.37	.002*
High achievers	3	73.31	26.87		
Medical-Surgical B					
1981 Juniors[a]					
Marginal	17	24.24	20.18	2.003	.03*
High achievers	3	52.00	33.98		
Medical-Surgical Knowledge					
1981 Juniors[a]					
Marginal	17	39.50	17.38	2.793	.005*
High achievers	3	72.30	27.35		
Medical-Surgical Application					
1981 Juniors[a]					
Marginal	17	41.13	14.76	3.222	.003*
High Achievers	3	73.75	24.68		
Family					
1981 Juniors[a]					
Marginal	17	33.75	16.91	2.772	.005*
High achievers	3	63.40	18.36		

[a] *df* = 18

*$p < .05$.

significant difference at the .05 level for the 1981 junior group.

From Table 9, which presents the means of the NLN achievement nursing test scores for the 1981 junior marginal and high achieving groups, the following conclusion can be drawn. The 1981 juniors show significant difference, at the .05 level, between the marginal and high achieving groups on all of the five means of the NLN achievement nursing tests available for this group.

In summary, Hypothesis 3 was supported by the data. Evidence was presented that shows a difference between the means of the NLN achievement test scores for marginal and high achieving groups. For the students studied, high achievers scored consistently higher than marginal students on NLN achievement basic science and nursing tests.

Hypothesis 4. There is a direct relationship between junior level student achievement scores, senior level student achievement scores, and graduate State Board Exam achievement scores.

For the purpose of testing Hypothesis 4 a correlation study was done of the National League for Nursing achievement test scores and the State Board Exam scores for the 1976-1980 students. Because basic science NLN achievement tests were never taken by this group, achievement scores were available only for the junior and senior classes and were available only for nursing courses. The study of Hypothesis 3 revealed that the 17 marginal students in

the 1981 junior class did have significantly lower means of scores on NLN achievement tests than did high achievers. The focus of Hypothesis 4 was to determine whether like students in the marginal groups in the 1976-1980 graduating classes continued to be the low scorers on achievement tests and on State Board Exams; or whether the learning experienced in the program promoted the changing of group membership (i.e., marginal achievers become high or high achievers become low).

The correlation matrices of the National League for Nursing achievement test scores and State Board Exam test scores for the 1976-1980 graduating classes are presented in Tables 10-14. In testing Hypothesis 4, the 1977-1980 data sets provide support for rejecting the null hypothesis that the population correlation is equal to zero. The 1976 data set provides mixed results. While the majority of correlations in this set are significant at the .05 level, the senior level community health and psychiatric achievement test shows only low positive correlation with junior level medical-surgical nursing achievement test scores.

In summary Hypothesis 4 was supported by the data in that there was a moderate-to-high correlation between NLN achievement test scores and State Board Exam scores for the 1976-1980 graduating classes. This moderate-to-high correlation indicates a direct relationship between the scores. Those students who scored in a marginal way on the first nursing NLN achievement test in the junior year were the lower scorers on succeeding NLN tests and on State Board Exams.

Table 10

National League for Nursing Achievement Test and State Board Exam Test Scores
Correlation Matrix for Graduating Class--1976
Nazareth College Nursing Students

	Junior level tests					Senior level tests	
	Family	Medical		Surgical		Community health	Psychiatric
Senior level tests							
Community health	.65*	.33*	.33*	.30	.56*		
Psychiatric	.53*	.33*	.33*	.32*	.46*		
Graduate level tests							
Medical	.62*	.42*	.39*	.37*	.50*	.56*	.39*
Surgical	.58*	.31	.29	.30	.30	.46*	.48*
Obstetric	.40*	.12	.24	.16	.49*	.46*	.39*
Pediatric	.63*	.43*	.46*	.41*	.53*	.62*	.54*
Psychiatric	.53*	.25	.22	.32*	.47*	.64*	.29

Note. N = 30, df = 28.

*Significant at the .05 level, one-tailed test.

Table 11

National League for Nursing Achievement Test and State Board Exam Test Scores
Correlation Matrix for Graduating Class--1977
Nazareth College Nursing Students

	Junior level tests					Senior level tests	
	Family	Medical		Surgical		Community health	Psychiatric
Senior level tests							
Community health	.47*	.38*	.41*	.28	.56*		
Psychiatric	.48*	.56*	.44*	.45*	.46*		
Graduate level tests							
Medical	.62*	.56*	.55*	.51*	.61*	.67*	.47*
Surgical	.63*	.57*	.57*	.44*	.65*	.57*	.39*
Obstetric	.57*	.66*	.61*	.53*	.64*	.52*	.51*
Pediatric	.70*	.67*	.57*	.61*	.71*	.55*	.48*
Psychiatric	.36*	.51*	.46*	.46*	.45*	.36*	.49*

Note. N = 36, df = 34.

*Significant at the .05 level, one-tailed test.

Table 12

National League for Nursing Achievement Test and State Board Exam Test Scores
Correlation Matrix for Graduating Class--1978
Nazareth College Nursing Students

	Junior level tests					Senior level tests	
	Family	Medical		Surgical		Community health	Psychiatric
Senior level tests							
Community health	.60*	.57*	.63*	.50*	.62*		
Psychiatric	.50*	.56*	.54*	.52*	.63*		
Graduate level tests							
Medical	.71*	.68*	.70*	.54*	.68*	.72*	.59*
Surgical	.74*	.71*	.68*	.51*	.63*	.44*	.47*
Obstetric	.47*	.49*	.39*	.32*	.61*	.40*	.49*
Pediatric	.64*	.66*	.67*	.50*	.66*	.61*	.55*
Psychiatric	.57*	.75*	.67*	.66*	.59*	.63*	.49*

Note. N = 39, df = 37.

*Significant at the .05 level, one-tailed test.

Table 13

National League for Nursing Achievement Test and State Board Exam Test Scores
Correlation Matrix for Graduating Class--1979
Nazareth College Nursing Students

	Junior level tests					Senior level tests	
	Family	Medical		Surgical		Community health	Psychiatric
Senior level tests							
Community health	.64*	.54*	.48*	.52*	.72*		
Psychiatric	.57*	.53*	.40*	.52*	.59*		
Graduate level tests							
Medical	.61*	.62*	.59*	.52*	.82*	.75*	.46*
Surgical	.64*	.53*	.46*	.48*	.80*	.72*	.51*
Obstetric	.63*	.43*	.36*	.49*	.67*	.65*	.50*
Pediatric	.64*	.44*	.43*	.42*	.83*	.76*	.48*
Psychiatric	.54*	.49*	.43*	.47*	.73*	.72*	.54*

Note. N = 50, df = 48.

*Significant at the .05 level, one-tailed test.

Table 14

National League for Nursing Achievement Test and State Board Exam Test Scores
Correlation Matrix for Graduating Class--1980
Nazareth College Nursing Students

	Junior level tests					Senior level tests	
	Family	Medical		Surgical		Community health	Psychiatric
Senior level tests							
Community health	.60*	.57*	.63*	.50*	.62*		
Psychiatric	.47*	.56*	.54*	.52*	.63*		
Graduate level tests							
Medical	.71*	.68*	.70*	.54*	.63*	.72*	.59*
Surgical	.74*	.71*	.68*	.51*	.63*	.43*	.47*
Obstetric	.47*	.49*	.39*	.32*	.61*	.40*	.49*
Pediatric	.64*	.66*	.67*	.50*	.66*	.61*	.55*
Psychiatric	.57*	.75*	.67*	.66*	.59*	.63*	.49*

Note. N = 59, df = 57.

*Significant at the .05 level, one-tailed test.

Hypothesis 5. The means of the State Board Exam scores of marginal students are lower than the means of the State Board Exam scores of high achievers.

For the purpose of testing Hypothesis 5, the marginal (2.0-2.5 nursing GPA) and high achieving (3.5-4.0 nursing GPA) students were identified in the 1976-1980 graduating classes for each level of the program (i.e., the 1976-1980 graduates as freshmen, sophomores, juniors, and seniors). Five State Board Exam scores were used: medical, surgical, obstetrics, pediatrics, and psychiatric. A *t* test was used to test the significance of the differences between marginal and high achievers on the five State Board Exams. Presented in Tables 15-39 are the numbers of students, means, standard deviations, *t* ratios, and probability levels for the differences between the means of the State Board Exam scores for the marginal and high achieving groups. Those probability levels marked with an asterisk indicate significant difference between groups for a .05 alpha.

The following can be inferred from Tables 15 through 19 which summarize the means of five sections of the State Board Exam scores for the 1980 graduation class's marginal and high achieving groups.

1. When the 1980 graduates were sophomores, juniors, and seniors, the students who achieved in a marginal way during those years were also the students who scored significantly lower than high achievers on all five of the State Board Exam scores.

2. When the 1980 graduates were freshmen, the students who achieved in a marginal way in the required courses in nursing did not score significantly different from freshman high achievers on

the State Board Exam. It can be assumed that the composition of the marginal student group changed when the students progressed from freshman to sophomore, junior, and senior levels.

3. The number in the marginal and high achieving student groups changes from level to level and year to year.

4. The marginal student group was consistently larger in the junior year. The marginal student group was consistently smaller in the senior year.

Presented in Tables 20-39 are the 1976-1979 graduating class means of the five sections of the State Board Exam scores for marginal and high achieving groups. From these tables it can be inferred that in the 1976-1979 classes, the freshman marginal students did score significantly lower than high achievers on two or three of the State Board Exam sections per year, of the five State Board Exams taken, with no pattern of consistency for any one test. In addition, it can be inferred that those sophomore, junior, and senior students who achieved in a marginal way were also the students who scored significantly lower than sophomore, junior, and senior high achievers on the majority of the State Board Exams. This reinforces the observations made of the 1980 graduation class.

In summary, Hypothesis 5 was supported by the data that showed a consistent significant difference between means of the State Board Exam scores for marginal and high achieving groups on each level of the program for the 1976-1980 graduating classes. Marginal students (on each level) scored significantly lower than high achieving groups (on each level) on the State Board Exams.

Table 15

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Medical Exam Scores-- 1980 Graduates

	N	M	SD	t	p
Freshman					
Marginals	7	495.5	65.66	.8613	.20
High achievers	10	519.8	50.54		
df = 15					
Sophomore					
Marginals	3	349.3	98.40	3.72	.0005*
High achievers	29	526.9	77.06		
df = 30					
Junior					
Marginals	16	445.1	85.33	3.27	.002*
High achievers	16	556.1	10.55		
df = 24					
Senior					
Marginals	8	446.0	86.21	2.96	.004*
High achievers	15	534.4	56.84		
df = 21					

*p < .05.

Table 16

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Surgical Exam Scores-- 1980 Graduates

	N	M	SD	t	p
		Freshman			
Marginals	7	499.0	88.90	1.09	.15
High achievers	10	536.4	52.73		
df = 15					
		Sophomore			
Marginals	3	385.3	79.42	4.00	.00*
High achievers	29	529.3	57.62		
df = 30					
		Junior			
Marginals	16	446.0	84.83	3.36	.002*
High achievers	10	555.7	71.62		
df = 24					
		Senior			
Marginals	8	465.9	51.79	2.84	.005*
High achievers	15	528.8	49.85		
df = 21					

*p < .05.

Table 17

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Obstetrics Exam Scores-- 1980 Graduates

	N	M	SD	t	p
Freshman					
Marginals	7	477.5	39.61	1.57	.10
High achievers	10	529.5	93.85		
df = 15					
Sophomore					
Marginals	3	366.7	135.8	3.06	.003*
High achievers	29	505.4	68.35		
df = 30					
Junior					
Marginals	16	439.7	98.30	1.91	.03
High achievers	10	505.0	54.81		
df = 24					
Senior					
Marginals	8	426.1	79.84	3.13	.003*
High achievers	15	533.4	77.29		
df = 21					

*p < .05.

Table 18

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Pediatrics Exam Scores-- 1980 Graduates

	N	M	SD	t	p
Freshman					
Marginals	7	524.6	92.93	.2591	.40
High achievers	10	533.7	52.49		
df = 15					
Sophomore					
Marginals	3	416.0	79.79	2.46	.01*
High achievers	29	539.9	83.13		
df = 30					
Junior					
Marginals	16	453.1	112.4	3.25	.002*
High achievers	10	582.4	69.41		
df = 24					
Senior					
Marginals	8	420.1	100.5	3.91	.0005*
High achievers	15	559.1	69.4		
df = 21					

*p < .05.

Table 19

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Psychiatric Exam Scores-- 1980 Graduates

	N	M	SD	t	p
Freshman					
Marginals	7	576.1	45.16	7.71	.24
High achievers	10	556.6	61.16		
df = 15					
Sophomore					
Marginals	3	436.7	189.7	2.88	.004*
High achievers	29	564.3	56.02		
df = 30					
Junior					
Marginals	16	496.4	107.4	2.10	.02*
High achievers	10	573.3	52.4		
df = 24					
Senior					
Marginals	8	473.2	96.85	3.71	.002*
High achievers	15	577.5	59.55		
df = 21					

*p < .05.

Table 20

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Medical Exam Scores-- 1979 Graduates

	N	M	SD	t	p
Freshman					
Marginals	4	526.2	96.40	.2391	.41
High achievers	12	539.4	95.14		
df = 14					
Sophomore					
Marginals	15	404.5	76.91	4.28	.00*
High achievers	11	538.6	81.39		
df = 24					
Junior					
Marginals	18	447.8	127.8	1.93	.03*
High achievers	8	546.0	95.68		
df = 24					
Senior					
Marginals	2	373.0	66.47	2.49	.01*
High achievers	17	512.0	76.93		
df = 17					

*p < .05.

Table 21

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Surgical Exam Scores-- 1979 Graduates

	N	M	SD	t	p
Freshman					
Marginals	4	562.4	90.16	-.23	.41
High achievers	12	549.9	95.21		
df = 14					
Sophomore					
Marginals	15	431.3	85.19	4.04	.00*
High achievers	11	551.2	56.45		
df = 24					
Junior					
Marginals	18	498.3	101.8	1.53	.07
High achievers	8	559.5	69.68		
df = 24					
Senior					
Marginals	2	377.0	16.97	3.98	.0005*
High achievers	17	555.3	61.54		
df = 17					

*p < .05.

Table 22

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Obstetrics Exam Scores-- 1979 Graduates

	N	M	SD	t	p
Freshman					
Marginals	4	493.3	117.9	.2988	.38
High achievers	12	512.6	110.2		
df = 14					
Sophomore					
Marginals	15	427.0	84.08	3.12	.003*
High achievers	11	517.6	53.60		
df = 24					
Junior					
Marginals	18	457.8	86.37	2.51	.02*
High achievers	8	547.8	79.54		
df = 24					
Senior					
Marginals	2	412.0	74.95	1.57	.07
High achievers	17	514.8	88.25		
df = 17					

*p < .05.

Table 23

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Pediatrics Exam Scores-- 1979 Graduates

	N	M	SD	t	p
Freshman					
Marginals	4	557	126.2	-.12	.45
High achievers	12	550.1	84.35		
df = 14					
Sophomore					
Marginals	15	443.9	90.56	3.66	.0005*
High achievers	11	564.6	70.92		
df = 24					
Junior					
Marginals	18	488.6	100.1	2.00	.03*
High achievers	8	570.9	87.45		
df = 24					
Senior					
Marginals	2	434.5	12.02	2.68	.005*
High achievers	17	553.7	61.10		
df = 17					

p < .05.

Table 24

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Psychiatric Exam Scores-- 1979 Graduates

	N	M	SD	t	p
Freshman					
Marginals	4	531.9	86.32	1.85	.04*
High achievers	12	599.8	55.67		
df = 14					
Sophomore					
Marginals	15	469.4	107.2	3.32	.002*
High achievers	11	588.2	56.64		
df = 24					
Junior					
Marginals	18	528.6	119.9	1.60	.06
High achievers	8	600.7	58.08		
df = 24					
Senior					
Marginals	2	387.0	39.60	4.08	.0005*
High achievers	17	585.3	66.17		
df = 17					

* $p < .05$.

Table 25

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Medical Exam Scores-- 1978 Graduates

	N	M	SD	t	p
Freshman					
Marginals	2	461.4	81.14	2.24	.03*
High achievers	9	602.4	80.57		
df = 9					
Sophomore					
Marginals	4	458.5	57.70	2.87	.005*
High achievers	20	571.2	73.60		
df = 22					
Junior					
Marginals	9	482.7	61.71	3.53	.001*
High achievers	11	588.6	70.44		
df = 18					
Senior					
Marginals	5	453.0	47.04	5.53	.00*
High achievers	7	629.4	58.78		
df = 10					

p < .05.

Table 26

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Surgical Exam Scores-- 1978 Graduates

	N	M	SD	t	p
Freshman					
Marginals	2	453.7	77.29	2.20	.03*
High achievers	9	602.3	87.28		
df = 9					
Sophomore					
Marginals	4	447.0	101.3	2.83	.005*
High achievers	20	565.0	71.26		
df = 22					
Junior					
Marginals	9	459.9	71.15	3.02	.004*
High achievers	11	571.4	89.68		
df = 18					
Senior					
Marginals	5	473.2	51.95	4.00	.002*
High achievers	7	617.5	67.19		
df = 10					

*p < .05.

Table 27

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Obstetrics Exam Scores-- 1978 Graduates

	N	M	SD	t	p
Freshman					
Marginals	2	494.3	42.78	1.31	.11
High achievers	9	579.1	86.59		
df = 9					
Sophomore					
Marginals	4	476.0	83.46	2.61	.005*
High achievers	20	570.7	62.94		
df = 22					
Junior					
Marginals	9	499.4	62.95	2.34	.02*
High achievers	11	578.9	83.98		
df = 18					
Senior					
Marginals	5	479.6	57.91	3.72	.002*
High achievers	7	617.8	66.07		
df = 10					

*p < .05.

Table 28

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Pediatrics Exam Scores-- 1978 Graduates

Freshman					
Marginals	2	462.6	91.41	1.70	.06
High achievers	9	592.8	98.34		
df = 9					
Sophomore					
Marginals	4	472.3	118.0	2.34	.01*
High achievers	20	580.2	77.45		
df = 22					
Junior					
Marginals	9	508.8	94.01	1.82	.04*
High achievers	11	578.4	76.43		
df = 18					
Senior					
Marginals	5	450.0	65.85	4.85	.0005*
High achievers	7	638.2	66.54		
df = 10					

*p < .05.

Table 29

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Psychiatric Exam Scores-- 1978 Graduates

	N	M	SD	t	p
Freshman					
Marginals	2	532.8	13.89	1.40	.10
High achievers	9	604.7	69.36		
df = 9					
Sophomore					
Marginals	4	459.5	116.3	3.02	.003*
High achievers	20	592.1	72.70		
df = 22					
Junior					
Marginals	9	503.6	89.81	2.20	.02*
High achievers	11	592.3	89.31		
df = 18					
Senior					
Marginals	5	468.6	61.39	5.35	.00*
High achievers	7	630.9	44.22		
df = 10					

*p < .05.

Table 30

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Medical Exam Scores-- 1977 Graduates

	N	M	SD	t	p
Freshman					
Marginals	5	394.6	36.40	3.80	.001*
High achievers	10	511.3	62.70		
df = 13					
Sophomore					
Marginals	4	449.5	85.97	1.27	.11
High achievers	11	501.7	64.76		
df = 13					
Junior					
Marginals	12	450.5	90.73	2.32	.02*
High achievers	11	530.1	71.08		
df = 21					
Senior					
Marginals	1	350.0	0	--	--
High achievers	9	498.4	58.11		
df = 8					

*p < .05.

Table 31

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Surgical Exam Scores-- 1977 Graduates

	N	M	SD	t	p
		Freshman			
Marginals	5	416.4	70.71	2.12	.03*
High achievers	10	517.0	92.46		
df = 13					
		Sophomore			
Marginals	4	467.3	65.80	.8335	.21
High achievers	11	499.6	66.59		
df = 13					
		Junior			
Marginals	12	472.6	87.90	1.71	.05*
High achievers	11	539.9	89.59		
df = 21					
		Senior			
Marginals	1	472.2	0	--	--
High achievers	9	508.3	90.78		
df = 8					

*p < .05.

Table 32

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Obstetrics Exam Scores-- 1977 Graduates

	N	M	SD	t	p
Freshman					
Marginals	5	426.4	33.56	2.14	.03*
High achievers	10	517.3	90.33		
df = 13					
Sophomore					
Marginals	4	457.5	83.48	.67	.26
High achievers	11	495.4	101.3		
df = 13					
Junior					
Marginals	12	466.8	75.72	1.28	.11
High achievers	11	516.7	108.8		
df = 21					
Senior					
Marginals	1	434.0	0	--	--
High achievers	9	505.3	77.35		
df = 8					

*p < .05.

Table 33

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Pediatrics Exam Scores--1977 Graduates

	N	M	SD	t	p
Freshman					
Marginals	5	449.8	40.31	2.87	.005*
High achievers	10	561.6	81.04		
df = 13					
Sophomore					
Marginals	4	463.3	85.10	1.59	.07
High achievers	11	531.5	69.19		
df = 13					
Junior					
Marginals	12	486.7	79.92	2.04	.03*
High achievers	11	556.7	84.35		
df = 21					
Senior					
Marginals	1	417.0	0	--	--
High achievers	9	549.4	82.69		
df = 8					

*p < .05.

Table 34

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Psychiatric Exam Scores-- 1977 Graduates

	N	M	SD	t	p
Freshman					
Marginals	5	519.8	36.41	1.83	.05*
High achievers	10	570.8	56.05		
df = 13					
Sophomore					
Marginals	4	495.8	108.0	1.90	.04*
High achievers	11	572.6	52.09		
df = 13					
Junior					
Marginals	12	526.6	68.30	1.79	.04*
High achievers	11	577.9	68.38		
df = 21					
Senior					
Marginals	1	478.0	0	--	--
High achievers	9	550.5	43.0		
df = 8					

*p < .05.

Table 35

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Medical Exam Scores-- 1976 Graduates

	N	M	SD	t	p
Freshman					
Marginals	9	504.9	41.89	-.2518	.49
High achievers	12	504.2	71.69		
df = 19					
Sophomore					
Marginals	10	420.6	87.68	4.69	.00*
High achievers	16	542.5	45.06		
df = 24					
Junior					
Marginals	14	473.7	56.19	3.37	.002*
High achievers	12	552.1	62.24		
df = 24					
Senior					
Marginals	1	447.0	0	--	--
High achievers	20	540.8	83.28		
df = 19					

*p < .05.

Table 36

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Surgical Exam Scores-- 1976 Graduates

	N	M	SD	t	p
Freshman					
Marginals	9	523.0	86.47	.51	.31
High achievers	12	539.8	63.95		
df = 19					
Sophomore					
Marginals	10	456.5	96.69	2.94	.004*
High achievers	16	548.8	63.96		
df = 24					
Junior					
Marginals	14	488.6	42.31	2.13	.02*
High achievers	12	545.5	89.0		
df = 24					
Senior					
Marginals	1	442.0	0	--	--
High achievers	20	540.4	76.48		
df = 19					

*p < .05.

Table 37

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Obstetrics Exam Scores-- 1976 Graduates

	N	M	SD	t	p
Freshman					
Marginals	9	479.4	100.3	1.009	.16
High achievers	12	515.0	60.95		
df = 19					
Sophomore					
Marginals	10	461.9	75.25	2.11	.02*
High achievers	16	525.8	75.07		
df = 24					
Junior					
Marginals	14	457.1	82.91	1.98	.03*
High achievers	12	516.3	66.40		
df = 24					
Senior					
Marginals	1	553.0	0	--	--
High achievers	20	515.1	50.61		
df = 19					

*p < .05.

Table 38

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Pediatrics Exam Scores-- 1976 Graduates

	N	M	SD	t	p
Freshman					
Marginals	9	453.7	50.49	2.69	.005*
High achievers	12	543.9	90.06		
df = 19					
Sophomore					
Marginals	10	434.2	71.36	3.29	.002*
High achievers	16	535.8	79.25		
df = 24					
Junior					
Marginals	14	473.4	66.25	2.63	.005*
High achievers	12	550.5	82.92		
df = 24					
Senior					
Marginals	1	470.0	0	--	--
High achievers	20	529.6	79.42		
df = 19					

*p < .05.

Table 39

Summary of the t Tests for Difference Between Marginal Student Groups and High Achieving Student Groups on State Board Psychiatric Exam Scores-- 1976 Graduates

	N	M	SD	t	p
Freshman					
Marginals	9	547.2	63.21	.6421	.48
High achievers	12	549.3	81.67		
df = 19					
Sophomore					
Marginals	10	468.4	100.2	2.34	.01*
High achievers	16	557.2	89.39		
df = 24					
Junior					
Marginals	14	505.4	68.86	2.07	.02*
High achievers	12	568.0	85.52		
df = 24					
Senior					
Marginals	1	507.0	0	--	--
High achievers	20	565.2	73.47		
df = 19					

*p < .05.

Demographic

Hypothesis 6. The mean age of marginal students is lower than the mean age of high achievers.

Presented in Tables 40 and 41 are the frequencies, percentages, and central tendency measures for the ages of the 1981-82 Nazareth College freshman, sophomore, junior, and senior nursing students. From these data it can be concluded that the nursing student group was a homogeneous one with the largest percentage of students in the age range of 18 through 23 years. One hundred fifty-nine of the 174 surveyed, or 91% of the students, were between the ages of 18 and 23 years old. The mean age for freshmen was 18.88 years, sophomores 20.70 years, juniors 21.12 years, and seniors 22.78 years. Because the group was a homogeneous one, differences for marginal or high achieving groups were not studied. Hypothesis 6 was not supported by the data presented.

Table 40

Nazareth College 1981-82 Nursing Students' Demographic Characteristic--Frequency and Percentage of Age Groups

Age range	Freshman		Sophomore		Junior		Senior	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
18-19	38	85	15	31	1	3	0	--
20-21	5	11	26	53	32	80	13	33
22-23	2	4	3	6	3	7	20	51
23-40	0	--	5	10	4	10	6	16

Table 41

Nazareth College 1981-82 Nursing Students' Demographic Characteristic--Age--Central Tendency Measures

	Mean	Median	Mode	Mini-mum	Maxi-mum
Freshman	18.88 years	19	18	18	23
Sophomore	20.70 years	20	19	19	32
Junior	21.12 years	21	22	21	41

Hypothesis 7. The percentage of married marginal students is lower than the percentage of married high achievers.

Presented in Table 42 are the frequencies and percentages for marital status of the Nazareth College 1981-82 nursing students. As demonstrated in the table, 94% of the students surveyed were unmarried. The junior class had the largest percentage of married students, or 12%. It can be concluded that the group was homogeneous; and, therefore, differences for marginal and high achieving groups would not be detected. Hypothesis 7 was not supported by the data presented.

Hypothesis 8. Marginal students have a larger number of children than high achieving students.

Presented in Table 43 are the frequencies and percentages of the presence of children data for Nazareth College 1981-82 nursing students. This table shows that 98% of the students surveyed did not have children for which they were responsible while attending

Table 42

Nazareth College 1981-82 Nursing Students' Demographic Characteristic--Frequency and Percentage of Marital Status

	Freshman		Sophomore		Junior		Senior	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single	44	98	48	96	35	88	36	93
Married	1	2	1	2	5	12	3	7
Divorced	0	--	1	2	0	--	0	--

college. Again, the group was homogeneous on this demographic variable so that differences between marginal and high achieving groups were not studied. Hypothesis 8 was not supported by the data presented.

Table 43

Nazareth College 1981-82 Nursing Students' Demographic Characteristic--Presence of Children

	Freshman		Sophomore		Junior		Senior	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
No	45	100	49	98	39	98	38	98
Yes	0	--	1	2	1	2	1	2

Social Interaction

Hypothesis 9. The mean number of hours employed is higher for marginal students than for high achievers.

Presented in Table 44 are the mean number of hours of employment for the 1981-82 Nazareth College nursing students. From this table it can be concluded that the students were not involved in long hours of employment, as freshmen worked 7.04, sophomores 11.18, juniors 12.46, and seniors 10.16 mean hours. The junior class students had the largest number of hours of employment with a mean of 12.46 hours per week. Presented in Table 45 are the frequencies and percentages for hours employed per week. Data in this table show that the largest percentage, or 71%, of the freshmen were employed 0-5 hours per week and 56% of the sophomores were employed 0-5 hours per week; while the largest percentage, or 53% of the juniors and 51% of the seniors, were employed 6-17 hours per week.

Presented in Table 46 are the *t* tests for differences in mean number of hours employed between marginal and high achieving groups. For the 1981 freshmen and sophomores, there was no significant difference between marginal and high achieving groups in mean number of hours employed per week. However, 1981 high achieving juniors were employed a significantly higher number of hours more than marginal achievers.

Hypothesis 9 was not supported by the data presented. For one group, the 1981 freshmen, there was no significant difference in mean hours of employment between marginal and high achieving groups. The 1981 high achieving sophomores and juniors were shown to work significantly more hours than marginal students in these groups. The low number (three students) in the high achieving 1981 sophomore and junior groups must be taken into account when these data are considered.

Table 44

Nazareth College 1981-82 Nursing Students' Social Interaction Characteristic--Mean Number of Hours Employed

	Freshman	Sophomore	Junior	Senior
Mean number of hours employed per week	7.04	11.18	12.46	10.15

Table 45

Nazareth College 1981-82 Nursing Students' Social Interaction Characteristic--Frequency and Percentage for Range of Hours Employed

Range hours per wk.	Freshman[a]		Sophomore[a]		Junior		Senior	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0-5	30	71	20	56	10	25	12	31
6-17	12	29	16	44	21	53	20	51
18-40	0	--	0	--	9	22	7	18

[a]Total number of responses reflects missing data, as the total does not equal number surveyed.

Table 46

Summary of t Tests for Differences in Mean Number of Hours Employed Between Marginal and High Achieving Groups

Group	N	M	SD	t	p
1981 Juniors					
Marginals	17	11.79	7.91	2.50	.01*
High achievers	3	25.07	14.43		
df = 18					
1981 Sophomores					
Marginals	4	10.00	.00	2.39	.03*
High achievers	3	10.55	.47		
df = 5					
1981 Freshmen					
Marginals	9	8.46	6.30	-.1018	.46
High achievers	10	8.20	4.58		
df = 17					

*p < .05.

Hypothesis 10. The number of hours spent in travel to work and school is higher for marginal students than the high achievers.

Presented in Table 47 are the frequencies and percentages for student responses to ranges of hours of travel to work and school for the 1981 Nazareth College nursing students. One hundred nineteen of the 174 surveyed, or 68% of the students, spent less than 1 hour in travel per day to work and school indicating that most students lived nearby or on campus and worked nearby so that little time was needed to invest in this activity. A very small number (two freshmen, one sophomore, one junior, and three seniors) traveled more than 3 hours per day to work and school.

Table 47

Nazareth College 1981-82 Nursing Students' Social Interaction Characteristic--Frequency and Percentage of Time Spent in Travel to Work and School

Question response number	Hours in travel to work and school per day	Freshman		Sophomore		Junior		Senior	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	Less than 1 hour	34	79	37	74	26	66	22	58
2	1 hour	7	16	8	16	8	20	13	34
3	2 hours	0	--	3	6	4	10	0	--
4	3 hours	0	--	1	2	1	2	0	--
5	Other	2	5	1	2	1	2	3	8

Presented in Table 48 are the t tests for differences in mean responses (see Table 24 for the ranges represented by the responses) that represent hours spent in travel to work and school between marginal and high achieving groups. This table shows that there was no significant difference between groups in the 1981-82 juniors, 1981-82 sophomores, and 1981-82 freshman class. While the high achieving sophomore and freshman groups' mean responses represent ranges of time that are smaller than the marginal groups' mean responses, the differences between groups are not significant at the .05 level. The high achieving junior group's mean response indicates a larger number of hours spent in travel than the marginal student group.

In summary, Hypothesis 10, that predicts the number of hours spent in travel to work and school to be greater for marginal students than for high achievers, is not supported by the data. In two groups, sophomore and freshman, there was not a significant difference between groups at the .05 level; however, high achieving groups did spend less time in travel than the marginal groups. In the junior group there was not a significant difference between marginal and high achieving groups, and the high achievers spent more time in travel than the marginal group.

Hypothesis 11. The number of weekends spent away from campus is higher for marginal students than for high achievers.

Presented in Table 49 are the frequencies and percentages of student responses that represent ranges of numbers of weekends spent away from campus. This table shows that 82 of the 174 surveyed, or

Table 48

Summary of t Tests for Differences in Mean Responses (Representing Hours Spent in Travel to Work and School) Between Marginal and High Achieving Groups

Group	N	M	SD	t	p
1981 Juniors					
Marginals	17	1.60	.38	1.14	.13
High achievers	3	1.86	.23		
df = 18					
1981 Sophomores					
Marginals	4	1.25	.50	.21	.42
High achievers	3	1.18	.15		
df = 5					
1981 Freshmen					
Marginals	9	1.35	.39	1.19	.13
High achievers	10	1.15	.32		
df = 17					

*p < .05.

47% of the 1981-82 freshman-seniors, travel away from campus between 2 to 4 weekends per month.

Table 49

Nazareth College 1981-82 Nursing Students' Social Interaction Characteristic--Frequency and Percentage for Ranges of Numbers of Weekends Away

Question response number	Number of weekends away per month	Freshman		Sophomore		Junior		Senior	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	3-4 per month	7	16	4	8	10	25	7	18
2	2 per month	13	29	20	40	10	25	11	28
3	1 per month	12	27	19	38	9	23	11	28
4	Scheduled vacations only	11	24	6	12	8	20	7	18
5	Other	2	4	1	2	3	7	3	8

Presented in Table 50 are the t tests for differences between marginal and high achieving students in mean responses that represent ranges of numbers of weekends spent away from campus. This table shows that there was not a significant difference between marginal and high achieving groups, at the .05 level, in numbers of weekends spent away from campus. In the 1981-82 junior and sophomore students studied the high achievers spent less time away than marginal students; thus providing some support for the hypothesis that predicts marginal students to be gone more than high achievers. The 1981-82 freshman group showed high achievers spent more weekends

Table 50

Summary of *t* Tests for Differences in Mean Responses (Representing Ranges of Numbers of Weekends Spent Away) Between Marginal and High Achieving Groups

Group	*N*	*M*	*SD*	*t*	*p*
1981 Juniors					
Marginals	17	1.43	.38	-1.15	.13
High achievers	3	1.16	.27		
df = 18					
1981 Sophomores					
Marginals	4	1.50	1.0	.41	.35
High achievers	3	1.25	.21		
df = 5					
1981 Freshmen					
Marginals	9	2.67	1.07	.56	. 29
High achievers	10	2.95	1.05		
df = 17					

*$p < .05$.

away than marginal students; data that provide support for a reverse of this hypothesis. The freshman marginal and high achieving groups spent more time away than sophomore or junior marginal and high achieving groups; however, Table 49 indicates that approximately 50% of the total freshman group spent only one weekend away or went on scheduled vacations only. Hypothesis 11 was not supported by the data presented in this report.

Hypothesis 12. The involvement in support services is less for marginal students than for high achievers.

Presented in Table 51 are the frequencies and percentages for student response to the number of support services used per month. This table shows that 78% of the students from each level (freshman through senior) or 132 of the 174 respondents used the support services at Nazareth College once a month or not at all.

Table 51

Nazareth College 1981-82 Nursing Students' Social Interaction Characteristic--Frequency and Percentage for Number of Support Services Used

Question response number	Number of support services used per month	Freshman		Sophomore		Junior		Senior	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	Not at all	7	15	11	23	8	20	15	38
2	1/month	28	63	27	56	23	58	13	33
3	2/month	6	13	7	15	6	15	3	8
4	3/month	2	4.5	1	2	1	3	0	--
5	Other	2	4.5	2	4	2	5	8	21

Presented in Table 52 are the *t* test results for differences between marginal and high achieving group mean responses that represent the numbers of times support services were used per month. The data indicate that there was no significant difference, at the .05 level, between the 1981 junior, 1981 sophomore, and 1981 freshman marginal and high achieving groups in the numbers of times that support services were used.

The mean responses for the junior and sophomore groups show that high achievers did use more support services than marginal students; however, the difference was not significant at the .05 level. The freshman high achievers used support services less than the freshman marginal students, thus, providing no support for Hypothesis 12 which predicts marginal students to use support services less than high achievers. It should be noted that the difference between the freshman groups on use of support services was minimal. Presented in Table 52 are the data to indicate that junior and sophomore marginal and high achieving groups used support services more than freshman marginal and high achieving groups.

In summary, Hypothesis 12 cannot be supported by the data presented in this report, as there was no difference between marginal and high achieving groups in the 1981 junior, sophomore, or freshman groups studied. While high achievers did use more support services in the junior and sophomore groups, the marginal students used more support services in the freshman group.

Table 52

Summary of t Tests for Differences in Mean Responses (Representing Numbers of Times Support Services Are Used) Between Marginal and High Achieving Groups

Group	N	M	SD	t	p
1981 Juniors					
Marginals	17	3.25	.92	1.49	.08
High achievers	3	4.10	.84		
df = 18					
1981 Sophomores					
Marginals	4	3.75	2.21	.21	.42
High achievers	3	4.04	.82		
df = 5					
1981 Freshmen					
Marginals	9	1.19	.31	.38	.35
High achievers	10	1.13	.31		
df = 17					

*p < .05.

Hypothesis 13. The involvement in student life activities is lower for marginal students than for high achievers.

Presented in Table 53 are the frequencies and percentages for students' responses to the amount of involvement in student life activities per month. This table shows that 62% of the students, or 108 of the 174 respondents, participated in student life activities at Nazareth College once a month or not at all.

Table 53

Nazareth College 1981-82 Nursing Students' Social Interaction Characteristic--Frequency and Percentage of Involvement in Student Life Activities

Question response number	Number of student life activities per month	Freshman		Sophomore		Junior		Senior	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	Not at all	20	45	17	35	18	45	16	41
2	1 per month	10	22	9	19	10	25	8	21
3	2 per month	5	11	3	6	5	13	6	15
4	3 per month	3	7	11	22	4	10	2	5
5	Other	7	15	9	18	3	7	7	18

Presented in Table 54 are the t tests for differences between marginal and high achieving group mean responses that represent the amount of student participation in student life activities each month. This table shows that there is no significant difference, at the .05 level, between the 1981 junior and freshman marginal and high achieving groups for the amount of participation

Table 54

Summary of *t* Tests for Differences in Mean Responses (Representing Numbers of Times Students Participate in Student Life Activities) Between Marginal and High Achieving Groups

Group	N	M	SD	t	p
1981 Juniors					
Marginals	17	2.09	1.24	-.86	.47
High achievers	3	2.03	1.00		
df = 18					
1981 Sophomores					
Marginals	4	1.75	.95	1.95	.05*
High achievers	3	2.86	.11		
df = 5					
1981 Freshmen					
Marginals	9	2.45	1.08	-.16	.44
High achievers	10	2.35	1.48		
df = 17					

*$p < .05$.

in student life activities. The sophomore group studied was the only group in which high achievers participated more than marginal students in student life activities. In the junior and freshman groups marginal students participated more than high achievers in student life activities although the difference in groups was very small. Table 54 also shows that freshmen participated more in student life activities than sophomores or juniors. The difference was small, however.

In summary, Hypothesis 13 was not supported by the data presented in this report. Only the 1981 sophomores showed high achieving students to participate more in student life activities than marginal students. This difference was significant at the .05 level. The remaining two groups, juniors and freshmen, showed marginal students to participate more in student live activities than high achievers. This difference in groups was small. Sixty-two percent of students indicate minimal participation in student life activities, or one per month or not at all. Freshman marginal and high achievers participated more than the junior and sophomore marginal and high achievers in student life activities.

Hypothesis 14. The involvement in community activities is less for marginal students than for high achievers.

Presented in Table 55 are the frequencies and percentages for student responses to the time involvement per month in community activities. This table shows that a total of 76% of students (freshman through senior), or 132 of the 174 respondents, were

involved in 1 hour per month or not at all in community activity.

Table 55

Nazareth College 1981-82 Nursing Students' Social Interaction Characteristic--Frequency and Percentage of Involvement in Community Activities

Question response number	Amount of time in community activities per month	Freshman		Sophomore		Junior		Senior	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	Not at all	33	74	26	54	21	53	14	36
2	1 hr./month	8	13	6	12	11	28	12	31
3	2 hrs./month	2	4	4	8	5	12	4	10
4	3 hrs./month	1	2	6	12	2	5	5	13
5	Other	1	2	7	14	1	2	4	10

Presented in Table 56 are the t test results for differences between marginal and high achieving group mean responses that represent the amount of time spent per month in community activities. This table shows that there is no significant difference, at the .05 level, between the 1981 junior, 1981 sophomore, and 1981 freshman marginal and high achieving groups in the amount of time spent in community activities. The junior and freshman high achievers spent more time than marginal students in community activities. This gives some support to Hypothesis 14; however, the differences were not significant at the .05 level. Sophomore high achievers spent less time than sophomore marginal students in community activities.

Table 56

Summary of *t* Tests for Differences in Mean Responses (Representing Hours Spent by Students in Community Activities) Between Marginal and High Achieving Groups

Group	*N*	*M*	*SD*	*t*	*p*
1981 Juniors					
Marginals	17	2.06	.87	1.05	.15
High achievers	3	2.60	.57		
df = 18					
1981 Sophomores					
Marginals	4	2.50	1.29	-1.02	.18
High achievers	3	1.66	.57		
df = 5					
1981 Freshmen					
Marginals	9	1.30	.33	.74	.23
High achievers	10	1.48	.66		
df = 17					

*$p < .05$.

Freshman marginal and high achieving groups spent less time in community activities than sophomore and junior marginal and high achieving groups. It appears that involvement in community activity increases with each level (freshman-senior) of the program.

In summary, Hypothesis 14 was not supported by the data presented in this report. There was no significant difference, at the .05 level, between marginal and high achieving groups; although high achievers in the junior and freshman group were involved in community activities more than marginal students. This was not true of the sophomore group. The involvement for the entire group was minimal as 76% were involved 1 hour per month or not at all. Involvement increased with each level, as seniors were involved more than freshmen.

Summary of Results

The results of the data analysis are summarized as follows:

Ability

1. Hypothesis 1, predicting ability scores for marginal students to be lower than high achievers, was supported only in part by the data.

    1.1 The marginal students in the 1981 freshman, sophomore, and junior classes studied did score lower than high achievers on a larger proportion of the ACT ability tests, thus supporting Hypothesis 1.

1.2 The study of the marginal and high achieving groups on the Nazareth and NLN ability tests did not provide support for Hypothesis 1.

2. Hypothesis 2, predicting ability scores for dropouts to be lower than nondropouts, was supported only in part by the data.

2.1 The study of marginal and high achieving groups on the ACT scores in the 1980 freshman class and NLN ability scores for the 1979 and 1980 classes provided support for Hypothesis 2.

2.2 The study of marginal and high achieving groups on the Nazareth ability tests did not provide support for Hypothesis 2.

Achievement

3. Hypothesis 3, predicting marginal students to score lower than high achievers on achievement tests, was supported by the data. The means of the NLN achievement test scores for high achievers were consistently higher than marginal students.

4. Hypothesis 4, predicting a relationship between achievement scores taken on junior, senior, and graduate level, was supported by the data. There was a moderate to high correlation between NLN achievement test scores and State Board Exam scores for the 1976-1980 Nazareth College graduating classes. Students who were lower achievers as juniors were also lower achievers as seniors and graduates on State Board Exams.

5. Hypothesis 5, predicting marginal students to score lower than high achievers on State Board Exams, was supported by the data. A consistent difference was found between means of the State Board Exam scores for marginal and high achieving groups on each level of the program for the 1976-1980 Nazareth College graduating classes.

Demographic

Hypotheses 6, 7, and 8, predicting marginal students to be younger, less often married, but with more children, were not supported by the data. The group surveyed is a homogeneous one with a large percentage being young between the ages of 18-23, unmarried, and childless.

Social Interaction

Hypotheses 9-14, predicting that marginal students would be more involved than high achieving students in social interactions that detract from concentrating on studies (i.e., employment, time spent in travel) were not supported by the data. Social interactions that might act to give support to students (i.e., support services, community activities) were not found to be different for the high achieving group than for the marginal group.

CHAPTER V

DISCUSSION AND SUMMARY

Purpose of the Study--Overview

This study investigated the ability, achievement, demographic, and social interaction characteristics of three groups of baccalaureate nursing students: dropouts, marginals, and high achievers. The purpose of the study was to identify predominant characteristics of dropout and marginal students that would act to direct the development of programs in nursing education.

Results of the Study--Overview

The results of the study were mixed. Hypothesis 1 predicted that the ability scores for marginal students would be lower than the ability scores of high achieving students. Hypothesis 2 predicted that the ability scores for dropouts would be lower than nondropouts. The means of the ACT and NLN ability tests showed the most differences between groups. High achievers and nondropouts scored consistently higher than marginals and dropouts. The means of the Nazareth College ability test did not show differences between groups.

Hypotheses 3, 4, and 5, predicting marginal students to score lower than high achievers on achievement tests and State Board Exams, were supported by the data. In addition, a relationship was

predicted to exist between achievement tests and State Board Exam scores. This relationship was supported by the data.

Hypotheses 6, 7, and 8, predicting marginal students to be younger, with fewer married persons, but responsible for more children, were not supported by the data.

Hypotheses 9-14 that predicted differences between marginal and high achiever, for involvement in activity that detracts from learning and activity that provides assistance in order to learn, were not supported by the data.

Limitations of the Study

This study was limited in several significant ways. First, the timing of the demographic and social interaction survey was such that first semester freshman dropouts could not be included. They had already dropped out and could not be located. While the ability data indicated some reason for dropout behavior, demographic data would have added dimensions to the dropout component of this study. Such dimensions are needed in order to fully understand this group of students. Because of the demographic homogeneity of the students who were surveyed and because the ability scores of dropouts were low, it could be predicted that the type of demographic data gathered in this study's survey would not have added to the understanding of dropouts.

The demographic data in this study design were collected with names of students so that the demographic and social interaction

data could be used with corresponding ability and achievement data. This limited the kind of data that could be collected in that respondents to the survey could not be anonymous. A study design that provided anonymity for dropouts surveyed would allow expansion of the types of demographic and social interaction data.

The low number of dropouts in the sophomore, junior, and senior years limited this study in additional ways. The size of the sample may have limited the power to reject the null hypothesis.

A second limitation of the study design resulted from the low number of marginal students in the 1981-82 sophomore year and lack of marginal students in the 1981-82 senior year. Presented in Tables 4 and 5 are data which indicate that in other years there have been larger numbers, so it was not unreasonable to assume that this would be the case with the student groups used in this study design.

A third major limitation of this study was the demographic data collected. This limitation is indicated by the fact that the demographic and social interaction survey defined a homogeneous group of students. It might be possible, with additional development and a design that allows anonymity, to devise a tool that includes more discriminating variables. While the marginal and high achieving groups were not different on the demographic interaction variables included in this study, it is recognized that it might be possible to identify variables which would help define the groups more clearly and would discriminate between groups. This possibility leads to a fourth limitation of the study.

The variables included in this study, ability, achievement, demographic, and social interaction characteristics, are complex in nature. It is beyond the scope of one study to examine all aspects of these complex characteristics. Human intellectual development has been studied and crucial aspects have been debated at length. The variables chosen for the study herein are limited to those aspects that identify possible changes in nursing education. It is recognized, however, that the variables are limitless in number and type.

Lastly, the study design does not address the most critical issue of all: that of job performance. While it is important to be concerned, as educators, with student academic performance, the ultimate goal is to provide educational experiences that lead to the successful practice of nursing. Limiting the study to variables of ability, achievement, demographic, and social interaction characteristics was appropriate for the design of this study and the parameters of a doctoral dissertation. It should be remembered, however, that the ultimate academic goal is to promote successful job performance. The study results could be utilized to work toward this end. Additional research that incorporates this concern is essential to the development of the nursing profession. This additional research should be aimed at assuring that academic efforts result in successful job performance.

Interpretation of Results

Interpretation of the data relative to the 14 major hypotheses follows:

Ability

Hypothesis 1 predicted that marginal students would score lower than high achievers on ability tests. The hypothesis was supported in part by the data analysis which showed marginal students to score significantly lower than high achieving students on a large number of ability test scores. An exception was found for the Nazareth College professor-made English and math tests. These results parallel the literature reviewed in Chapter II of this study which suggested that ability scores such as the ACT test scores do predict academic success. Two ability tests that did not identify differences between marginal and high achievers were the Nazareth College English and math tests. These are professor-made tests that have not been subjected to the rigorous norming process used by other standardized testing services (ACT and NLN Prenursing Guidance). It is possible that the concepts tested in Nazareth professor-made tests were challenging for both groups as means scores for both groups were low. The mean scores tended to be better for the high achievers on these tests, however, not sufficiently higher to support the hypothesis.

The Nazareth College open admissions policy which does not require a minimum level of ACT scores for admission to the college may be contributing to the lack of being able to identify differences

seen between marginal and high achieving students. The mean ACT scores of the high achieving group reported in Tables 2, 3, and 4 are low in comparison to ACT scores for high achievers in other institutions which do not admit students with ACT scores that fall below a designated level. It could be predicted that the differences seen in this study would be substantial if the enrollments in this small private college were more selective so that a larger number of students entered with higher ability scores.

It can be concluded that high achievers in this study have developed academic abilities to a greater extent than marginal students. This characteristic of high achieving students points to a need for program development that assures the building of academic ability for marginal students. The literature review and the results of this study indicate that students with high ability scores are also those students who achieve higher GPA's in nursing courses. In order to raise the achievement level for marginal students, academic abilities must be strengthened.

Hypothesis 2 proposed that dropouts would score lower than nondropouts on ability tests. Support for this hypothesis was not found. The one exception was the 1980 freshman class which showed a difference between dropout and nondropout on four of the five ACT ability tests. It appears that there are students who dropped out and whose ability scores had no influence on this decision. Other students' ability scores were in a range that would predict questionable academic performance but who continued in the program and succeeded.

The literature indicates that failure to succeed academically has played a major role, along with other factors, in causing dropout behavior in students (Aitken, 1982; Munro, 1980). It has also been shown that academic ability is related to academic achievement and success. To put major emphasis on the part that ability plays in academic success without recognizing it as only one of many complex factors would be erroneous. The question that remains unanswered is, "What are the other factors that influence dropout decisions?" While it is possible that ability scores had some influence on the decision to dropout for some students, it is also reasonable to assume that this factor was not a major controlling factor as many students who had equally low ability scores did succeed in the program.

Achievement

Hypotheses 3, 4, and 5 proposed that marginal students would score lower than high achievers on achievement tests, and that there would be a relationship between achievement test scores on junior, senior, and graduate levels of the program. The data provided support for these hypotheses, and these results reflect what has been reported in the literature. Students whose GPA is marginal (2.0-2.5) tend to score low on achievement tests and State Board Exams.

From Tables 15-39 it was concluded that, for the graduating classes of 1976-1980, the number of marginal students is greatest in the junior year and smallest in the senior year. The increased number of marginal students in the junior year indicates that this year

may be the most predictive year for State Board Exam performance, or the year in which concepts measured most closely reflect concepts tested on State Board Exams. The content presented in the junior year is challenging and demands reading skill that includes the ability to read rapidly to cover large amounts and the ability to comprehend in order to make decisions. In addition, students begin to use mathematical skills in order to calculate dosage of the medication they give patients in the clinical learning setting. In testing Hypothesis 1, it was shown that marginal students do have lower ability scores than high achievers. It is likely that the marginal student who enters as a freshman with low ability scores continues to function marginally and performs lower on State Board Exams as a result. The current program does not address the needs of the marginal student to change performance sufficiently so that marginal students change groups to become high achieving students.

The number of marginal students drops in the senior year. The concepts presented in the senior year differ from those presented in the junior year. They are broader concepts and demand more application of psychosocial principle than of physical principle. The marginal student who fails and repeats at the junior level appears to have had the opportunity to strengthen skills before entering senior level so that marginal behavior measured on senior year appears to have been remediated. Other behaviors that were measured as marginal on the junior level were not measured on the senior level. Senior students who have struggled on the junior level but who improve performance on the senior level must continue to be

concerned about State Board Test Pool Exams.

Demographic

Hypotheses 6, 7, and 8 predicted that the demographic variables of age, marital status, and presence of children would be present in the marginal group as they have been reported in the literature to interrupt academic achievement. The data did not support these hypotheses. The student group in this small liberal arts setting continues to be young, unmarried, and without children. This may be explained, in part, by the fact that tuition costs have risen to high levels in private colleges. The older student with responsibilities for children could be predicted not to have financial resources available to enroll. The student who can enroll full time in a rigorous professional program that costs a large amount of money each year must have financial support and this is often the young, unmarried student who still has the financial support of their parents. Married students and students responsible for children will likely continue to enroll in community college or diploma programs that are less expensive and less time consuming. The Nazareth College R.N. degree completion program is available to R.N.'s who wish to return to school to complete the baccalaureate degree requirements. A study design that includes this group of students might reveal other demographic characteristics and show that the total student group at Nazareth College is not homogeneous.

Social Interaction

Hypotheses 9-14 predicted that marginal students would be more involved than high achieving students in social interactions that detract from concentrating on studies (i.e., employment, time spent in travel) were not supported by the data. Social interactions that might act to give support to students (i.e., college support services, community agencies/services) were not found to be significantly more present in the high achieving groups than in the marginal groups.

The number of hours employed was not large for either the marginal or high achieving groups. This phenomena might be accounted for by the fact that the students are supported by their parents or by scholarships. A demographic-social interaction survey that collected anonymous financial data was recommended in both the limitations and research sections of this report.

Students did not spend substantial amounts of time in travel to and from work and class because they do not work long hours and it can be assumed that they live on campus or nearby.

The data showed that high achieving juniors work and travel more hours than the junior level marginal students. There were only three students in this high achieving group so it is inappropriate to draw conclusions from the limited number studied. These three students could be individuals whose academic skills are strong and who are employed in a health care setting which reinforces the learning experienced in clinical nursing courses. Thus, rather than interrupting, the employment could facilitate learning.

Hypothesis 11 predicted that marginal students would be involved in more weekends away--weekends that consume time and energy and detract from preparation for Monday morning clinical learning. The data did not support this prediction; however, the data did show that the entire student nursing group spends a large number of weekends away. In addition, the data resulting from testing Hypotheses 12, 13, and 14 suggest that students are involved minimally in student support services, student life activities, or community activities. No difference was found between groups on these variables. It is apparent that a large percentage of student nurses meet social interaction needs away from campus on weekends and do not participate in the on-campus programs. The possible factors involved in the dynamics of this behavior are multiple.

The campus at Nazareth College is small and the social interaction opportunities are limited particularly by the fact that there are few males on campus. One of the most important growth and development tasks for this age group (Ripple, Biehler, & Jaquish, 1982) is to develop relationships with the opposite sex, and yet this is difficult on a campus where there are few males and in a professional program utilizing clinical learning settings which are female dominated. Nazareth College has no gymnasium or physical education program, a limited intramural sports program for women, and limited structured social activities on campus. Consequently, the opportunity for immediate access to social interaction is limited and students develop the habit of utilizing what is available.

The weekend exodus is understandable considering the situation; however, this exodus may not be the most useful behavior given the student's growth and development needs and the student's need to achieve academically. A growth and development task that is important for this age group is the need to establish independence from parents and to develop peer relationships with other adults. The establishment of independence from parents has always been a part of the college experience, and yet the lack of social interaction opportunity in small female dominated liberal arts colleges can interfere with accomplishing this task. The fact that the Kalamazoo environment has a wide variety of resources and the fact that Nazareth College has recently hired a Dean of Student Life who is committed to developing the student program gives hope for the problems seen in this area.

Conclusions and Nursing Implications

The conclusions that can be drawn from this study are discussed here for the purpose of proposing implications for nursing education.

1. Small liberal arts colleges with open admissions are likely to have a number of students who enter academic programs with poorly developed academic ability skills. These students are more likely to be students who eventually dropout or are marginal performers. In this study, marginal students had lower ability and achievement scores than high achievers. They continued to be the lower performers on all levels, and on State Board Examinations. These data suggest the need for program development that includes special

learning to improve academic skills and achievement. Nursing educators have not indicated commitment to this group of students. Based on the assumptions outlined for this study, there is some evidence to suggest that this student group does have the potential to develop academic skills and contribute to the profession of nursing.

The following are implications for nursing education that are proposed:

a. Pre-freshman-year summer remediation programs that build academic skills and promote formal operational development (i.e., problem solving, critical thinking) may result in increased academic success.

b. Students should have ongoing access throughout the freshman year to remedial learning experiences that strengthen academic skills.

c. A preplanned 5-year program could be developed that combines work and study experiences. This plan would take into account the heavy science requirement and would allow time for remediation without overburdening the student with course work which requires use of skills they are currently remediating.

d. An on-going program to develop test taking and studying skills.

e. Utilization of mastery learning strategies in supplemental learning courses that precede each level of the nursing major.

f. Utilization of mastery learning strategies to promote higher achievement levels for all students.

g. Access to self-learning modules that can provide adjunct learning to currently planned learning experiences.

h. Tutorial programs that provide one-to-one or one-to-group assistance with learning.

i. A program for faculty development to promote understanding of how to help students help themselves.

2. The results of this study show that the student group surveyed is a homogeneous one on demographic and social interaction characteristics. While this aspect of the study did not assist in more clearly defining dropout and marginal students, it did act to identify two areas of concern that have implications for nursing education. It has been shown in the literature that the social interaction of students is a significant part of the academic experience and contributes to academic success.

Nazareth College students are minimally involved in student life activities and a large number of students leave campus for two to four weekends per month. It could be speculated that students leave to seek experiences that meet socialization needs. The time consumed in travel away on weekends is significant. This aspect of the study results leads to the following implications for nursing education.

a. Study results should be reviewed by college administrators who are responsible for the quality of Student Life on Campus program. Additional profile data should be gathered to determine the reasons for students leaving campus multiple weekends per month. At Nazareth College the Dean of Student's

position has recently been filled and new programs have been started, and a commitment has been made to improve the program.

b. Faculty should understand how to help students help themselves. One component of a student life program should be faculty development with the goal of assuring that faculty understand human development concepts.

c. Experimentation with alternative scheduling of clinical learning could result in a schedule that avoids Monday, 7:00 a.m., clinical learning. This would allow for class preparation at home on weekends and preparation for clinical experiences on Monday and Tuesday when students are on campus. Thorough assessments of clients could be promoted.

d. Adjunct learning materials to be checked out by students for the weekend must be developed.

Implication for Further Research

The results of the present study lead to the following recommendations for research:

1. A study of variables affecting dropout behavior should be done. Small liberal arts colleges that experience high dropout rates for freshman nursing classes will continue to be concerned about enrollments. While it may be that a number of students change career goals, demographic or psychosocial variables which could be altered may also be responsible for some dropout behavior. A study of dropouts that allows the respondent to remain anonymous and is mailed to home addresses or is filled out before the student leaves

campus could increase the number of dropouts willing to participate in a study. In addition, a broader variety of variables could be included in the questionnaire.

2. An experimental study should be completed with the implementations suggested in the preceding section. It would be useful to know if the implementations suggested did improve academic performance. Broader application could be recommended from experimental study results that show substantial improvement in performance as a result of strategies employed.

3. Additional study is needed to determine the relationship between academic performance and job performance. The goal of cost and stress reduction for dropout and marginal student with improved academic performance is, alone, a valid one. However, continued effort to align academic goals, and learning to meet goals, with job performance goals is the ultimate task. While it is important to improve academic performance, it is also important to improve the job performance of graduates. The study of relationships between academic and job performance is important and would contribute to this end.

4. The social interaction needs of students in small liberal arts colleges whose students are predominately female must be studied. This study shows that the Nazareth College student group is 18 to 23 years old and unmarried. The growth and development tasks that this group is accomplishing have to do with breaking ties with parents, establishing long-term relationships with peers, and making mate choices. These students are, however, in a setting

where there are few males to relate to, either on the campus or in the clinical learning setting where the nursing staff is also predominantly female. The large number of weekends spent away could be interpreted as an attempt to meet socialization needs. A study of student socialization needs would act to more clearly define reasons for travel. The study would provide direction for the on-campus student life program development in small predominately female liberal arts colleges.

5. Research should be pursued that measures the cost in dollars and stress to both the nursing program and the student when failure occurs. It is the premise of this research study that the current approach to dropout and marginal students is inefficient. Time, money, and emotional stress are wasted. The frustration resulting from failure to succeed results in faculty "burnout" and waste of student resources.

Summary

In this study the ability, achievement, demographic, and social interaction characteristics of three groups of baccalaureate nursing students were investigated. The three groups of students studied were dropouts, marginals, and high achievers. The purpose of the study was to identify predominant characteristics of dropout and marginal students that would act to direct the development of programs in nursing education.

The population studied consisted of the Nazareth College 1981-1982 freshmen, sophomore, junior, and senior nursing students. In

addition, the 1976-1980 graduating nursing classes were studied, including the freshman through senior year data for these classes.

The results of the data analysis offered mixed support for the hypotheses proposed. The ability scores of marginal students were lower than high achievers. This was also true of dropouts and non-dropouts, but those differences were not consistently significant at the .05 alpha level. Marginal groups were found to perform lower than high achievers on achievement tests, and a direct relationship was found to exist between achievement test scores and State Board performance. In addition, marginal students scored lower than high achievers on State Board Exams.

The demographic variables measured in this study did not help define dropout, marginal, or high achieving student characteristics, as the student group was found to be a homogenous one. The hypotheses predicting that marginal students would more likely be involved than high achieving students in social interactions which detract from concentrating on studies (i.e., employment, time spent in travel) were not supported by the data. In addition, social interaction that might act to give support to students (i.e., support services, community activities) was not found to be different from the high achieving group than for the marginal group.

Possible explanations for the findings were discussed, implications for nursing education proposed, and suggestions for further research developed.

APPENDIX A

DEMOGRAPHIC SURVEY

Dear Nursing Student:

The nursing program is involved in a curriculum evaluation and revision project. It is imperative that we find out more about our students so that we can make program changes that will provide opportunity to set alternatives to meet students' needs. I am combining my doctoral dissertation and the goals of the curriculum revision project to a study of student characteristics. Each of the items on the survey attached have some significance for curriculum program change.

I thank you for the five minutes of time that you take to fill out this survey. I will be on hand to explain items or answer any questions that you may have.

Results of the survey will be available to you in the fall of 1982.

Thank you.

Sincerely,

Judy Stewart
Project Director

2/10/82

C O P Y

NAZARETH COLLEGE

NURSING STUDENT DEMOGRAPHIC SURVEY

Directions: Please fill in the following blanks and then mark the appropriate corresponding circle on the computer sheet.

Name: _____ Class: Fr. _____
Soph. _____
Jr. _____
Sr. _____
RN _____

1. & 2. Age _____

3. Marital status M (①) _____ S (②) _____

4. Sex M (①) _____ F (②) _____

5. & 6. Number of children _____

7. & 8. Number of hours per week employed _____ (including work study)

9. Employed in health care setting Yes (①) _____ No (②) _____

10. Employed in setting other than health care Yes (①) _____ No (②) _____

11. On campus residence Yes (①) _____ No (②) _____

12. Give the average number of hours (or parts of hours) per day spent in travel to and from class and work.

(①) Less than 1 hour _____
(②) 1 hour or slightly more _____
(③) 2 hours _____
(④) 2-3 hours _____
(⑤) Other (write in) _____

13. Give the average number of weekends you travel to stay away from campus and/or away from your local permanent address.

(①) 3-4 times per month _____
(②) 2 times per month _____
(③) 1 time per month _____
(④) Scheduled vacations only _____
(⑤) Other (write in) _____

Demographic Survey
Page 2

14. Give the number of hours spent in weekend travel to stay off campus, or away from your local permanent address.

(①) Less than 1 hour _____
(②) 1 hour or slightly more _____
(③) 2 hours _____
(④) 2-3 hours _____
(⑤) Other (write in) _____

15. Do you use the support services (advisor, counselor, financial aid offices, health services, etc.) offered at Nazareth College.

(①) Not at all _____
(②) Approximately 1 hour per month _____
(③) Approximately 2 hours per month _____
(④) Approximately 3 hours per month _____
(⑤) Other (write in) _____

16. Do you participate in student life activities on campus? (i.e., student government, social activities, clubs, etc.)

(①) Not at all _____
(②) Approximately 1 hour per month _____
(③) Approximately 2 hours per month _____
(④) Approximately 3 hours per month _____
(⑤) Other (write in) _____

17. Do you participate in community activities outside Nazareth College? (i.e., clubs, civic groups, professional organizations, health care systems support groups, etc.)

(①) Not at all _____
(②) Approximately 1 hour per month _____
(③) Approximately 2 hours per month _____
(④) Approximately 3 hours per month _____
(⑤) Other (write in) _____

3/24/82

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