COURSE GRADES AND STANDARDIZED TESTS AS PREDICTORS OF SUCCESSFUL COMPLETION OF THE ASSOCIATE DEGREE NURSING PROGRAM AT LAKESHORE TECHNICAL COLLEGE

by

Susan A Gabsch

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Research Advisor

The Graduate School
University of Wisconsin-Stout
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The Graduate College
University of Wisconsin-Stout
Menomonie, Wisconsin 54751

ABSTRACT

Gabsch	Susan	A.
(Writer) (Last name)	(First)	

CLASSROOM GRADES AND STANDARDIZED TESTS AS PREDICTORS OF SUCCESS IN THE ASSOCIATE DEGREE NURSING PROGRAM AT LAKESHORE TECHNICAL COLLEGE

Vocational Education	Dr. Dennis VanDenHeuvel	5/01	46
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Abstract

Due to the increasingly severe shortage of registered nurses, Lakeshore Technical College (LTC) is now more aware of, and more determined to deal with the issues of student recruitment and retention. Successful completion of the Associate Degree Nursing Program (A.D.N.) at Lakeshore Technical College depends on many factors, both intrinsic and extrinsic to the program. Variables that affect the learner such as family concerns, health, or program related issues might lead to problems in school related areas such as retention.

Student records of 174 LTC associate degree nursing students, enrolling in the program in and after January of 1997, who graduated, failed, or withdrew from the program by May 2000, will be analyzed. Grades received in specific required general education courses, pre-nursing required science courses, and scores received on the American College Test (ACT) or Assessment of Student Skills for Entry Test (ASSET) will be studied. This data will be examined to determine if a pattern exists between grades, standardized testing scores, and retention in the LTC associate degree-nursing (A.D.N.) program. Analysis of the data obtained in this research may identify factors that could alert faculty members to academic problems and potential failure of the student. It would also allow for early intervention to aid the student through the use of guidance, faculty or peer assistance, and promote successful completion of the program.

Table of Contents

Page

List of Figures

Figure Page

Chapter I

Introduction

As one of the 16 state technical college districts in Wisconsin, Lakeshore Technical College (LTC) is nestled snuggly between the cities of Manitowoc to the north, and Sheboygan to the south, in the village of Cleveland. Located in a well-established agricultural area, LTC serves the three counties of Manitowoc, Sheboygan, and Calumet. The 106-acre, park-like campus is easily accessed from Interstate 43 and other local corridors along Lake Michigan's western shoreline.

Over the course of the 1998-1999 school year approximately 26,000 students enrolled at LTC (referenced from Student Services). Courses ranged from short, half-day seminars to the associate-degree programs such as nursing.

The associate degree-nursing program (A.D.N.) as taught at LTC prepares students to enter the workforce as graduate nurses. It provides them with not only the necessary background courses such as communications, sociology, math, chemistry and biochemistry, anatomy and physiology, and microbiology, but also with the more rigorous nursing process (N.P.) courses, nursing process I-VIII. These N.P. courses provide the background knowledge needed for students to function safely and in a professional manner in the clinical setting. They are the skeletal backbone of the A.D.N. program. N.P. courses provide training in the basic elements of the areas of medical-surgical nursing, pediatrics and obstetrical nursing, care of the geriatric client, and the psychiatric client. They focus on the issues of wellness, disease processes, and characteristics of each client population, and include the basics of management and home health skills. They essentially prepare the student to take the state board licensure exam

and to put the initials R.N. after their name. N.P. courses prepare the student to assume the role and responsibilities of a registered nurse. Acknowledgment of these courses is necessary, but the N.P. courses will not be considered further in this paper.

Every August and January approximately 36 new students enroll in the two-year A.D.N. program at LTC. They range in age from the 18 year old, recent high school graduate, to persons well into their 50's with college degrees in other areas of study. The ratio of male students to female students is approximately 1:10 with 16 male students to 158 female students, according to Student Service records.

The A.D.N. program at LTC is generally completed over a two or three year time frame, with many of the necessary general education courses taken before actual enrollment in the program. The science requirements including chemistry, microbiology, and anatomy and physiology are often taken by students prior to starting the intensive N.P. courses, while other students may elect to take these courses in concert with the N.P. courses.

Successful completion of the A.D.N. program at LTC depends on many factors, both intrinsic and extrinsic to the program. Variables that affect the learner such as family concerns, health, or program related issues might lead to problems in school related areas such as retention. Grades, the inability to complete required course work or specific courses, and stress are just a few of the variables that lead to eventual problems with program retention (Reisberg, 2000). Specific prerequisite course grades in general education and pre-nursing science courses, (Belcher, 1989), along with Assessment of Student Skills for Entry Transfer (ASSET) and American College Test (ACT) scores may be predictors of successful program completion, or program failure.

Several studies have been attempted over an extended time span. These have all tried to find valid predictors of success or failure, generally in a specific school of nursing (Bello, 1977; Belcher, 1989; Capoor, 1982; Dean, 1992; Donsky, 1981; and Stankovich, 1977). Other studies have also been done at the community and baccalaureate college level and their findings are discussed as relevant to the A.D.N. program (Yess, 1979, Wood, 1988, and Allbritten, 1983).

A study done at Miami-Dade Community College by Belcher (1989), searched for factors among students prior to entry into the nursing program that might contribute to their success or failure in the nursing program. She found that the best predictor of grade point average was a combination of reading skills and the number of times a prerequisite science course had to be repeated to receive a passing grade.

Bello and others (1977) did approximately the same research in "Factors Which Predict Success or Failure in an Associate Degree Nursing Program. Final Report." The study collected data from 358 students entered in a nursing program from 1969-1974. Her criteria for success were simply completion of the nursing program, and passing the State Board Test Pool Examination for R.N. licensure. Bello (1977) found that the best predictors of success were high scores on reading tests, high grades in high school algebra, and college science grades.

Dean (1992), Donsky (1981), and Stankovich (1977) have all stated that grades in general education courses, whether in high school or college, reading ability as determined by standardized testing, and course grades in the sciences are all predictors of successful completion of the A.D.N. program. Capoor's study at Middlesex County College revealed that like the previous studies cited, high school grades and scores on

aptitude tests were good predictors of program success, although age, employment status, and certainty of career goals were also significantly related (Capoor, 1982). American College Testing Program Tests (ACT) were designed to predict college success and tend to produce similar correlation of test scores to grades, and program success.

Allbritten (1983) and Wood (1988) also discuss the same issues of the relationship of grades to success in college, although not specifically in the health care setting. Wood cites his own 1982 work as a reference when he declares that, "The best predictors of college grades tend to be other grades." (Wood, 1988, p.6) Although this study is done at the baccalaureate level, the same trends exist at the community college, associate degree level. At this level, Yess (1979) cites several specific independent variables of which aptitude tests including verbal and math components, high school math, and English grade point average (GPA) were determined to influence the final G.P.A. Throughout the available literature, studies completed have shown at least some degree of correlation between test scores, classroom grades, and student success.

Statement of Problem

While student retention in the A.D.N. program at Lakeshore Technical College has long been an issue, there has been only one informal study completed in this area since 1990.

Research Purpose

The purpose of this research is to examine existing patterns between grades received in specific general education prerequisites, pre-nursing science courses, pre-program test scores, and the successful completion of the A.D.N. program at L.T.C.

All students are required to take specific courses in general education and science courses related to the nursing area and the N.P. courses. Either the ASSET or ACT tests must also be taken unless the testing aspect is waived. This can happen as a result of any one of several reasons. An accepted test has been completed and is on record in the Admissions Office. The student has already completed a bachelor's degree or associate degree, or the student has completed a technical diploma program with general education courses included. If they have completed a college level English and math course with "C" or better grades, and finally if they are a transfer student from another post secondary school with sophomore standing and a "C" or better grade in the required courses, the student may be waived from testing.

All students must meet these requirements prior to, or at the time they take the N.P. courses. For the purpose of this study, the general education courses will consist of Written Communications, Interpersonal Communications, Contemporary American Society, Psychology of Human Relations, Human Growth and Development, and Algebra. The pre-nursing science courses will be General Chemistry, Biochemistry, Microbiology, and Anatomy and Physiology I and II. Students must also complete either the ASSET test or the ACT, scoring at a minimal proficiency level as set by A.D.N. program standards. If a relationship is found to exist, then the information may be used to implement early intervention to assist the learner and prevent a decreasing rate of retention.

Research Objectives

This research study will address the following objectives:

1. To identify the relationship between various general education pre-program

grades and successful completion of the A.D.N. program.

2. To identify the relationship between specific required science course grades and successful completion of the A.D.N. Program.
3. To identify the relationship of the ASSET and ACT scores to successful completion of the A.D.N. program.

Significance of this Study

Retention in the associate degree-nursing program at Lakeshore Technical College has been an issue for some time. While the current rate of student retention for this program ranges between 55-65 percent, a higher rate of 80-85 percent would be more acceptable. Nursing is in a state of constant fluctuation. At this time, nursing shortages exist all over the world and are becoming more critical. From Great Britain, to Canada, to the United States, healthcare is in crisis (Brooks, 1998; Sibbald, 1999; Curran, 1999 & Bingham, 2000). To decrease this shortage, students must not only enter the field of nursing education, but must also complete their education. This brings the circle back to the issue of retention and successful completion of the nursing program. This study will attempt to validate a relationship between specific course grades and pre-program testing, to predict possible problems in program retention and completion early in the A.D.N. program, and to provide appropriate intervention to assist these students to complete the program in good standing.

Limitations of this Study

The limitations of this study are as follows:

1. The data for this study is collected from a specific time frame, January 1997, to May 2000.
2. The size of the sample group is limited to the number of students enrolled in the associate degree-nursing program who withdrew, failed, or successfully completed, the program.
3. The number of variables addressed is limited to specific general education courses, specific pre-nursing science courses, and pre-program testing.
4. The sample is limited to only the A.D.N. program at Lakeshore Technical College.
5. ASSET/ACT testing scores are unavailable for several of the students because the student has met one of the allowable reasons.

Definition of Terms

ACT Test—American College Test, designed to assess high school students' general educational development and their ability to complete college-level work.(www.act.org/aap/index.html)

ASSET Test—Assessment of Student Skills for Entry Transfer. Usually given to determine readiness for post-secondary work at community college level. (ASSET Technical Manual, American College Testing Program, 1994)

Associate Degree-Nursing—A two-year associate degree program which upon completion allows the student to take the state licensure exam for Registered Nurse. Graduates receive an Associate Degree of Applied Science. (LTC curriculum fact sheet)

Completers—Those students who finish the A.D.N. program

General education courses—Those courses offered which are considered necessary to provide a broadly based overview of topics utilized by many different programs.(LTC curriculum sheet)

Non-completers—Those students which for any reason do not finish the A.D.N. program

Nursing processes—Courses specific to the A.D.N. program which recognize the various aspects of nursing such as health, wellness, disease processes and various population groups across the lifespan. (LTC curriculum sheet)

Retention—"reduction of attrition," (Allbritten, 1983)

Success-- completion of the nursing program (Bello, 1977)

Methodology

In a straight forward manner, this study will attempt to examine specific course grades in the required general education subjects, required pre-nursing science courses, ACT and ASSET test scores with the successful completion of the nursing program at L.T.C. The courses used for this data will be Written Communications, Interpersonal Communications, Contemporary American Society, Psychology of Human Relations, Human Growth and Development, and Algebra in general education, General Chemistry, Biochemistry, Microbiology, and Anatomy and Physiology I and II in the pre-nursing required science courses. The ACT or ASSET test scores will also be used to supplement the sought after information.

The data to be used is pre-existing, drawn from the grades received by students who were enrolled in the nursing program from January 1997, through May 2000. This sample will include the entire population. Regular personnel with access to the needed information will generate this information from existing student records. All identifying information will be removed to protect the privacy of the student whose grades will be scrutinized. Simple percentages and comparisons will be the method used to formulate the necessary data into useable information.

This chapter has discussed the background information, the problem, the purpose, the significance and limitations, and the objectives of this study. Chapter II will address a review of the literature available on this subject, while Chapter III will discuss the methods used to research this problem. Results and the discussion of those results will be presented in Chapter IV, while Chapter V will present conclusions and further recommendations.

Chapter II

Literature Review

The Relationship of General Education Pre-program Course Grades and Successful Completion of The Associate Degree Nursing Program: Program Retention and Completion

The world of health care is in crisis! The shortage of nurses is already closing hospitals and clinics, and causing labor problems in specialty fields and home care agencies around the world (Sibbald, 1999; Bingham, 2000; and Curran, 1999).

In April, Newfoundland's largest hospital took the unprecedented step of closing 15 surgical beds due to a "critical shortage of nurses." …..Reports from Newfoundland indicate that the shortage is already delaying elective surgery. (Sibbald, 1999, p.67) The population of nurses is aging states Curran, (1999) and so are the patients.

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> Both nurses and patients are getting older. Patients who make it into the hospital are generally staying for shorter and shorter periods. Home health care volumes had been growing, but then the Medicare interim payment regulations muddied that water. SNF's are coping with a new prospective payment system. The demand for critical care nurses and for all kinds of ambulatory services--including same-day surgery nurses--continues to grow. And while enrollment in graduate nursing education programs has

grown, more than half of all of these students are concentrated in nurse practitioner programs.

While the shortage of nurses has reached a critical level in some areas of the world, Brooks, (1998) speaks about the falling number of student nurses entering training in Great Britain. He states that there was a drop of 8000 nurses in training (15 %) in four years. Where does this lead us? Nurses are in short supply and the need is to recruit and retain nursing students, to enable them to complete the nursing program and to meet the state and federal requirements necessary to pass the State Board Examinations and become registered nurses.

What Predicts Success in Nursing Schools?

Retention has become a major issue, not only in the nursing workforce, but also at the college and community college level, and in the schools of nursing. In 1983, Albritten stated that attrition averaged about 40 percent among college freshmen. For the duration of the study, that level of attrition remains basically unchanged according to LTC statistics (See appendix A)

Authors have determined several different predictors of success or completion, although most of them agree that grades before nursing school are one of the main predictors in assessing program success. Wood (1988) lists reading skills and comprehension as one of the best predictors of college grades and success. Taking this one step further, Spahr (1987) suggests that success in introductory courses was related to a student's ability to read, write, and understand fundamental concepts, while Wall (1996) and House (2000) include previous or high school grades as predictors of successful completion of programs. House (2000) discusses academic background and other

variables, all used to predict success in science, engineering, and mathematical fields of study, and his data demonstrates a positive correlation between achievement expectancies, and high school curriculum. Mohammadi (1994), in tracking students at Patrick Henry Community College in Virginia, also found that grade point average, among other variables was a predictor of student retention and therefore program success.

The Relationship Between Specific Required Science Course Grades and Successful Completion of the AD.N. Program

L.T.C. requires specific science courses to be completed either prior to or in concert with program admission. These courses are Microbiology, Anatomy and Physiology I and II, General Chemistry and Biochemistry. It has been shown by various studies that these courses have a strong link to successful completion of the nursing program. Dean and Fischer (1992) stated that grades in science courses, such as biology, anatomy and physiology, and microbiology were the best predictors of course completion and therefore success. Belcher (1989), Campbell & Dickson (1996), and Bello (1977) each make their case for the use of science grades as useful predictors. Stankovich (1977) proved that a significant correlation existed between a female nursing student, her anatomy and physiology grade, final grade point average, and the likelihood that she would complete the nursing program.

Standardized Test Scores as Predictors of Successful Completion of the A.D.N. Program

The ASSET test has not had much impact on the studies in the literature pertinent to this topic. The ACT has seemed to be the test of choice for standardized testing. Several of the authors have determined that a correlation exists between standardized testing scores

and the successful completion of the nursing program Wold & Worth (1991); Stankovich (1977); Donsky & Judge (1981); Capoor (1982).

Chapter III

Methodology and Procedures

The purpose of this study is to examine the relationship between classroom grades received in specific general education and prerequisite science courses to the completion of the A.D.N. program. Written Communications, Interpersonal Communications, Contemporary American Society, Psychology of Human Relations, Human Growth and Development, and Algebra are the general education requirements, while General Chemistry, Biochemistry, Microbiology, and Anatomy and Physiology I and II are the prerequisite science courses. Pre-program test scores ACT, and ASSET, will be observed for their relationship to the successful completion of the associate A.D.N. at L.T.C.

In this chapter several areas will be addressed. They will include research design, sample selection, collection of data, protection of human subjects, and procedures followed.

Research Design

This research will be designed around the framework of longitudinal and exploratory research. It is longitudinal in that it allows for the examination of specific student grades across the entire time frame of the A.D.N. program and will not be limited to one specific frozen point in time. It is exploratory in that its purpose is to determine factors predictive of success or failure in the A.D.N. program. Examination of student records to determine the classroom grades received in various general education courses, pre-nursing science courses, and the scores received on the ACT or ASSET test will be done. The grades received in each observed area by the successful program completers

will then be compared to the grades received by those students who did not complete the A.D.N. program.

ASSET and ACT test scores will also be assessed by comparing the scores of those who completed the program with those students who did not finish. The ASSET system is simply an educational advising, course placement, and retention planning tool. It is specifically designed to be taken by students entering the community and technical colleges, while the ACT is usually required by the baccalaureate granting colleges. The ACT is generally given while the student is still in high school. Providing a record of academic achievement, the ACT can also demonstrate possible student potential in the basic subject areas of English, math, reading and science. Student scores from both tests will be compared by individual test areas, e.g. writing, reading, and math (numerical).

Sample Selection

The sample will consist of the specific course grades and test scores received by 174 A.D.N. students entering the program beginning in January of 1997 and either withdrawing, failing, or completing the program by May of 2000. The time frame was selected by picking the most recently available data (graduating class of May, 2000), and then reversing the time flow until reaching a point (January, 1997) when students would have reasonably had enough time to complete the program. This included time for repeating required courses because of grades deemed unacceptable by program standards. Since the sample will include the entire population, sample selection will not be random, and will be considered a nonprobability sample (Emory & Cooper, 1991).

The demographics exhibited by this group of students were varied. Age ranged from 18 to the mid-50's, and paralleled the average age of the student population at

L.T.C., being approximately 29 years of age. Students in this sample were mostly female, 158, and 16 male students. They lived in the surrounding counties of Manitowoc, Sheboygan, and Calumet during the course of this program. Most of the students worked at a paid position on a part-time basis throughout the program.

Collection of Data

Data for this study was collected exclusively from existing statistics, grade reports and school transcripts. If the information was unclear and needed more clarification, the assistance came from staff members in the student services or guidance areas, or from instructors in the A.D.N. program. Grades from six specific non-nursing required courses, five pre-nursing science courses, and standardized test scores from either the ACT or ASSET test were collected from data generated by personnel from student services. The data was examined to see if a relationship existed between these course grades and tests, and the student's completion, or failure to complete the program.

Protection of Human Subjects

The student's right to privacy was considered of utmost importance in this study. Data obtained for study and observation was collected exclusively from already existing sources and generated by regular personnel from student services, with normal access to this information. All identifying markers were removed prior to receipt by this researcher. This information was re-marked with a specific identifying code. There was no contact with any student for data collection and all data will be reported in concert with other students, experiencing the same course in aggregate only. This study was

approved by The Graduate School, University of Wisconsin-Stout, for the protection of human subjects.

Procedure Followed

This study began with a simple "I wonder" question. Is there any way a student can be helped through a difficult program, and how do we define which students need the extra assistance? After obtaining a copy of student grades and test results from Student Services, the raw data for each student group was put on a grid and grades for each class were tallied. Students were divided into two groups, graduates or completers, and non-graduates or non-completers. The resulting number of A's, B's, C's, D's, F's, D/A's, F/B's, and Z's, etc., were counted and illustrated by graphs comparing the groups of graduates with the groups of those students who did not graduate from the A.D.N. program. After observing the resulting numbers and graphs, various assumptions were made which serve as the basis for this paper.

Chapter IV

Results

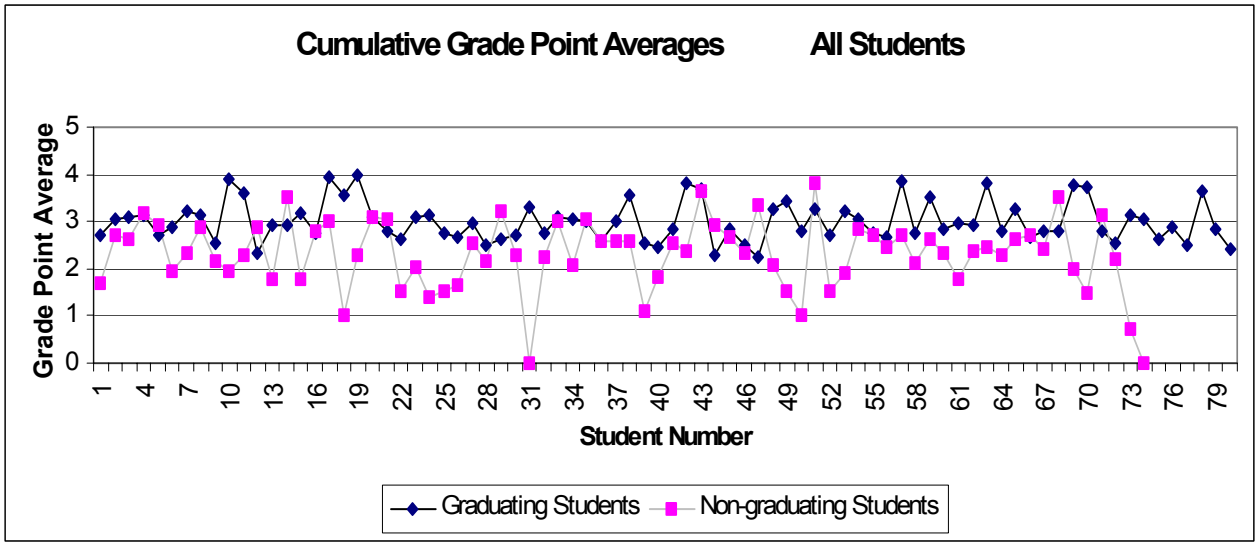
The results of the data analyzed and the problem researched are presented in Chapter IV. Data for 174 students enrolled in the associate degree nursing program is presented by class groups and as a whole, with graphs showing the overall comparison of graduating students to non-graduating students.

Of the 174 students whose grades and test scores were assessed, 43 or 24.7 percent dropped the program during the general education phase, before beginning the nursing process courses. 58 students or 33.3 percent dropped during the nursing process phase. At this point they are involved not only in classroom learning about healthcare and wellness, but also taking part in the clinical setting, working with clients on a one-to-one basis in a medical facility. The remaining 73 or 41.9 percent, completed the associate-degree nursing program and qualified to write the state board examination for registered nurse licensure.

A.D.N. students exit the program for various reasons. During analysis of the data it was noted that most of the students exiting the program prior to graduation left not during the general education course work required of all students, but during the more rigorous nursing process courses.

While grades in general education and specific required science courses played a role in which students continued the program and which did not, grades were not the only issue. Many students with passing grades and cumulative grade point averages also dropped the program.

Figure 1



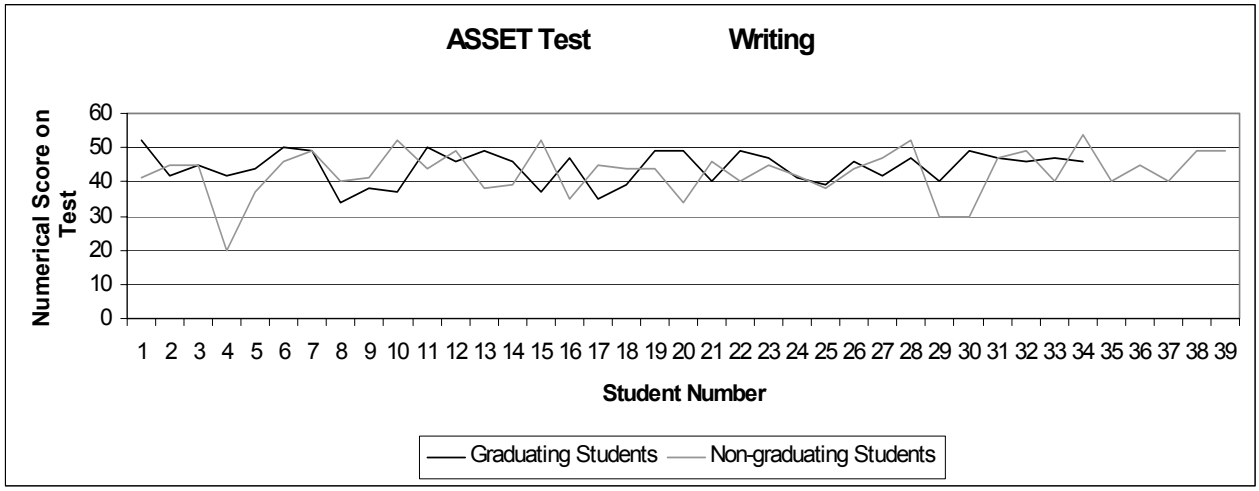
See Cumulative Grade Point Averages Chart, Figure 1). This chart demonstrates the grade point averages of graduating students as well as those who did not graduate.

The ACT and the ASSET test are two of the main test requirements for entry into the A.D.N. program. If the student meets one of several allowable conditions, such as a completed bachelor's degree or associate degree, a completed technical diploma program that includes general education, or a successfully completed college level English and mathematics course with a "C" or better, these tests are waived. Although there are some areas where graduating students scored highter than non-graduates, for the students whose tests were reported, the majority of instances reveal test results were about the same for both groups. While the student taking the test must score in a specific range to be included in the A.D.N. program, these tests only give assurance that the ability to perform is present, not the desire or the will to become an R.N. The following graphs

demonstrate how students scored on the three sections of the ASSET Test, writing, reading, and math.

While demonstrating some downward spikes by the non-graduating students, the writing test shows no conclusive difference between graduating students and non-graduating students. According to the test score of students who took the ASSET writing test, there was little, if any, discernible difference in the resulting test scores, and no way to foresee who would complete the program and who would not.

Figure 2



While reading scores on the ASSET test were similar, there was a trend for the graduating students to score slightly higher over all than the non-graduating students. This point is emphasized by Figure 3 which demonstrates a fairly similar set of test scores for for both the graduating and non-graduating students, although the graduates were slightly higher.

Figure 3

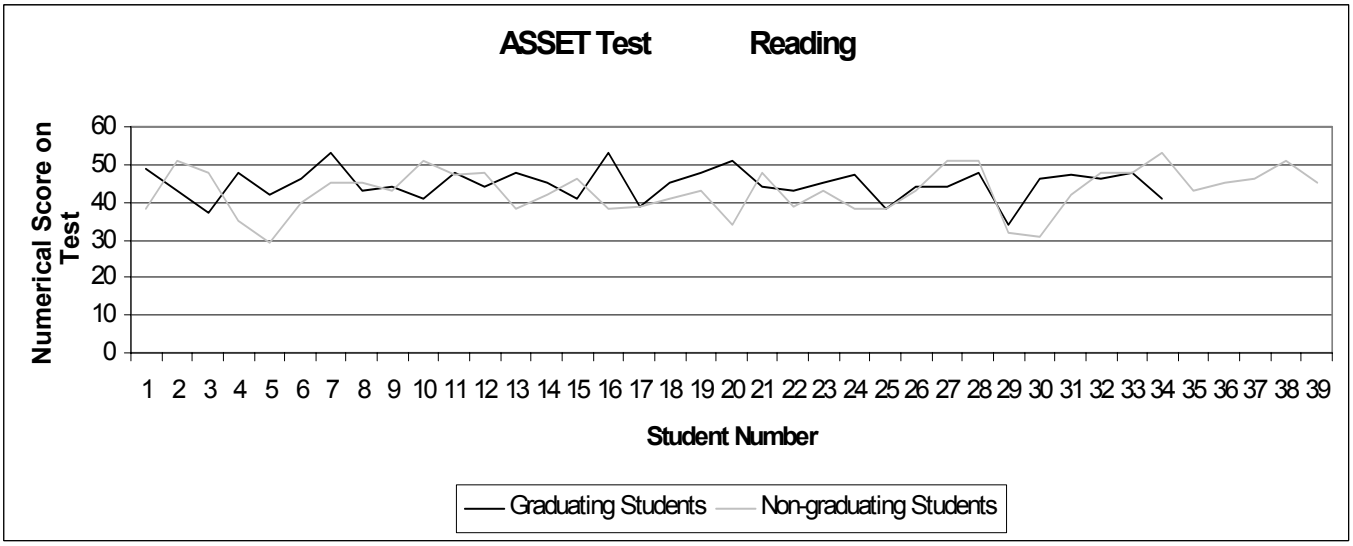


Figure 4 displays the numerical ability of the graduating students and the non-graduating students. Again the trend seems to be fairly consistant, with no great differences between groups.

Figure 4

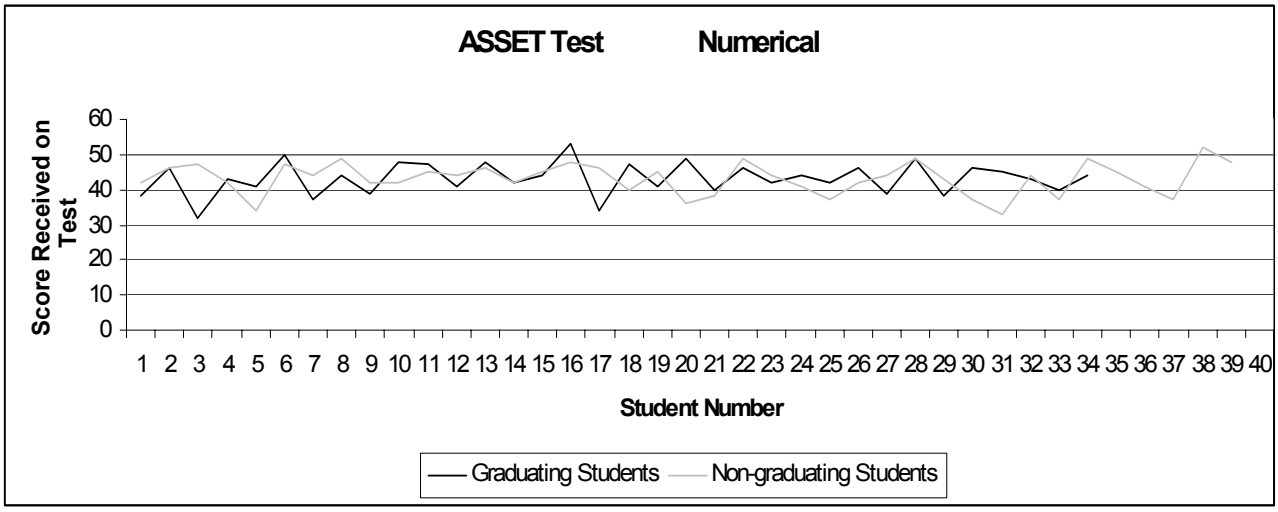
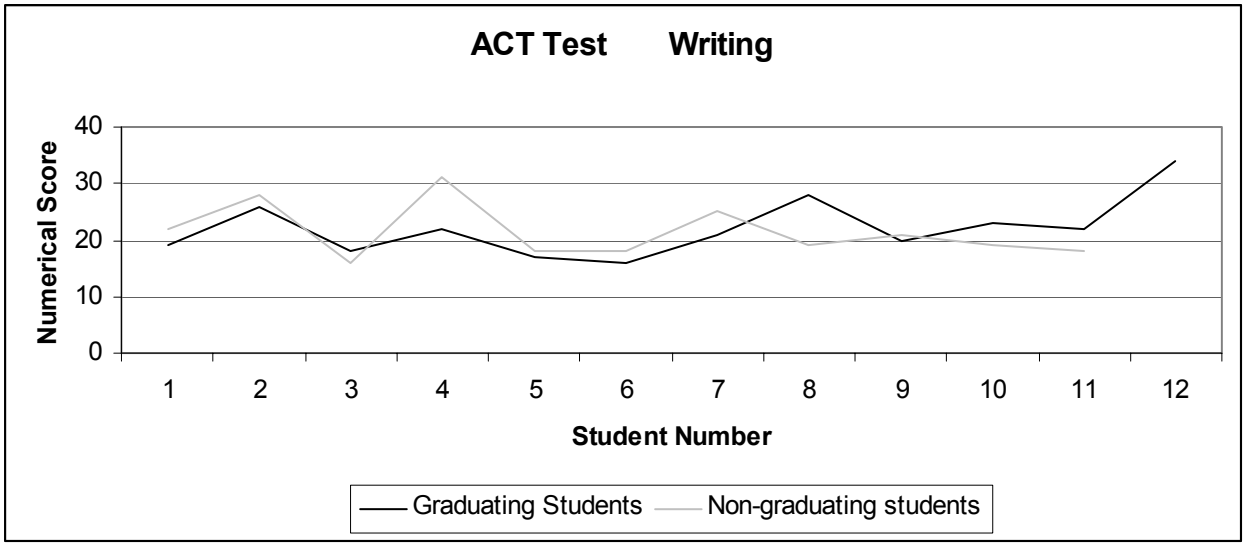


Figure 5



Like the ASSET test scores, the ACT test scores also did not seem to be valid indicators of completion or non-completion of the A.D.N. program. Scores on the Writing (Figure 5) and Reading (Figure 6) aspects of the tests were very similar, with Math (Figure 7) test scores being slightly higher in the graduating students than the non-graduating students.

Figure 6

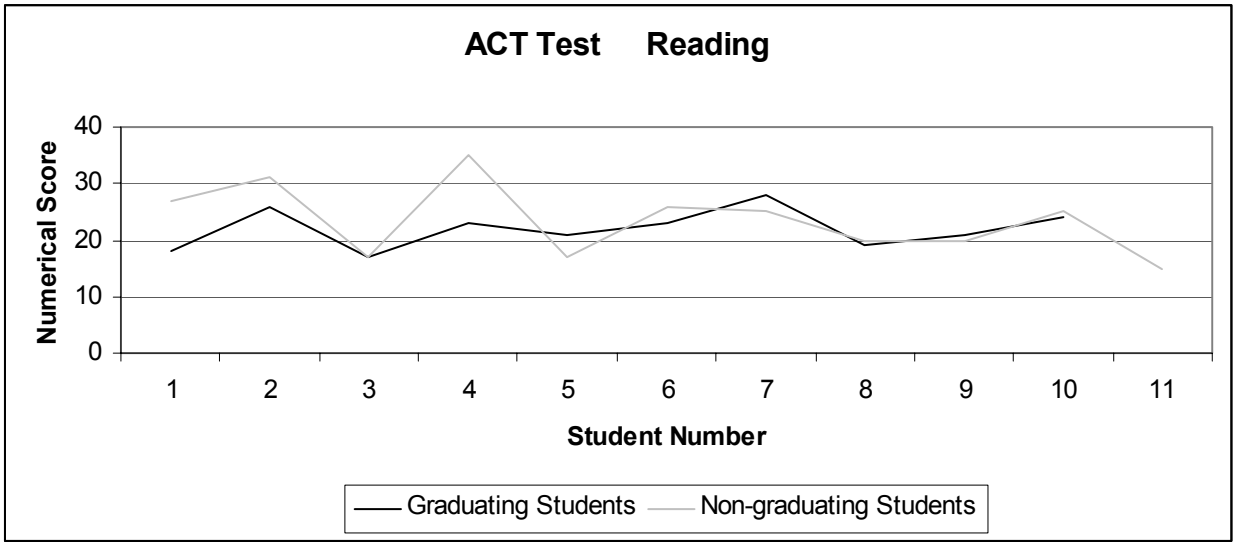
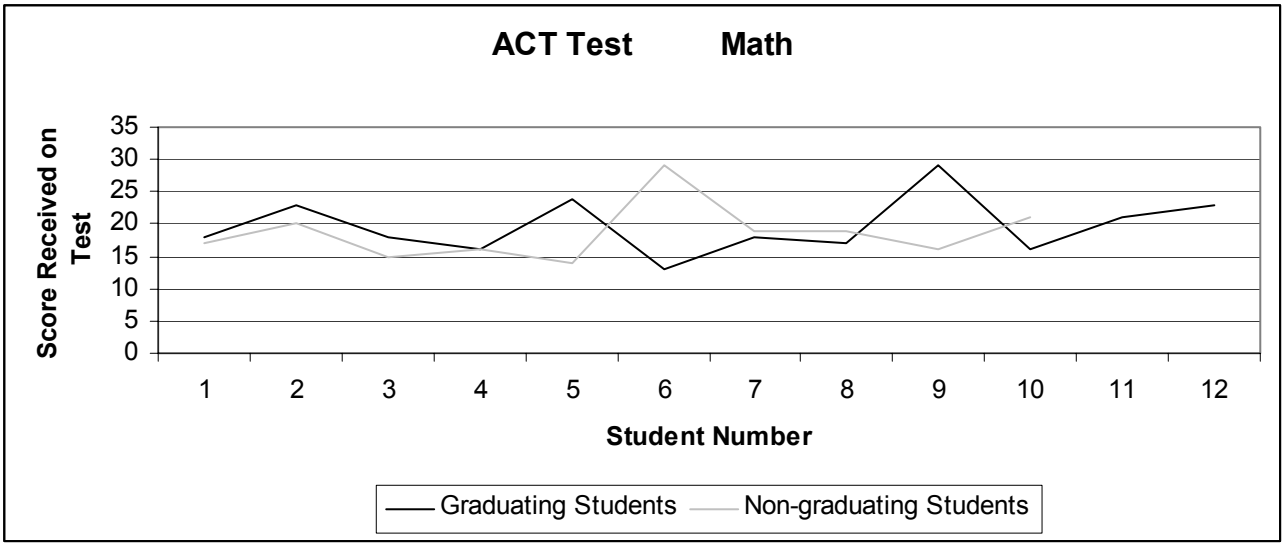


Figure 7



To successfully complete any course in the A.D.N. Program, a student must receive a grade of "C" or better and maintain a 2.0 grade point average. If a student received a course grade of "D" or "F," the course was retaken at some point in time, or the student dropped the program. Several of the grades on the graphs (figures 8-18) will show the retaken courses with grades such as D/B, or F/C. A grade of "Z" refers to the successful completion of a course which was accepted as a transfer course from another facility of higher learning.

Grades in general education courses consisting of Written Communication, Interpersonal Communication, Contemporary American Society, Psychology of Human Relations, Human Growth and Development, and Algebra were observed to determine if a relationship existed between grades and program completion. Although graduating students sometimes received higher grades than the non-graduating students, for the general education courses, this was at best inconsistent. (See figures 8-13)

Figure 8

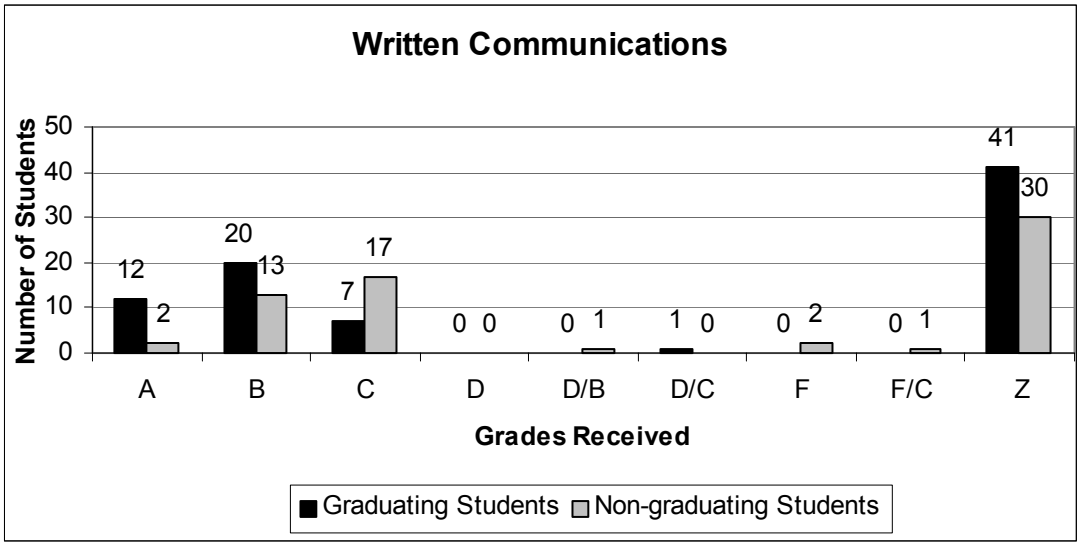


Figure 9

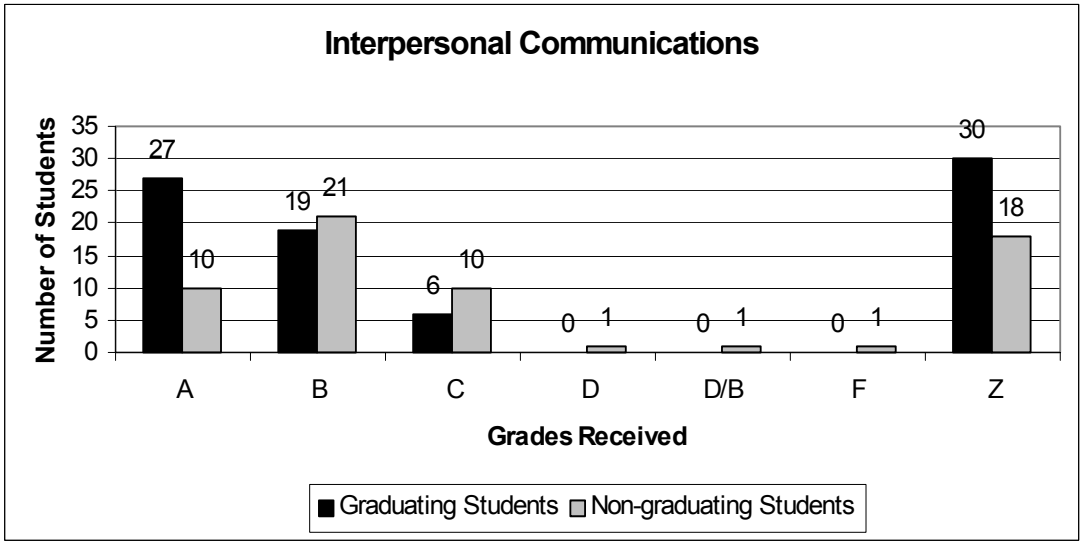


Figure 10

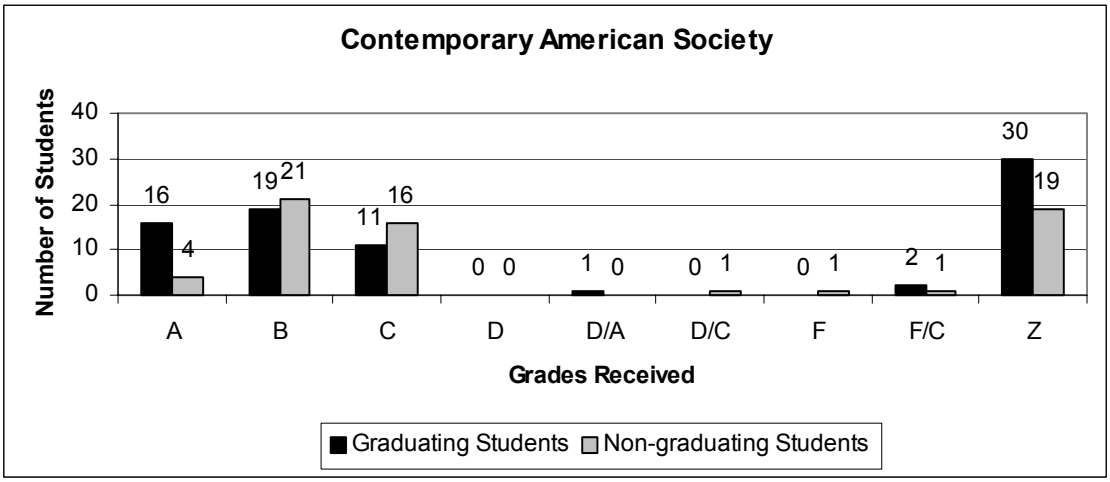


Figure 11

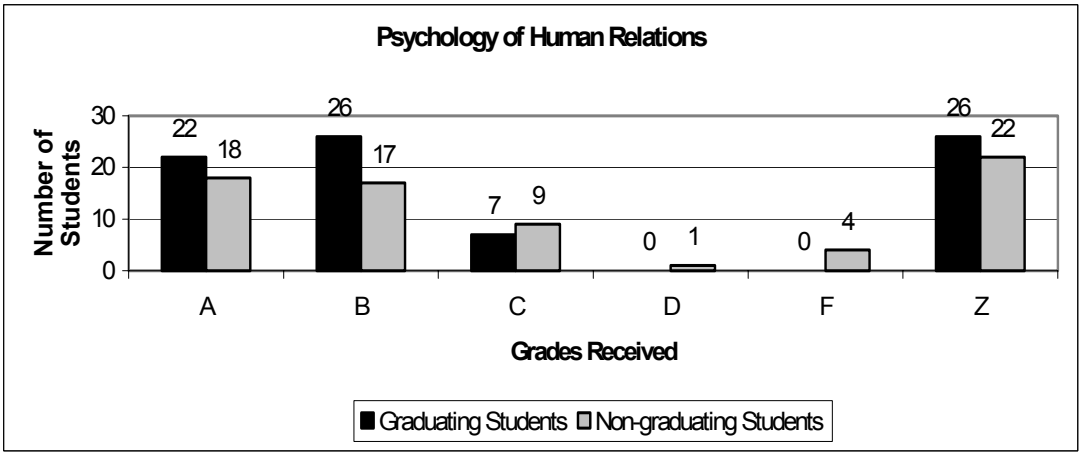


Figure 12

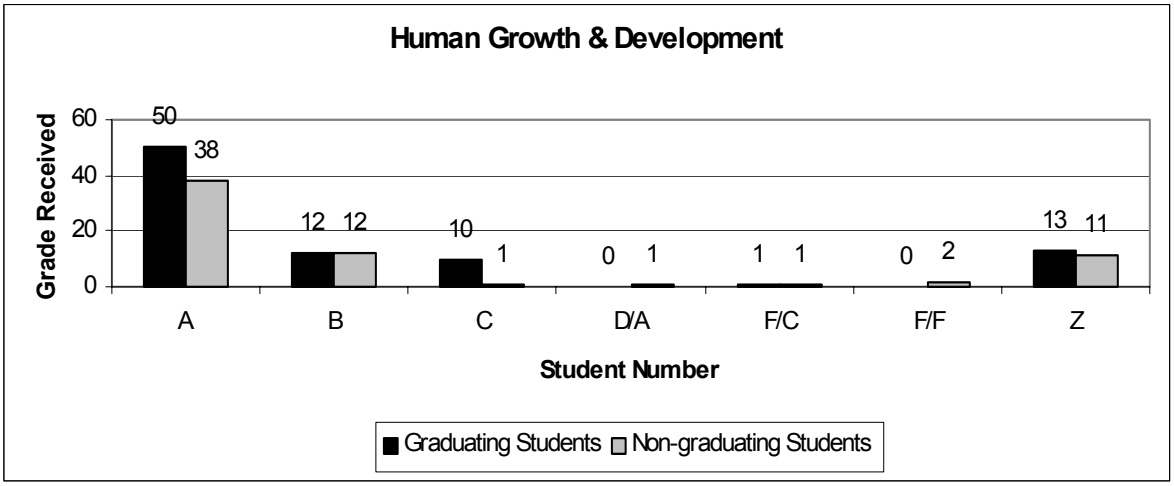
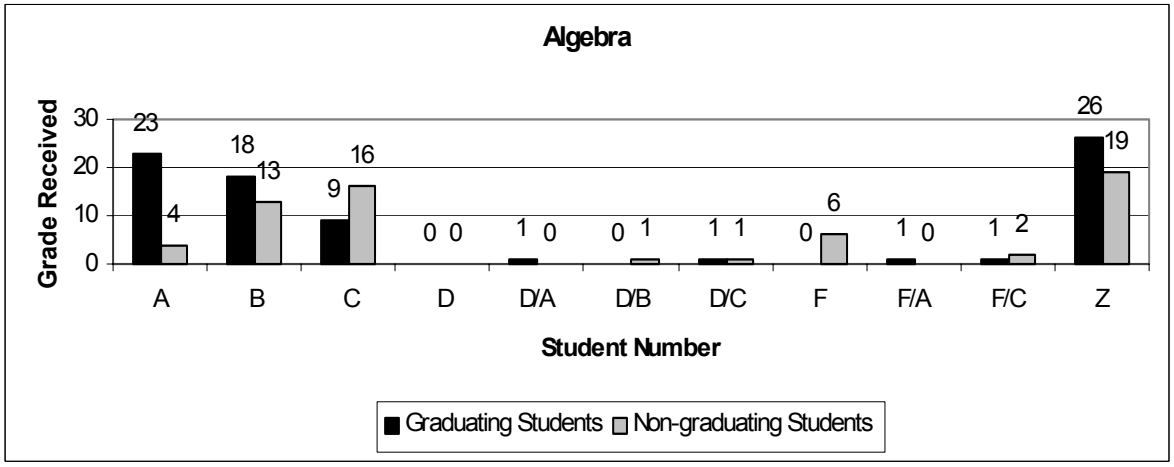


Figure 13



The required science courses of General Chemistry, Biochemistry, Microbiology, Anatomy and Physiology II were also observed. Program graduates in these courses almost consistently scored higher than did non-graduates. (See Figures 14-18)

Figure 14

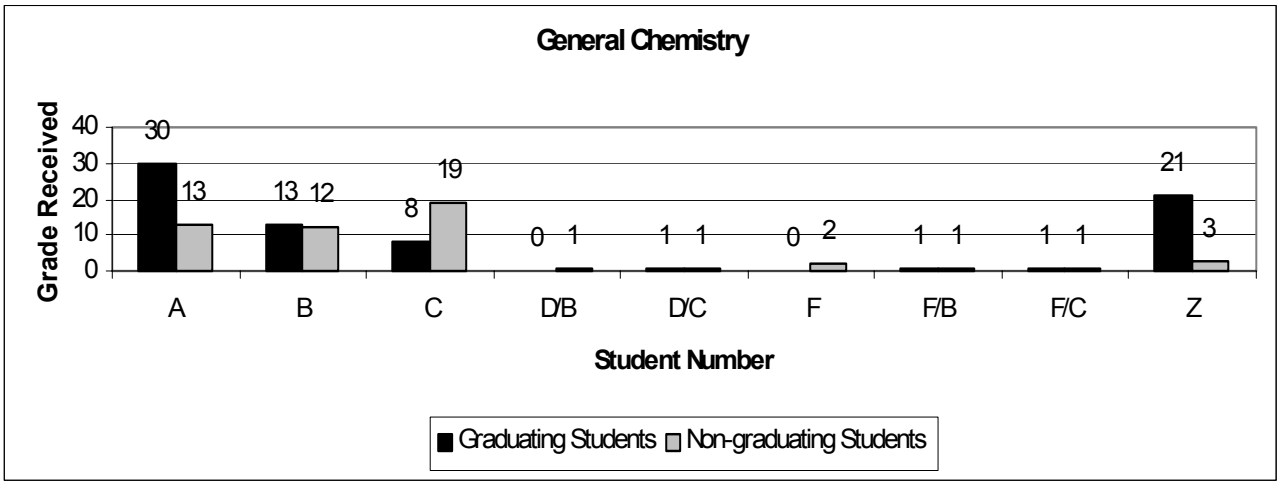
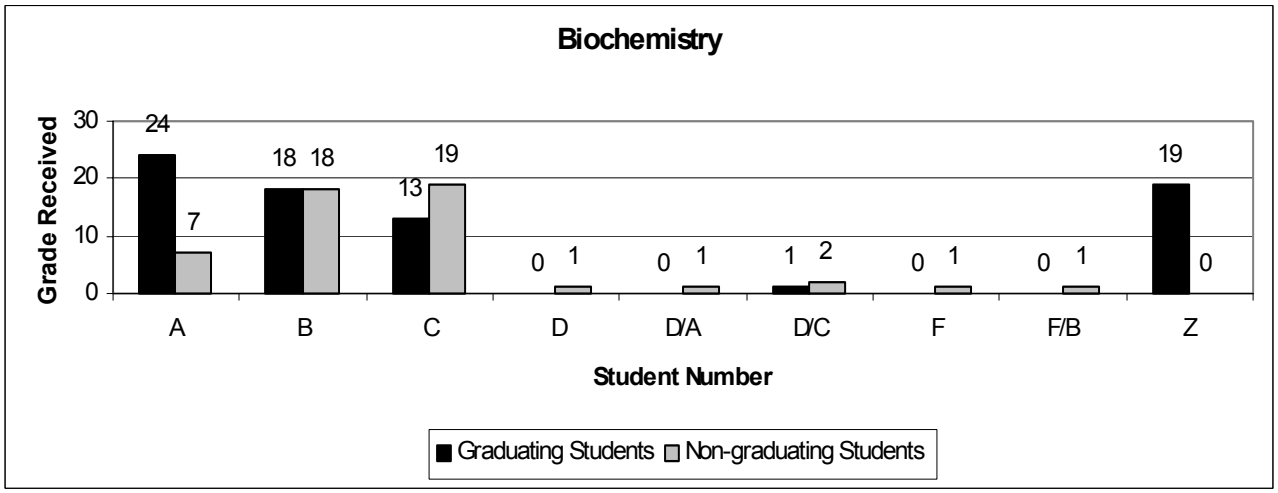


Figure 15



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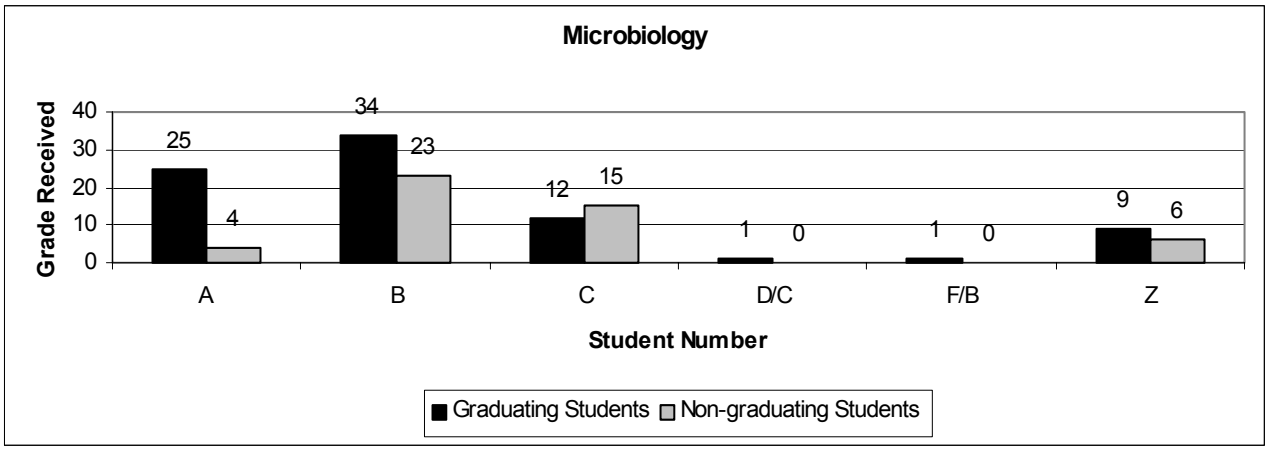


Figure 17

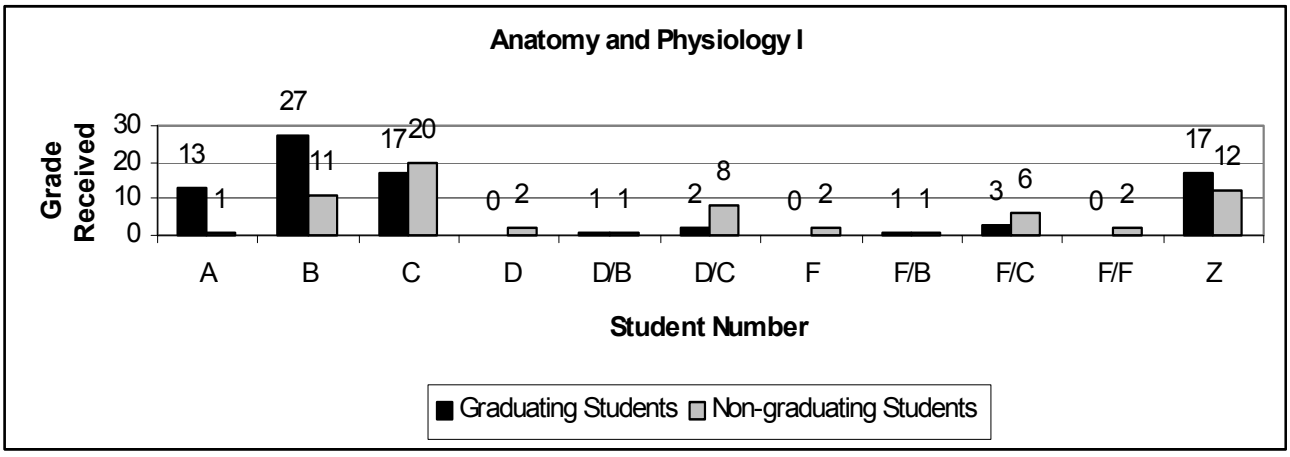
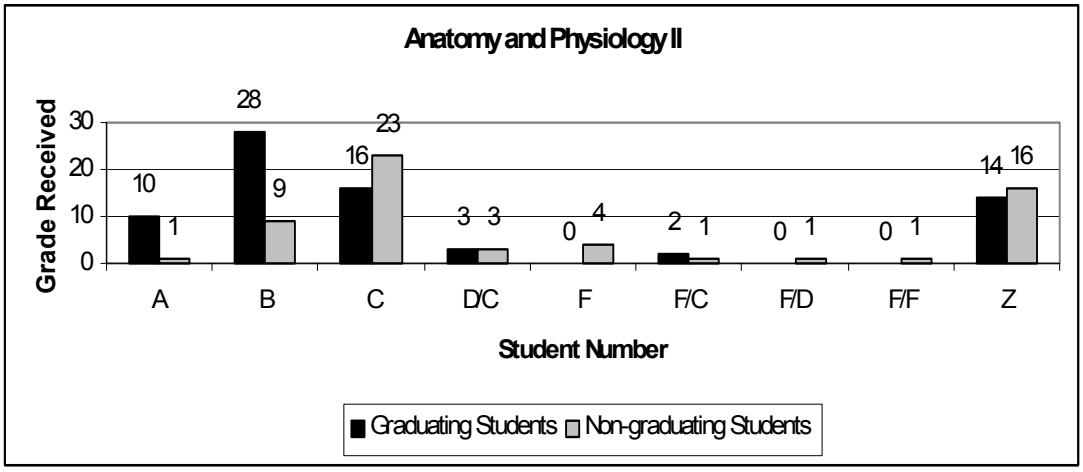


Figure 18



In most of the areas observed, the evidence of a relationship between testing, general education courses, and completion or non-completion of the A.D.N. Program is weak and inconclusive. However, the relationship between the science courses, especially Anatomy and Physiology I and II, is strongly suggestive that the student who completes these two courses in good standing, will also complete the A.D.N. Program.

Chapter V will provide a more indepth summary of the information provided in this chapter. Conclusions and recommendations that this research has suggested will be offered.

Chapter V

Conclusions and Recommendations

The use of course grades and standardized tests to predict program completion will be summarized in this chapter with the final results of graduating students and non-graduating students taken from the various charts and graphs. Once the information has been digested, the researcher can then make assumptions based on the findings and begin a program of preventative maintenance with the final goal being to increase retention by early intervention.

Restatement of the Problem

Since 1990, there has been only one informal study of the problem of student retention in the A.D.N. program at LTC. With retention hovering at about 45-55 %, keeping students in the program has become an important factor, especially since the shortage of registered nurses has finally struck in local areas. Well trained, competent nurses are in short supply and demand is high, yet the training program for these students is not only difficult, but time consuming and physically exhausting. Educators must be able to find the student with potential problems and reach out to them early in the course progression to keep this person in the program.

Methods and Procedures

To maintain anonymity, course grades and test scores attained by students were procured by regular staff members from the Student Services area. All identifying marks were removed and a number code was assigned. Students were not contacted in any manner by this researcher. Any misleading information was reviewed and clarified by Student Service personnel, or by instructors in the A.D.N. program. All course grades and test scores entered into grids and graphs of graduating and non-graduating students

were generated for each general education course and each prerequisite science course. These graphs, along with the graphs of grade point averages and test scores, were observed and conclusions drawn for students involved in the program from January 1997 through May 2000.

Major Findings

The findings that have come to light during this study have been much like the findings of other researchers from earlier years. Belcher (1989) predicted specific prerequisite course grades in general education and pre-nursing science courses would be determinants of successful completion. Dean (1992), Donsky 1981), and Stankovich (1977), have all stated that grades in general education courses, and reading ability as determined by standardized testing, and course grades in the sciences are all predictors of successful completion of the A.D.N. program.

While the standardized testing (ASSET and ACT) does not show a great difference between scores of the graduating students to the scores of the non-graduating students, there is generally, a somewhat lower score on all tests for the non-graduating students. Grades in the general education area were found to be inversely related in some instances. While the graduating students had mostly A's, then some B's and a few C's, the non-graduating students had few A's, and mostly B's and C's. Written Communications, Interpersonal Communications, Contemporary American Society, and Algebra all followed this pattern. Grades for two general education courses, Psychology of Human Relations and Human Growth and Development, followed the same pattern for both the graduating and non-graduating students. (See Graphs 4-14, Chapter IV). Grades in the prerequisite science courses again followed the inverse pattern as in the general

education courses, with Microbiology, Anatomy and Physiology I and II being the most noticeable.

Conclusions

Several conclusions have been drawn from this research. First and foremost, there is no one way to absolutely determine which student will graduate and which student will not graduate from the A.D.N. program. There are several factors which seem to enter into the equation. These range from the scores students received on the ASSET and ACT tests, to the grades received in the preliminary general education and prerequisite science courses. When these three parts are looked at as a whole, a picture begins to develop. If the student scored high on the tests, received mostly A's and B's in their general education and science courses, the possibility of dropping the program when they enter the rigorous N.P. classes is much less than if the reverse were true. If the student scored only at minimal levels on the tests and received mostly B's and C's in their pre-nursing courses, the probability of not completing the nursing program is high.

Besides grades, there are other possibilities that exist in which a student will not complete the program. Reasons such as health, family, job situation, and financial condition may play a role in whether the student successfully completes the program or does not complete it.

Recommendations

Theoretically, after the first semester of full-time study, guidance counselors and instructors should be able to locate students who will have a difficult time completing the A.D.N. program. This should certainly be able to be done by the end of the second

semester. One problem lies in the fact that so many of the students in this program are taking courses on a part-time basis. Another problem is the fact that many of these students work either full-time or part-time jobs and are female. This means they have responsibilities to spouses, children, and other home-related duties. Several are single parents.

How can retention be increased? Vocational counseling for those students who have met just the minimal admission testing scores and early intervention by instructional staff when they note that a student is having problems with the course should be done in the ideal situation. Peer assistance not only for tutoring, but also for the companionship of another person experiencing the same pressures would also be a benefit. Making job shadowing mandatory before entry to the program might also prove beneficial, allowing the student to see what nursing is all about. Visually observing what a nurse really does will either deter the student from entering the program, or make them realize their dream will become reality at the end of the A.D.N. program.

At the point in time that this study was completed, students were not mandated to obtain their Nursing Assistant certification. This has since become a part of the program entry requirements. It would be interesting to redo this study in a few years to see if experience in the health care field would make the student more aware of the reality of the true world of health care.

Recommendations Related to This Study

Although many of the recommendations suggested by this study are readily available through the LTC guidance department, they are utilized infrequently and not to the fullest extent. Some students are unaware that help exists until it is too late. Others consciously decide not to use the available resources. A detailed description of help

available and written as well as verbal communication at the beginning of each semester could prove beneficial to this study are:

Specific recommendations as related to this study are:

1. Pre-program guidance if admission testing scores are minimal on ASSET or ACT test.
2. Instructional intervention if having difficult time in specific classes.
3. Peer tutoring to bring grades up to suitable level.
4. Peer mentor to assist student to deal with the stresses of A.D.N. program and everyday life.
5. Mandatory job shadowing for at least two, eight- hour shifts to see what the real world nursing is all about.

Recommendations for Further Study

Recommendations for further study would include at least the following four specific content areas. The ability to replicate the study by controlling many of the variables such as place, number of students studied, time frame, and courses taken would certainly prove beneficial. A comparison of the two studies would demonstrate a positive or negative effect relating to the changes that have taken place as a result of the first study.

1. Study the same information for the same number of students in approximately two to three years. At this point, students will be graduating that have met the new mandatory Nursing Assistant prerequisite for this program.
2. After putting one or more of the previous recommendations in place, redo the study to determine if the retention rate has increased significantly.

3. Separate students by gender to evaluate if one sex has more problems in specific courses than the other.
4. A study to be done within two to three years which would be able to track not only numbers of male to female students, but grade comparisons and program completion numbers by gender.

In most of the areas observed, the evidence of a relationship between testing, general education courses, and completion or non-completion of the A.D.N. program is weak and inconclusive. However, the relationship between the science courses, especially Anatomy and Physiology I and II, is strongly suggestive that the student who completes these two courses in good standing, will also complete the A.D.N. program

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Chart 1
Student Exits - 1/97-12/98

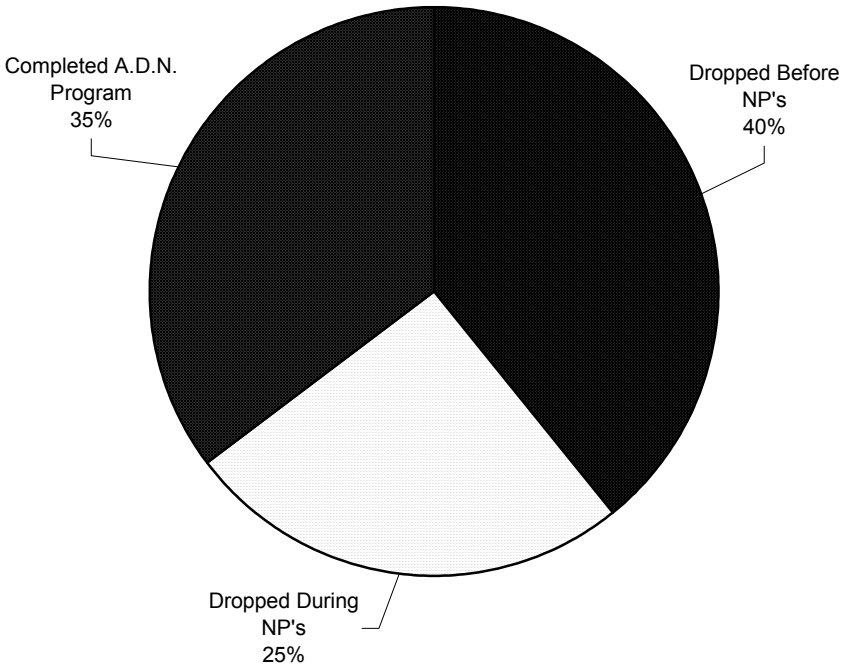

Chart 2
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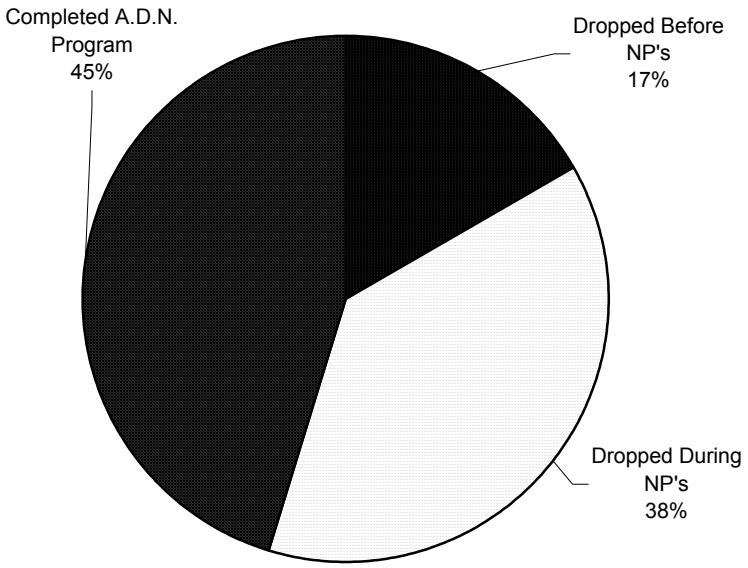

Chart 3
Student Exits 1/98-12/99

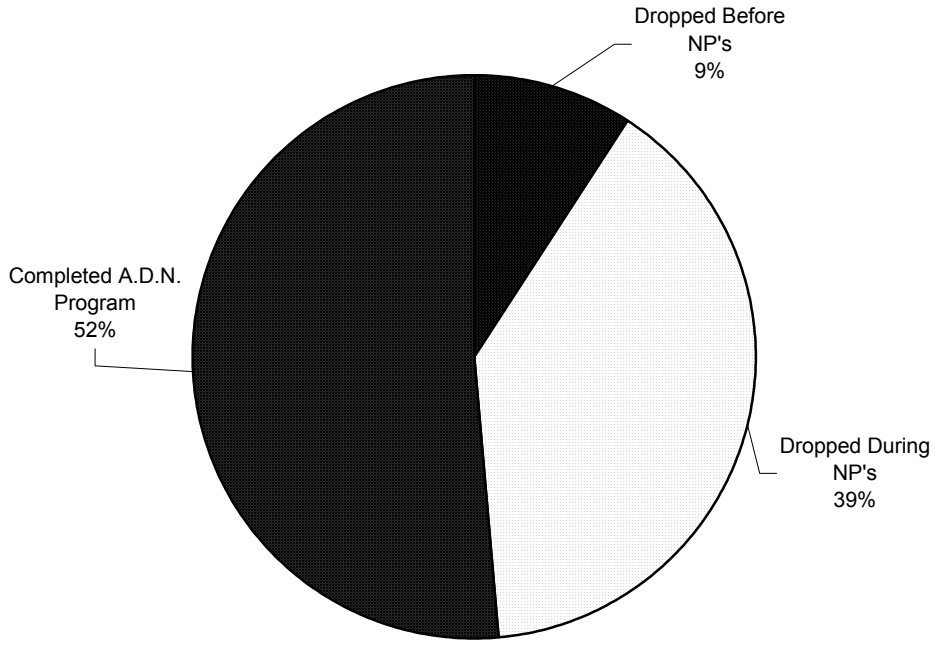

Chart 4

Student Exits 8/98-5/00