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A Study of Program Completion and Attrition in One Baccalaureate Nursing Program in the Southeastern United States

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A STUDY OF PROGRAM COMPLETION AND ATTRITION

IN ONE BACCALAUREATE NURSING PROGRAM

IN THE SOUTHEASTERN UNITED STATES

by

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Abstract

Already facing a national hospital and long-term care registered nurse (RN) shortage, the current number of potential nurse candidates successfully completing baccalaureate nursing programs (BNPs) is not sufficient to meet the estimated demand for baccalaureate-prepared nurses in the United States of America (U.S.) and worldwide. Yet program attrition due to varying reasons leads to graduating nursing classes that are below the clinical program's admission limit in a particular BNP in the Southeastern U.S.—often considerably lower. The study used a convenience sample of all current or former BNP students enrolled in the university from the fall of 2004 to the spring semester of 2009. A descriptive, non-experimental approach was used for the study, utilizing a researcher-developed survey for data collection. Surveys were completed by 171 of the 243 recipients for a 70.37% response rate. Survey findings provided valuable information that may lead to the enhancement of systems of support leading to greater likelihood of BNP retention.

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CHAPTER 1

Introduction

Already facing a national hospital and long-term care registered nurse (RN) shortage of 8.1% (American Association of Colleges of Nursing [AACN], June 2009, Current and Projected Shortage Indicators section, ¶ 4), the Health Resources and Services Administration estimates that, by 2020, more than one million new RNs will be needed to meet the shortage anticipated in the United States of America's (U.S.) health care settings alone (¶ 9). The AACN tracks studies related to nursing, academics, and health care within the U.S. Unfortunately, shortages also exist in nursing faculty positions, classroom space, clinical sites and preceptors, and budgets. Such shortages have led to close to 50,000 qualified undergraduate and graduate nursing applicants being turned away from programs in 2008 (AACN, Contributing Factors Impacting the Nursing Shortage section, ¶ 2).

Once enrolled in programs of nursing, attrition may be experienced by up to 50% of students in some settings. Attrition refers to students leaving the program of study without degree completion. The schools of nursing in the U.S. must explore reasons for this attrition in order to find ways to retain and graduate a greater number of skilled and knowledgeable candidates eligible for RN licensure. Projected expansion over current numbers of graduating nurses required to meet the nation's health care needs range from 30% (AACN, June 2009, Current and Projected Shortage Indicators section, ¶ 5) to 90% (AACN, Contributing Factors Impacting the Nursing Shortage section, ¶ 1). Such demand will not be able to be met without concerted effort to reduce attrition on the part of individual nursing programs (NPs).

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Many factors may influence college retention for the individual student. Retention refers to remaining in a collegiate program until the acquisition of a degree. Need and De Jong (2001) found individual student factors, study habits, and abilities to be the primary determinants of successful completion in the higher education arena they surveyed in the Netherlands. Wong and Wong (1999) found that "students who did well in basic sciences usually progressed successfully in nursing programs" (p. 351). Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006), found that 35.1% of students who were successful in a particular NP had sought advice regarding study skills and time management.

The literature also indicates a variety of reasons for attrition, including personal and academic factors (Andrew, Salamonson, Weaver, Smith, O'Reilly, & Taylor, 2008; Byrd, Garza, & Nieswiadomy, 1999; Campbell & Dickson, 1996; Newton, Smith, & Moore, 2007; and Uyehara, Magnussen, Itano, & Zhang, 2007). Such attrition results in economic loss for the institution as well as for the student, who has invested both time and money without reaching the goal of a degree. Some of the personal and academic factors leading to nursing student attrition explored in the literature include lack of professional fit, lack of personal self-enhancement tools, cultural and language struggles, stress, disparity between expectations and reality, and academic struggles in science and nursing courses.

Typical College Freshman Academic Major Change

Within any major, attrition takes place not only when a student leaves an institution but when a student leaves his or her major for another major. A national survey in the U.S., administered to first-year, full-time college students, shows that approximately one-third of all freshmen change their major during the first year of

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college (Kennesaw State University, 2007).

<div align="center">**Impact of Attrition from the Nursing Major**</div>

Attrition within the nursing major is particularly of concern because of the serious shortage of RNs anticipated within the next 10 to 20 years in the U.S. and worldwide. Reasons for this shortage are varied and include a reduction in nursing school enrollments and RNs leaving the workforce. Nursing school enrollments fell 47% in the 2004-2005 school year from the previous year (National League for Nursing [NLN], 2006, ¶ 1). According to the AACN, a 20% decrease has taken place from 1995-2003 in the number of nursing school graduates educated in the U.S. attempting the National Council Licensure Examination (NCLEX)-RN for the first time (AACN, 2007, Current and Projected Shortage Indicators section, ¶ 3). Registered nurses are leaving the nursing profession for other pursuits (AACN, Contributing Factors Impacting the Nursing Shortage section, ¶ 11, 12), and there is an aging RN workforce averaging 46.8 years old (U.S. Department of Health and Human Services, 2004). Compounding the need for RNs is the projected geriatric population boom as the "baby boomers" age. Additionally, nursing school issues of concern include numerous current nursing faculty shortages and an increasing lack of classroom and clinical site space leading to almost two-thirds of U.S. programs surveyed turning away qualified applicants in 2008 (AACN, 2009, Contributing Factors Impacting the Nursing Shortage section, ¶ 2). The number of part-time nursing faculty is increasing while the number of full-time nursing faculty is decreasing (NLN, 2005, ¶ 3). There is a dearth of doctorally prepared nursing faculty (NLN, 2005, ¶ 4). Nursing faculty experience a relatively low compensation, high cost of advanced preparation, and rigorous work conditions (Nevidjon & Erickson, 2001,

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Recruitment of Students section, ¶ 4). According to Peterson (2001), the aging of nursing faculty and overall flat enrollment in doctoral programs for nurse educators will impact the ability of schools of nursing to educate RNs in sufficient numbers to meet the future health care demand.

A great need exists for increased numbers of nursing faculty, and a bachelor of science in nursing (BSN) degree provides the foundation for advanced degree pursuits. "Currently, only 32% of America's nurses have baccalaureate degrees, and 10% have master's level preparation or higher" (Potolsky, Cohen, & Saylor, 2003, p. 246). Lancaster, president of AACN, states, "Besides adding to the RN workforce, graduates of baccalaureate nursing programs are much more likely to pursue graduate education and achieve the credentials needed to serve as nurse educators" (AACN, 2007, Interest Runs High in Professional Nursing Careers section, ¶ 3). The likelihood of further education is four times greater for BNP graduates.

The answer does not seem to lie in recruiting more students to choose nursing as a major, since NPs have already begun to turn students away due to an inability to accommodate them. Depending on specific and differing variables in each institution, NPs may be limited to a certain number of students that can be admitted into the clinical portion of the program each year.

Not all students who achieve initial NP acceptance are successful in program completion leading to graduation. Citing Leovy and Comins, the California Postsecondary Education Commission (2003) reports that attrition rates in some community college programs are as high as 50% and this is attributed "primarily to the admission of minimally qualified students" (p. 12). Although this report looked only at

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associate degree in nursing programs (ADNPs), attrition is a problem for baccalaureate nursing programs (BNPs) in the U.S. and worldwide, as well. A study conducted in Australia showed the average attrition rate in Queensland's BNPs to be 24.5% (Gaynor, Gallasch, Yorkston, Stewart, Bogossian, Fairweather, et al., n.d.). "A careful balance must be maintained to ensure selection of applicants who can be successful in the curriculum" (Newton, Smith, & Moore, 2007, p. 440).

As cited by Shelton (2003), the NLN Accrediting Commission has set desirable retention rate goals for both associate and BNPs at 80%. A review of the literature shows lower NP retention rates to be common.

"In light of the extreme nursing shortages facing the health care industry, focusing on the retention of those students who gain enrollment should become a top priority in nursing education" (Hopkins, 2008, p. 254). A study by Andrew, Salamonson, Weaver, Smith, O'Reilly, and Taylor (2008) suggests that many who choose to leave the NP early should never have chosen nursing to begin with. Others "hate to leave and intend to return to nursing as soon as they can. . . . Strategies to retain students should concentrate on these . . ." (Andrew et al., p. 871). Determining factors why students do not successfully complete the BNP is of value in planning program admission and retention strategies.

Statement of the Problem

The current number of potential RN candidates successfully completing BNPs is not sufficient to meet the estimated demand for baccalaureate-prepared nurses nationally and worldwide. Program attrition due to varying reasons leads to graduating nursing classes that are often considerably below clinical programs' admission limits. Thus, the

need for measures to facilitate optimal qualification of BNP candidates in the pre-acceptance stage, as well as measures to promote optimal success for all students who are accepted into BNPs, is imperative in the effort to increase the number of BSN graduates eligible for licensure. A significant increase in number of successful BNP students is necessary in order to meet the health care needs of society through increasing numbers of direct care providers. The increase in successful BNP students is also vital for preparing candidates for higher education who may, in turn, help meet the needs in nursing education.

Research Purpose

The purpose of this study is to identify factors exhibited by students who completed, did not continue, or persisted in one BNP in the Southeastern U.S. An understanding of the reasons for not "staying the course" among those who left the BNP may yield useful information that can lead to additional pre-requisites for admission, as well as the establishment of programs addressing the specific needs of nursing students at risk. These measures will hopefully result in an increase in the rate of retention within the nursing major, thereby increasing the number of graduate baccalaureate-prepared nurses completing the program annually and improving the world's growing health care and nursing education needs.

Justification for the Research

The number of RNs in the U.S. workforce is already experiencing a shortfall compared to the demand, and the demand is expected to soar within the next fifteen years with the growing geriatric population. Yet, as demand for RNs grows, supply is waning for varying reasons. Schools of nursing continue to experience problems retaining all

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qualified nursing students through program completion. Both personal and academic factors lead to student attrition. It is imperative for schools of nursing to examine the factors associated with retention and attrition.

Theoretical Framework

Dorothea Orem's nursing theory, known as the Self-Care Deficit Nursing Theory (SCDNT), was the framework for the current study. Alligood and Tomey (2006) state that "nursing practice according to Orem's conceptual model is a deliberate action of the nurse who views patients in terms of their self-care capacity" (p. 52). In this study nursing education practice, according to Orem's conceptual model, is a deliberate action of the nurse-educator who views students in terms of their self-care capacity.

Three related concepts rise from Orem's general SCDNT: self-care, self-care deficit, and nursing systems. All humans are seen as having the following six common self-care requisites (Tomey & Alligood, 2002, pp. 191,192):

1. the maintenance of sufficient intake of air, water, and food

2. the provision of care associated with elimination processes and excrements

3. the maintenance of balance between exercise and rest

4. the maintenance of balance between solitude and social interaction

5. the prevention of hazards to human life, human functioning, and human well being

6. the promotion of human functioning and development within social groups in accordance with human potential, known human limitations, and the human desire to be normal

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According to Orem's nursing systems, the wholly compensatory system is one in which the nurse acts to provide for the patient's needs because he cannot do so himself—he is totally dependent upon the nurse (Tomey & Alligood, 2002, p. 195). In the partly compensatory system, the nurse partners with the patient by allowing self-care as able and rendering assistance where needed. The supportive-educative system is that in which the patient fully cares for himself while the nurse provides the support and education needed for that self-care.

Adapting this theory to nursing education, when a student, in the role of self-care agent, is unable to fully recognize or care for his/her own needs as identified above, a self-care deficit exists. Deficits may exist in any of the six self-care areas denoted, but will primarily be evident in the sixth category as the student strives to achieve his or her potential within the area of nursing education. At this point the nurse-educator acts as nursing agency, using established support systems or nursing systems, in one or more of five roles as described by Orem (Tomey & Alligood, 2002, p. 194):

1. acting or doing for another

2. guiding and directing

3. providing physical or psychological support

4. providing and maintaining an environment that supports personal development

5. teaching

In the educational setting, a wholly compensatory system may be in play at first as the new clinical nursing student looks to the nurse-educator for instruction at every turn. A partially compensatory system begins to occur as each semester progresses. For

example, the first semester student becomes able to assess a blood pressure independently after being checked off by the instructor.

The nurse-educator should provide psychological support through encouragement and efforts to ease student anxiety as required. The nurse-educator should strive to provide and maintain an environment suitable to facilitate learning and personal growth from the role of a beginning student into that of an excellent nurse. Teaching should be utilized by the nurse-educator in both formal settings and less formal interactions. As a mentor, the nurse-educator must always model right nursing practice as well as appropriate interactions with others—including students. Throughout the NP, as the student grows in skill and knowledge, the nurse-educator should be able to be looked to for understanding, education, and information until, ultimately, the nurse-educator role will become entirely supportive-educative as the student nurse reaches greater independence. The nurse-educator who implements these supportive actions on behalf of nursing students will, in fact, contribute to retention in the NP. An entire nursing faculty committed to Orem's nursing systems concept should see little to no attrition due to student academic and personal factors.

Research Questions

1. What personal and academic factors are identified in students completing the BNP at a particular university in the Southeastern U.S.?

2. What personal and academic factors are identified in students not continuing in the BNP at a particular university in the Southeastern U.S.?

3. What personal and academic factors are identified in students persisting in the BNP at a particular university in the Southeastern U.S.?

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CHAPTER 2

Review of the Literature

This chapter will first discuss typical college retention and program completion rates and factors associated with general college retention. Next, there will be a description of NP retention and attrition and some predictive factors influencing rates of both in NPs. Both personal and academic factors will be explored.

A literature search was conducted using Google search engine and various online electronic databases, including Academic Search Premier, CINAHL Plus with full text, and Educational Resource Information Center. Key words included "college retention rates," "nursing program completion," "nursing program retention," "nursing program attrition," and "nursing student program success." Many more studies were available related to NCLEX-RN success, but these were largely excluded in an effort to focus on actual successful completion of NPs.

Typical College Retention and Program Completion Rates

Colleges have long faced retention and program completion issues. The American College Test (ACT) Educational Service has been tracking data obtained from the ACT Institutional Data Questionnaire for over 25 years in relation to college retention and degree completion in the U.S.'s institutions of higher learning (ACT, 2006). Results of first- to second-year retention and degree completion rates are categorized by institutional type (two-year; four-year public; four-year private) and admission policy. Admission policies vary widely and include a range from open admission to highly selective admission. In open admission policies, ACT scores in the 17-20 range and/or Scholastic Aptitude Test (SAT) scores of 830-950 are generally accepted when accompanied by a

high school diploma or the equivalent. In highly selective admission, ACT scores in the 27-31 range and/or SAT scores of 1220-1380 are required. Generally these students are among the top 10% of the high school graduating class.

The mean retention rate from the first to second collegiate years in U.S. private college baccalaureate programs (BPs) surveyed in 2006 ($n = 287$) was 70.6% (ACT, 2006). Accounting for admission selectivity, U.S. private colleges observing open admission in BPs ($n = 64$) had a first- to second-year retention rate of 80.1%. Baccalaureate degree completion rates in five years or less for the private colleges surveyed, dating from 1983-2008, ranged from 53.3% to 57.5% with a 56.1% completion rate in 2008 (ACT, 2008). These are the data most representative of the educational site of the current study—a private Christian university with an open admission policy.

Citing ACT, Inc., the Third Annual National Freshman Attitudes Report (Noel-Levitz, Inc., 2008) states that "according to the latest degree completion data, only 47.0% of entering college students nationally complete their degrees within five years" (p. 6). From ACT's (2004) review of retention literature, Carey reports, "even among the students most likely to succeed—those who begin their college careers as full-time freshmen in four-year colleges and universities—only six out of every ten of them, on average, get a B.A. within six years" (ACT, Appendix 1).

First-Generation College Students and Attrition

A study by Ishitani (2003) of incoming freshmen in a public university in the Midwestern U.S. looked at students' parents' educational level. The study continued to follow the cohort during both school semesters for five academic years and sought to determine risk of attrition among students whose parents did not have a college degree

(referred to as first-generation students) compared to those whose parent(s) had graduated from college. Particularly during the first year of college, the attrition rate was considerably higher (by 71%) for first-generation students than for those who had two parents with college degrees. Higher attrition rates continued throughout the five-year period among this group, although less dramatically than during the first year. Those who had two parents with college degrees had the highest retention rates. Those with one college graduate parent had lower retention rates than the two-parent group but higher rates than the first-generation students. It is interesting to note the impact that parental educational accomplishments may have on the collegiate retention or attrition of the individual student. Perhaps the support and understanding of college-educated parents enabled their children to have a realistic understanding of the preparation, expectations, and commitment involved in obtaining a college degree.

Retention and Degree Completion Rates in the Study Institution

The study institution, a private four-year Christian university in the Southeastern U.S., follows an open admission policy and has tracked its first- to second-year retention rate for several years. The university's first- to second-year general retention rate from fall 2004 to fall 2005 was 79.9%; the BNP retention rate for the same period was 80.0% (personal communication, Kathy Sykes, Constituent Services, July 2009). Both of these retention rates are close to the ACT (2006) finding of 80.1% retention for first- to second-year in private universities observing open admission policies. However, first- to second-year BNP retention rates dipped sharply to 67.3% in fall 2006 and to 63.3% in fall 2007, while general university first- to second-year retention rates remained fairly steady. In fall 2008, first- to second-year BNP retention returned to 80.0%. The four-year general

university first- to second-year retention average was 79.77%; the four-year BNP first- to second-year retention average was 72.65%.

The BNP and the majority of other majors in the study institution are designed primarily to follow a four-year curriculum path. For this reason, four-year degree completion rates were examined rather than five-year. General university four-year degree completion rates between fall 2004 and spring 2009 ranged from 37.4-51.6%, (personal communication, Kathy Sykes, Constituent Services, July 2009) with an average of 47.9%. This, however, did not include those completing degrees during summer 2009. The BNP four-year degree completion rates for the same period ranged from 41.2-83.3%, with an average of 65.38%. No nursing graduates required additional summer work for degree completion in 2009. In all university programs, students may have continued to progress toward degree completion at a slower rate of five or more years.

Factors Associated with General College Retention

A variety of factors may impact college retention and the individual student. The literature indicates some of the reasons why students leave college early without completing a degree (referred to as attrition), including academic and personal reasons.

Need and De Jong's (2001) study sought to determine if the actual choice of institution played a role in academic achievement during the first year of higher education. Study findings yielded very little difference in GPAs, number of courses completed, and drop-out rates among institutions. Most significant were individual student factors: "students with higher levels of satisfaction [in their choice of academic program] obtain higher grades, complete a larger number of courses, and are less likely to drop out" (p. 275). Furthermore, Need and De Jong reported that the most important

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factors related to success in Dutch higher education appeared to be individual student abilities and personal study habits. Generally, all college programs deal with student retention and attrition issues related primarily to personal and academic factors. These issues are more consequential in programs of nursing due to their impact on health care provision.

Issues Impacting Retention and Attrition Related to Programs of Nursing

In a study of 45 BNPs and ADNPs by Colon (1997), close to 50% reported that they had admitted students with learning disabilities (LD) and one-third reported graduating students with LD. While some were successfully retained with accommodations, others experienced attrition through failure or dropping out of their programs. The author goes on to report that, of the NPs surveyed in North Carolina, "over one-third have no performance standard lists in place" (p. 376), or strategies for the identification, retention, accommodation, and promotion of success for students with LD. Likely, many previously undiagnosed LD students have remained undiagnosed, harming their likelihood for program success.

Programs of nursing need to give greater focus to developing support programs for assisting all students to be successful in their educational pursuit of nursing, including those with LD interfering with academic achievement. Hopkins (2008) stated the following:

> It is recognized that some support systems may not be in place . . . and that faculty may have to create such systems for their students. Support systems may include peer tutoring, course content review sessions, personal and academic counseling, study skills workshops, and other student support groups. (p. 258)

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Higgins (2004) points out that "faculty should identify at-risk students early in the semester to facilitate their success" (p. 321).

A study at a university in Louisiana, offering both a BNP and an ADNP, found the failure or drop-out rate in their biological science course was between 50-60% (Kumar, 2005). Additionally, Campbell and Dickson (1996) reported the following similar findings: "students tend to have the greatest difficulty with nursing courses that require a strong science background" (pp. 56, 57).

Magnussen and Amundson (2003) conducted a qualitative study on the lived undergraduate nursing student experience. Four major themes appeared as responses were categorized. The first involved a problem with meeting conflicting demands. Most of the students had to juggle work and family responsibilities in addition to school work. Sleep deprivation was often a result—yet neither the workplace nor the instructors seemed to understand. The second theme was related to the overwhelming volume of school workload and the constant pressure to be thoroughly prepared. The third related theme was that of feeling overwhelmed with all they were expected to know and being unprepared to face professional demands. Finally, some students felt a lack of respect demonstrated toward them on the part of the faculty. One felt embarrassed when spoken to in a critical way in front of others. Another lived in fear of being called on and not having the right answer. The authors concluded that the "students' stories provide insights about the current educational environment which can assist faculty in understanding the impact of their pedagogical approaches" (p. 266).

Mashaba and Mhlongo (1995) conducted a cross-sectional survey of both current and former students of a particular South African university BNP in an effort to study

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reasons for NP attrition. Former students who participated in the study may or may not have successfully completed the BNP, yet all students were able to shed light on their "perceptions about factors that undermine students' retention" (p. 368) in the program. Comments related to interaction with lecture and clinical nursing staff included such things as a lack of access to instructors when needed, instructors' expectation of students being too great, and delivery of confusing instructions/mixed messages on the part of instructors. Additionally, comments were made related to a lack of love, patience, and understanding demonstrated toward students by instructors. Students felt they were being dictated to and treated in a demeaning manner.

Nursing students with English as a second language (ESL) and/or from a different culture often have additional struggles—even if they are from minority ethnicities within the U.S. versus non-Hispanic Caucasian. Jalili-Grenier and Chase (1997) report that scrutiny of a particular community college in British Columbia, Canada, shows that a significantly higher number of ESL students were in the unsuccessful first-year nursing student group than in the successful group. Further, "ESL students rated clinical courses as significantly more difficult than did non-ESL students" (p. 203).

An analysis of admission records from a state university in California showed that minority students dropped out of the BNP at a rate of almost two times that of non-minority Caucasian students (Gardner, 2005). The most commonly reported reasons include the following: a decision to change majors, academic difficulties, and financial concerns. A study by Seago and Spetz (2005), in California's community college NPs, revealed higher attrition rates to be associated with those programs having greater numbers of certain ethnic minority students. Each of the previous three studies point to

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personal and academic factors associated with cultural issues. These and other personal and academic factors related to NP retention and attrition will be examined further in the literature.

Nursing Program Attrition Quantified

A meta-analysis by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006) via computerized databases of undergraduate NP attrition studied between 1966 and 2005 yielded only four prior studies that met all of the criteria necessary for inclusion, revealing a need for more studies on the subject. Various aspects of attrition and retention were explored in the four studies identified by meta-analysis. Three of the four reported actual attrition rates. In these three studies, attrition rates ranged from 25-35% over two years. One of the studies reported a greater likelihood of degree completion among students reporting greater levels of stress and burnout. In one study, the focus was a on a first-year look at a three-year program. By year's end, attrition was 26.5% and 19% had fallen behind the scheduled curriculum—leaving only 52% on schedule for completion. Studies describing actual reasons students left NPs were lacking. More research as to factors involved in specific program attrition is warranted.

Gaynor, Gallasch, Yorkston, Stewart, Bogossian, Fairweather, et al. (n.d.) looked at NP attrition rates in some of Australia's universities from January 2003-December 2005. While there was a wide range of 9.7%-41.8% between universities, the average attrition rate was 24.5%. Again, no specific factors associated with retention or attrition were explored.

Byrd, Garza, and Nieswiadomy (1999) looked at program completion versus failure or dropping out of a BNP in the Southwestern U.S. Analyses of the sample's data

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revealed that 70.8% completed the BNP and graduated; 8% of the students failed out of the BNP; 21.2% of them dropped out of the nursing major over the three-year period. Predictors of program completion versus failure or dropping out included both personal and academic factors of individual students.

The authors of another study examining attrition chose to focus only on the first year of a particular BNP, since "most of the attrition from nursing courses occurs in the first year" (Andrew, Salamonson, Weaver, Smith, O'Reilly, & Taylor, 2008, p. 865). From 1994-2004, BNP attrition was 20% for first-year students and approximately 11% for second-year students.

Three themes emerged from first-semester discontinuers, including personal and academic factors as follows: "being unprepared for university; being disappointed in myself and the course; managing family, health, and finances" (Andrew et al, 2008, p. 868). Some of the comments involved feelings of a lack of preparation for university-level academic requirements; inadequate preparation for the bioscience courses; disillusionment between expectations of hands-on-care and reality of difficult theory; a realization that nursing was not what they wanted to go into, after all; and a desire to leave by choice rather than to fail. "The course evoked strong negative feelings for most of the participants and many expressed a hatred for the course by the time they left" (p. 869). Various personal reasons for attrition were cited by this group, including family, health, and financial issues. Academic factors were evident in the comments, as well.

Two themes emerged for second-semester discontinuers: "Coming to terms with reality; and reaching crisis point and tipping over" (Andrew et al, 2008, p. 868). Discontinuing second-semester students indicated similar experiences as first-semester

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discontinuers, but they had tried to persist in spite of difficulties met. Most of these students left with reluctance, indicating a desire to resume nursing studies in the future. They still felt a desire to pursue nursing but were not prepared for the barriers they met. Perhaps they had not been sufficiently informed of the rigors of the program and the profession itself. "Nursing program applicants . . . need to be advised of the extensive academic demands of the . . . nursing curriculum and informed of the necessity that pre-nursing courses prepare them sufficiently if they hope to be successful" (Newton, Smith, & Moore, 2007, p. 444).

The authors viewed the two groups of discontinuers very differently. They saw the first-semester group as choosing nursing without having realistic expectations of what was required—especially the strong science and theoretical preparation. "The discontinuers in the first semester were astute and recognised [sic] very quickly that they would not succeed or were not suited to the course. . . . Students who leave in the first semester never intend to return" (Andrew et al, p. 871). They concluded that attempting to retain such students in nursing would be futile "as these students probably are not suited or committed to the course" (p. 871). In a study by Wright and Maree (2007), disillusionment between expectations and the reality of what they found in the BNP led, in part, to a 50% attrition rate. Among the 35% of students who dropped out of an ADNP in a study reviewed by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006), 81.3% of discontinuers indicated that the program was different than their expectations. The reality of the rigor of science courses was particularly unanticipated.

Those who dropped out of the nursing major during first semester in Andrew, Salamonson, Weaver, Smith, O'Reilly, and Taylor's (2008) study fit the common pattern

of one-third of college freshmen who change their major. They did not have an accurate idea of what they wanted to pursue based on interest and abilities. Those who persisted longer reported specific obstacles to program completion, both personal and academic, that might have been overcome had circumstances been different for them. Perhaps at least some of this group would have fared differently if certain support strategies had been in place within the institutions and the NPs.

Attrition rate due to poor academic performance and personal factors increased from close to 30% to approximately 35% when the use of an interview admission process was omitted in a study by Ehrenfeld and Tabak (2000). The personal interview format was found to be the most differentiating in student retention, particularly in the screening for personal factors contributing to attrition, and may assist in the selection of students most likely to be retained in programs of nursing.

A nearly 50% student attrition rate was reported by Wright and Maree (2007), who found both personal and academic factors to be associated with NP attrition. Disillusionment between expectations and reality paired with inadequate preparation for a South African BNP led to such a high attrition rate.

A study of an ADNP in urban New York by Jeffreys (2006) showed a first semester attrition rate due to failure to be 9%; another 5.4% withdrew voluntarily from the first medical-surgical course. The original sample consisted of 112 students—75% eventually completed the program, although length of time to accomplish this varied from four to 12 semesters. This may indicate a lack of adequate academic preparation or disillusionment with expectations, as found in studies by Andrew, Salamonson, Weaver, Smith, O'Reilly, & Taylor (2008); Newton, Smith, and Moore (2007); and Wright and

Maree (2007).

Uyehara, Magnussen, Itano, and Zhang (2007) conducted a study in a particular BNP in the U.S. to identify predictors of program success, withdrawal, and NCLEX-RN success measured by passing on the first attempt. One-fifth of the students (20%) withdrew from the program. Close to two-thirds (nearly 64%) of the attrition was related to personal factors and over one-third (nearly 36%) was related to academics. Ehrenfeld and Tabak (2000) found that personal admission interviews with potential nursing candidates could decrease the attrition due to personal factors, which accounted for 50% of the attrition in their study.

While there is wide disparity in NP attrition rates, the need exists for a continuing reduction of attrition in all programs of nursing. Identification of factors contributing to attrition within each program of nursing is vital because the health care of society depends upon increasing the ranks of graduate nurses eligible to become practicing RNs worldwide.

Personal Factors Influencing Retention in Nursing Programs

Various factors have been explored to determine predictors of NP retention. Two primary categories of predictive factors are personal and academic. Personal factors influencing retention, including demographic factors, will be examined first in the literature, followed by academic factors.

Demographic Factors. Byrd, Garza, and Nieswiadomy (1999) sought to identify factors predictive of successful graduation versus failure or dropout over a three-year period in a particular state-supported BNP in the Southwestern U.S. Descriptive statistics revealed that the sample's demographics were primarily made up of European American

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women, between the ages of 19-28 years old, without a prior baccalaureate degree. Analyses of the sample's data revealed that 70.8% completed the BNP and graduated; 8% of the students failed out; and 21.2% of them dropped out of the nursing major over the three-year period. During the pre-nursing phase of the program, two personal factors were found to be predictive of BNP completion 77% of the time. The first personal factor was age at entry. More traditional students, those just out of high school through approximately ten years beyond, were most likely to complete the program. Campbell and Dickson (1996) found age to be commonly predictive of success, although no age values or specific findings were revealed in their meta-analysis. Jeffreys (2006) found younger student age (mean age 28) to be a significant difference among graduates and non-graduates. Graduates were found to be "somewhat younger" (p. 413) than those who did not graduate. Daley, Kirkpatrick, Frazier, Chung, and Moser (2003) found older age (22.9, with a range of 5.6 years versus 20.4 with a range of 0.9 years) to be significantly related to NCLEX-RN success. Different NPs tend to draw different clientele. Some seem to appeal more to the traditional college student recently out of high school, while others are more suited to the non-traditional adult learner who is returning to an educational environment after a hiatus. Therefore, age is a personal factor that may or may not be associated with retention or attrition in each NP. It is not expected to be a primary factor associated with retention in the current study due to the basic homogeneity of traditional students in the NP.

Campbell and Dickson's (1996) meta-analysis yielded additional demographic findings most frequently associated with BNP retention, graduation, or NCLEX-RN success. These included race/ethnicity, finance, and educational level of parents. No

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details regarding these factors were included. For example, no educational level of parents most predictive of BNP retention, graduation, or NCLEX-RN success was included. Several additional demographic factors of significance in predicting success were found in individual studies, but due to limited investigation, they will not be included here.

Ethnicity. The second pre-nursing demographic factor predictive of BNP completion in Byrd, Garza, and Nieswiadomy's (1999) study was white ethnicity. Jeffreys (2006) also found white ethnicity to have the highest percentage of graduates.

Personal Self-enhancement. Believing that "now, more than ever, it is essential to promote academic success and reduce the number of students who leave schools of nursing," Campbell and Dickson (1996, p. 47) conducted a study which reviewed previous nursing research studies over a 10-year period that related to predictors of retention, BNP completion, and NCLEX-RN success. Through integrative review and meta-analysis, they found that the personal self-enhancement factors most frequently noted as predictive of retention, graduation, or NCLEX-RN success were levels of test anxiety and self concept/self esteem (p. 54), although no details were included regarding the relationship of these as predictors.

The personal factor of self-efficacy may bolster academic performance. In a study by Andrew (1998), both a qualitative and quantitative approach were used as the author developed a tool, the Self-Efficacy For Science (SEFS), to measure first-year BNP students' confidence in specific science tasks and then correlated results with actual student records. Students completed the questionnaire, which included listing high school subjects and final scores. The author expected to find that greater confidence would be

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associated with better academic performance and that science courses taken in the last year of high school would raise the level of confidence. The purpose of this was to predict academic performance in first-year science courses and to establish needed interventions to ensure success in those science courses and, subsequently, in the BNP. Results showed that students who took science in the last year of high school did have higher SEFS scores. First-year BNP students' confidence in specific science tasks were correlated with actual student records, demonstrating that academic performance could be predicted 24% of the time for the curriculum's first science course, which contained aspects of physics and chemistry related to nursing, using the SEFS score. Academic performance could be predicted 18.5% of the time for the other science course, which included an introduction to the body's biological functions, using the SEFS score. Both levels of predictability were "higher than anticipated, as a meta-analysis research has shown that self-efficacy can generally be expected to account for approximately 14% of the variance in academic performance" (p. 601). No actual course names were given— only catalog numbers and brief content descriptions.

A meta-analysis by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006) provided the following regarding undergraduate NP retention. In one of the studies included in the meta-analysis, 65% of students were retained in an ADNP. Of these, 35.1% had sought advice on time management and study skills. Such initiative is a personal factor which could result in academic success leading to retention.

Stress. Stress and burnout are personal factors commonly reported among nursing students as negative experiences contributing to attrition. However, one study reviewed in meta-analysis by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006) reported a

greater likelihood of degree completion among students reporting greater levels of stress and burnout.

Faculty Support. Perceived personal and academic support of nursing students by teaching faculty may contribute to retention in programs of nursing. Shelton (2003) examined the relationship between perceived faculty support and student retention in nine schools of nursing in the northeastern U.S. Shelton found that "students who persisted in a nursing program from their first clinical nursing course to the final semester had significantly greater perceived faculty support, in terms of both psychological and functional support" (p. 74) than those students who were not retained either due to academic failure or withdrawal from the program.

Various personal factors have been studied in relation to NP retention. The current study will examine some of the identified personal and demographic factors within the sample population.

Academic Factors Influencing Nursing Program Retention

Similar cognitive skills are required for abilities in mathematics (math), science, and nursing theory. Further, much reading for comprehension is needed throughout the pre-nursing and nursing courses. Therefore, it is important for potential nursing student candidates to have such academic abilities prior to beginning programs of nursing in order to facilitate program completion. Other academic factors mentioned in the literature and associated with BNP/ADNP progression/completion or NCLEX-RN success (which implies NP completion) will be explored, as well.

High School/Pre-Admission Factors. Some basic entry characteristics reflecting academic factors have been explored in the literature. In Campbell and Dickson's (1996)

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integrative review and meta-analysis, higher high school GPA and rank were mentioned in several studies as factors associated with both retention and NP completion. Higgins' (2005) study of a community college ADNP in Texas showed a significant positive relationship between the reading, math, and science components of a pre-admission test and NP completion.

Wong and Wong (1999) looked at basic sciences as predictors of BNP completion in Nova Scotia, Canada. They found higher high school biology and chemistry grades to be among academic factors associated with successful completion of the BNP.

College Math and Science GPAs. Campbell and Dickson (1996) found higher college math and science GPAs to be academic factors associated with predicting retention, program completion, and/or NCLEX-RN success. Byrd, Garza, and Nieswiadomy (1999) found higher pre-nursing science GPAs and a specific nursing core science course grade to be predictors of BNP completion. Wong and Wong (1999) also found higher college science GPAs to be associated with BNP completion. It seems evident from these studies that students achieving higher college math and science grades are more likely to succeed in programs of nursing.

Individual College Courses. Higher individual college course grades have also been named as academic predictors of retention, program completion, and/or NCLEX-RN success in some studies. These individual grades have been in specific nursing courses (Byrd, Garza, & Nieswiadomy, 1999; Daley, Kirkpatrick, Frazier, Chung, & Moser, 2003; Jeffreys, 2006) and science (Byrd, Garza, & Nieswiadomy, 1999; Jeffreys, 2006; Uyehara, Magnussen, Itano, & Zhang, 2007).

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Additional GPAs. In addition to college science GPAs, other GPAs have been identified as academic factors associated with predicting retention, program completion, and/or NCLEX-RN success. These include social science (Byrd, Garza, & Nieswiadomy, 1999), liberal arts (Campbell & Dickson, 1999), pre-nursing (Byrd, Garza, & Nieswiadomy, 1999; Campbell & Dickson, 1999; Daley, Kirkpatrick, Frazier, Chung, & Moser, 2003), nursing (Campbell & Dickson, 1999), nursing clinical (Campbell & Dickson, 1999), and/or cumulative college (Byrd, Garza, & Nieswiadomy, 1999; Campbell & Dickson, 1999; Daley, Kirkpatrick, Frazier, Chung, & Moser, 2003; Jeffreys, 2006; Newton, Smith, & Moore, 2007; Potolsky, Cohen, & Saylor, 2003; Sayles, Shelton, & Powell, 2003; Wong & Wong, 1999). Throughout the literature, higher course grades and GPAs are indicated as predictors of NP success.

Standardized Test Scores. Standardized test scores are another academic factor found to be associated with predicting retention, program completion, and/or NCLEX-RN success in various studies. Each of these have been positively associated with success: ACT (Campbell & Dickson, 1999; Daley, Kirkpatrick, Frazier, Chung, & Moser, 2003; Sayles, Shelton, & Powell, 2003), SAT (Campbell & Dickson, 1996), Mosby Assess (Campbell & Dickson, 1996), Watson-Glaser Critical Thinking (Campbell & Dickson, 1996), NLN Pre-nursing Comprehensive (Campbell & Dickson, 1996), Test of Essential Academic Skills (TEAS) composite (Newton, Smith, & Moore, 2007), Educational Resources, Inc. (ERI) Nurse Entrance Test composite (NET) (Sayles, Shelton, & Powell, 2003), and PreRN overall exam scores (Sayles, Shelton, & Powell, 2003). Higher scores on various standardized tests are indicative of greater NP completion.

Academic Help-Seeking. In the study referenced by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006), 35.1% of students retained in an ADNP had sought advice on time management and study skills. While initiation of such is a personal factor, the information obtained could result in academic impact leading to retention, as well.

College Credits. Additional academic-related factors have been found to be associated with successful NP completion and/or NCLEX-RN success. Jeffreys (2006) reports that students with less college transfer credits are more likely to have NP success. No further information was available on this finding, but some possible reasons are suggested. It is difficult to match credits given in one college curriculum exactly with those awarded in another. What may appear to be equal college transfer credit may actually be deficient preparation for the program one has transferred into. Thus, taking coursework at the same institution as the NP may lead to student academic success.

Another academic-related retention-associated factor is the number of college credit hours taken prior to program acceptance (Campbell & Dickson, 1999). The number of college credits taken prior to program acceptance may either be of benefit or reveal a lack of adequate preparation on the student's part. If a student has taken preparatory courses and earned high grades, this may increase the chances of program completion. However, if a student makes many attempts to qualify, including having to repeat courses, as identified by Jeffreys (2006) as a factor predictive of attrition, and does so only marginally, the number of credits may be of little value in ensuring successful NP completion and/or NCLEX-RN success. Earning grades of B or above in appropriately selected college courses may, indeed, enhance NP retention leading to successful completion.

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College Support Services. Seago and Spetz (2005) found higher on-time completion rates in California NPs at community colleges which included learning resource centers, remediation, tutoring and ESL programs; fewer students; no biology prerequisite; and no writing centers. The authors did not see the absence of a writing center to be a predictor, but rather to be a support system put into place to enhance student success in college programs with lower completion rates. Clearly, academic support systems appear to impact completion rates as reported in this study. Colon (1997) also found that support services enabled NP success—even among students with LD. Supportive services available to nursing students have been associated with successful program completion.

Adequate academic preparation and achievement as well as appropriate supportive services have been associated with successful NP completion. Selected academic factors were examined in this study, including number of pre-college math and laboratory (lab) science courses and grades earned, as well as college science GPAs and an absence of repeated college courses.

Factors influencing retention in NPs have been explored. It is important, as well, to examine factors contributing to attrition.

Factors Influencing Nursing Program Attrition

The literature indicates that both personal and academic factors are associated with NP attrition. Personal, demographic, and academic factors will be presented.

Lack of Professional Fit. Some personal factors leading to NP attrition may be able to be identified before the student invests time, money, and effort into the pursuit. In their study of the effectiveness of the interview process in the selection of nursing

students most suited for the BNP, Ehrenfeld and Tabak (2000) concluded that the use of interview processes "reduce the attrition that stems from personal reasons" (p. 105) by some 5%. They looked at reasons for the attrition occurring in their university of study over a six-year period and found that approximately 33% was attributed to academic factors. Over 50% of the attrition experienced was related to personal factors, including personal and behavioral problems and change in career focus. While both personal and academic factors lead to attrition, the use of the interview process with NP candidates may help in the selection of those students most suited to the course from the personal perspective.

Personal factors accounted for two-thirds of program attrition in a particular BNP in Hawaii. Uyehara, Magnussen, Itano, and Zhang (2007) conducted a study to identify predictors of program success, withdrawal, and NCLEX-RN success in this BNP. One-fifth of the students (20%) withdrew from the program. Of this 20%, prominent reasons for leaving included the personal factors of health problems or moving out of state (33.93%) and career change (30.36%). A disparity between expectations and reality and inadequate preparation for the program may be involved, according to Andrew, Salamonson, Weaver, Smith, O'Reilly, and Taylor (2008) and Newton, Smith and Moore (2007). Additionally, a NP candidate selection interview process, as recommended by Ehrenfeld and Tabak (2000), may have detected potential unsuitability related to health, relocation plans, and career fit. Regardless of the initial reasons students are drawn to nursing as a career goal, unrealistic expectations of the role and rigor involved may contribute to NP attrition.

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Lack of self-enhancement tools. A lack of self-efficacy and/or commitment to NP completion may contribute to attrition. A student who does not expect to be successful and who is not committed to nursing will likely not remain in the NP. A meta-analysis by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006) provided few results regarding undergraduate NP attrition. One study focused on the first year only of a three-year program. By year's end, attrition was 26.5%. For the group who left the program, a nursing academic self-efficacy survey and another qualitative survey measuring commitment to the course of study yielded significantly lower scores than for those who were retained. Studies describing actual reasons students left NPs were lacking. More research on actual factors involved in specific program attrition is warranted.

In spite of academic difficulties encountered, 93.7% of discontinuers in this study reviewed by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006) did not seek help with time management or study skills. Initiative to seek help when needed was lacking. Both personal and academic factors were found to play a role in attrition. A lack of personal qualities, such as not recognizing when to seek help and giving up when the going gets tough, play a role in NP attrition. Other influencing factors are culture and language skills.

Cultural/ESL Factors. Several studies have indicated NP attrition rates of minorities or students outside of the dominant culture to be considerably higher than that of their Caucasian/Western culture counterparts. Citing a U.S. Department of Health and Human Services Report from 2001, Gardner (2005) revealed that only 12% of the country's RN population self-identified themselves as belonging to a racial or ethnic minority group. Gardner's qualitative study was conducted to examine factors associated

with the attrition rate of foreign-born/minority students, and to explore perceived barriers among this student population. Although a very small sample ($n = 3$), "admission records for the past eight years identified that minorities made up only 11% of the total nursing student enrollment" (p. 13) in this California state university BNP, while their attrition rate was almost twice that of Caucasian students. Gardner found the following barriers: cultural conflict regarding the role of women; the very different American educational system and philosophies; misinterpretation of behaviors (for example, eye contact is expected in the U.S. while often avoided out of respect among some cultures); balancing jobs with study time and family obligations; the emotional stress of missing family and friends in home country; loneliness and alienation caused by the dominant culture's exclusion of them; and difficulties with the English language. Although some of these barriers may be shared by all ethnicities, others are personal factors specific to foreign-born or minority populations.

Troubled by the disproportionate number of ethnic and racial minorities in California's nursing workforce compared to the population make-up of the state, Seago and Spetz (2005) examined California community college NPs in an effort to determine whether success rates varied for ethnic minority and Caucasian student groups. In 2001, an average of only 65.6% of all students scheduled to complete their programs did so according to their curriculum's time schedule while 20% had dropped out of their programs (a typical attrition rate). Breaking it down by minority ethnicities, however, on-time completion was even lower than the average. On-time completion was achieved by only 58% of Asian non-Filipinos, 47.3% of African Americans, and 64.1% of Filipinos.

However, 66.6% of Hispanics enrolled in community college NPs had on-time completion.

Program attrition rates by ethnic minority groups were the following: Asian non-Filipino, 27.7%; African American, 31.9%; Filipino, 23.3%; and Hispanic 14.5%. "ADN programs require at least three years of full-time study, often more" (Seago & Spetz, 2005, p. 556), depending on the number of prerequisite courses taken. Thus, one of the study's comparisons was a look at eventual graduation rates in a six-year period by ethnicity. For the cohort who started pre-requisite courses in fall 1995, the following graduation rates by ethnicity were achieved by 2002: African American, 50.7%; Asian non-Filipino, 49.1%; Filipino, 55.6%; Hispanic, 58.8%; Native American, 80%; Pacific Islander, 60%; and White/non-Hispanic, 71.6%. "The model for attrition rates indicates that programs with higher percentages of Asian and African American students have higher attrition rates and that support services do not counteract these relationships" (p. 558), with the exception of availability of learning resource centers.

The authors concluded that "there may be significant racial and ethnic characteristics affecting the success of students and graduates in these nursing programs" (Seago & Spetz, 2005, p. 561). Further exploration into specific characteristics, such as pre-college preparation and parental educational history, may yield helpful information to determine how to assist this at-risk population to achieve academic success. Enhancing communication should be promoted between ESL students and nursing faculty in order to more accurately target reasons for program attrition and initiate or facilitate systems of personal support and academic support. Personal factors related to ethnicity and culture

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may contribute to NP attrition. Gardner (2005) found challenges leading to greater attrition among foreign-born and minority students, as well.

With the number of ESL students in British Columbia, Canada, on the rise, Jalili-Grenier and Chase (1997) looked into the recruiting, selecting, and retention of students in a Vancouver university/hospital program and "indicated that the unsuccessful group of first year students had a significantly higher number of ESL students than did the successful group" (p. 200)—29% compared to 12%. While able to meet original admission criteria, students encountered difficulties and a lack of support services leading to unsuccessful program completion. In an effort to determine perceptions of learning barriers and helps on the part of students and faculty, the authors developed a survey which was administered to both first- and second-year students and a similar questionnaire for first- and second-year faculty.

The ESL students found significantly greater challenges asking questions in lab settings and in first-year nursing and English courses than did the non-ESL students. Non-ESL students had significantly more difficulty with asking questions in informal settings and in pharmacology and pathology courses than did ESL students.

Faculty and ESL students' perceptions were significantly different in the areas of learning and language barriers. Faculty viewed ESL students as having greater needs in the areas of English writing, vocabulary, and speaking abilities and in mastery of assignments and projects than did the students themselves. The ESL students perceived certain learning activities to be of significantly more help to them than did faculty in the areas of note-taking, asking of questions during lectures, clinical-based assignments, and even taking tests. When asked if faculty perceived a need for help in working with ESL

students, 80% felt the need for such intervention. The need for enhancing communication should be undertaken between ESL students and nursing faculty in order to more accurately target reasons for program attrition. Seago and Spetz (2005) and Gardner (2005) found higher rates of attrition among ethnic and cultural minorities, as well, indicating membership in a non-dominant culture to be related to attrition.

Stress. Nursing students frequently experience personal stressors—physical, emotional, mental, and even spiritual—as they pursue their academic goals. It may be said that, because of these and other commonly shared experiences within NPs worldwide, nursing students are a type of culture among themselves. Mashaba and Mhlongo's (1995) survey of both current and former students of a particular South African university BNP in an effort to study reasons for NP attrition showed that all students were able to shed light on their "perceptions about factors that undermine students' retention" (p. 368) in the program. "The reported experience that the course is strenuous, stressful and demanding with too much responsibility was cited as the primary cause of difficulty and resultant attrition" (p. 372). This is opposite the findings in a study reviewed by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006) that reported a greater likelihood of degree completion among students reporting greater levels of stress and burnout. However, a lack of communicated empathy and caring on the part of nursing faculty in the presence of the stress experienced may contribute further to attrition.

Disparity between Expectations and Reality. Often, students choose the nursing major because they are thinking only of career opportunities, or they may have a wrong perception of the profession to begin with. Wright and Maree (2007) chose to conduct a

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qualitative study with a quantitative component in order to determine factors involved in "a problem with a high percentage of students dropping out" (p. 596) of their program of study. The program admits only 30 students to the three-year clinical program annually, yet its attrition rate is tremendous. The phenomenon of this program's attrition is described as "half of the group drop out" (p. 606), although no definitive statistics were provided regarding this. Their findings show that 57% of nursing student candidates self-identified their own skills/strengths as primarily from the affective domain. Affective qualities include such things as patience, understanding, gentleness, kindness, and compassion as delineated in Bloom's Taxonomy. Only 6% self-identified cognitive strengths, or such things as knowledge and intellectual skills. The affective domain was deemed by 59% of the students to be the most important from which a nurse's ideal characteristics should come. Only 2.2% mentioned ideal characteristics based on the cognitive domain as being important. The majority of these students (51%) believed a nurse to function primarily from the psychomotor domain. This would include such physical activities as assisting the doctor, feeding patients, and cleaning wounds. The affective domain was seen as most important to nursing by 25% of the students. The authors contend that "the profession continue [sic] to attract students who are interested in the myth and not the reality" (p. 596). Disillusionment between expectations and reality and inadequate pre-college/pre-nursing preparation are personal and academic factors also mentioned by Andrew et al. (2008) and Newton, Smith and Moore (2007).

Among 35% of students who dropped out of an ADNP in a study reviewed by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006), 81.3% of discontinuers again indicated that the course was different from their expectations—most evident in science

subjects. This may indicate a lack of adequate academic preparation or disillusionment with expectations, as found in studies by Andrew et al. (2008); Newton, Smith and Moore (2007); and Wright and Maree (2007).

Low Science and Nursing Grades. Academic factors leading to lack of successful completion of programs of nursing were found in other studies, as well. Uyehara, Magnussen, Itano, and Zhang (2007) found that, of the 20% of students who withdrew from their BNP of study, academic failure accounted for 35.71% of the program attrition. Almost half of the students who withdrew had lower grades in pathophysiology. Studies by Wong and Wong (1999); Campbell and Dickson (1996); and Byrd, Garza, and Nieswiadomy (1999) have demonstrated that lower science grades and GPAs are academic factors associated with NP attrition.

Wong and Wong (1999) identified academic factors predictive of lack of successful completion in their program of study in Canada. Those factors significantly related to unsuccessful program completion include low GPAs: science and first- and second-year nursing courses. They found "the risk of failure was nearly half as great among students with a low GPA in the first-year nursing courses in comparison with those whose first-year nursing GPA was high" (p. 351). Campbell and Dickson (1996) and Byrd, Garza, and Nieswiadomy (1999) have also demonstrated that lower science grades and GPAs are academic factors associated with NP attrition.

Course Withdrawals/Failures. Byrd, Garza, and Nieswiadomy (1999) found academic failure to lead to 8% of the students failing out of the BNP they studied. Jeffreys' (2006) study of students enrolled in an ADNP's clinical courses during the fall or spring semesters of the 1997-1998 school year showed a first-semester attrition rate

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due to failure to be 9%. The number of nursing course withdrawals or failures was found to be a factor associated with attrition from the program in this study.

Literature Review Summary

The literature indicates that there is a high attrition rate among nursing students due to both personal and academic factors. Various personal factors which may present barriers to NP success include a lack of suitability with the profession, self-efficacy, or commitment; membership in a minority culture in which English is not the primary language; level of stress; and disparity between expectations and reality. Academic skills in math and laboratory science courses provide a good foundation for successful completion of the nursing major. Inadequate pre-college and other pre-nursing preparation in these areas may not provide the essential foundation necessary for program retention. An additional factor associated with NP attrition includes having to repeat a college course or courses due to academic failure.

CHAPTER 3

Project Description: Methods and Procedures

This study was undertaken to identify factors exhibited by students who completed, did not continue in, and persisted toward completion of a particular BNP in the Southeastern U.S. The BNP includes a rigorous science core requiring a grade of C or better for progression. Additionally, all of the clinical courses require math skills. Therefore, some of the focus of the study was on pre-college science and math preparation, ACT scores, and certain GPAs. Also, whether or not any courses had to be repeated was considered—particularly science and nursing courses, which require a grade of C or better for progression. Demographics were looked at, including gender, ethnicity, and primary language.

In this chapter, the method of sample selection, data collection tools, procedures, and data analysis will be described. Furthermore, ethical and legal concerns will be addressed and plans for disseminating findings will be discussed.

Research Design

A descriptive, non-experimental approach was used for the study, utilizing a survey and student records for data collection. Data was obtained from existing student records on file in the university, as well as from voluntary survey responses to a researcher-developed questionnaire.

Sample

The research was conducted in order to determine factors associated with retention and attrition in the cohort of the particular study institution's BNP from fall 2004 to spring 2009. All nursing majors enrolled in the study institution in spring 2009

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were included in the convenience sample. Additionally, all students who had been in the BNP at some point during the above stated time frame and who continued at the school in other programs of study were included. The sample was chosen by response to the survey and was divided into three groups: completion, attrition, and retention. Those who graduated in May 2009 were placed in the completion group. Those who indicated that they are no longer nursing majors were placed in the attrition group. Those who continued to persist in the nursing major and have not graduated were placed in the retention group.

Subjects were identified using the student university identification (ID) numbers provided by Constituent Services of the study institution. The identified population was then sent the researcher-developed survey tool, the Nursing Program Retention Questionnaire, or NPRQ (Appendix A), by electronic mail (e-mail). Participation by survey completion was voluntary. Completed questionnaires provided information which was then paired with the survey participants' actual records in institutional files. Open-ended questions yielded write-in responses which provided additional information useful to the study.

Consent by and Protection of Human Subjects

A formal study proposal was submitted through the investigator's thesis advisor, the Internal Review Board (IRB) of Gardner-Webb University, and the study institution's administrative chain of command, as required at that institution. The proposal, consents, and data collection tools were submitted for review according to protocol with information concerning the procedures taken to maintain confidentiality, anonymity, and data security measures. Subjects were informed by introductory letter (Appendix B) that,

if they chose to respond to the survey, they were also giving consent for accessing further data from their records which would be paired with their survey responses for the purpose of the study. Additionally, anonymity in results was assured by the removal of all identifying information and assigning of random numbers once NPRQ responses were paired with student records. Subjects were informed that the data resulting from the study could provide information needed in order to help future nursing students to be better prepared to begin and successfully complete the institution's BNP. No reference to individuals was made in the reporting of results. Data obtained was used strictly for educational purposes with the potential for enhancement of the educational experience of future BNP students. Minimal risk was involved for survey participants, including time to complete the survey, recall of high school courses and grades, and perhaps minimal temporary anxiety reflecting on reasons behind a change in major.

Instrument

The Nursing Program Retention Questionnaire (NPRQ) is a researcher-developed tool that was validated by two expert nurse-educators. Both found the questionnaire to be understandable as written. However one of the experts gave suggestions for greater clarity and enhanced flow. Suggestions were made both in the wording of some items and in the order of their arrangement. The term NPRQ 1 will be used temporarily for the discussion of the first draft and NPRQ 2 will be used to refer to the revised version. The first suggestion was to change items two and three of NPRQ 1: "formal education" was changed to "total years of education" and placed as items 17 and 18 in the NPRQ 2. Suggested change was made for item 18 in the NPRQ 1 for the phrase "on track," which could be misunderstood by a student whose primary language is not English. In the

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NPRQ 2, the words "on schedule" were used instead, and the order was changed to item three. In NPRQ 1, item 24 included instructors and advisors and their descriptors within the same question. In NPRQ 2, instructors and advisors were placed in separate questions, as were the three descriptors (items 11-16). The term "high school" alone was used in item 9 of NPRQ 1. The addition of "or equivalent academic level" was used in NPRQ 2 for the sake of foreign-born students' understanding, and the item order changed to 24. Overall item numbers in the NPRQ was increased with the revisions, but clarity was also increased.

The NPRQ was tested on a pilot group convenience sample of twelve BNP graduates from the study institution. All participants in the pilot study found the questions to be understandable and appropriate.

The NPRQ looked at strength in sciences by eliciting information regarding which science and math course(s) students took in high school, whether or not there was a lab component, and what highest grade was achieved. The NPRQ elicited information such as the reason the student chose his/her particular major. If the student's major had changed from initial college admission, the student was asked to provide information regarding the current major. The NPRQ addressed other areas, such as reason for changing major (if applicable); educational background of each parent; subject's primary language; whether or not they were born in the U.S.; and perceived availability, helpfulness, and support of both instructors and academic advisors.

Additional quantitative descriptive information was obtained from all subjects' records, including the following: ethnicity; pre-admission ACT scores; college science, specific pre-nursing, and nursing course grades; and whether there were any repeated

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college courses. Such information was correlated with survey-participant responses and used strictly as descriptive information for the sample at large.

Ethics

      The researcher fulfilled Gardner-Webb University's requirements for IRB certification (Appendix C). Permission was granted by the IRB of Gardner-Webb University to conduct the study (Appendix D). Permission was further granted by the Registrar of the study institution to utilize university records for a study of comparison of nursing student retention and attrition between the years of fall 2004 through spring 2009 (Appendix E). Additionally, the Director of Institutional Effectiveness granted approval of and permission to release the researcher-developed electronic survey to the sample population (Appendix F).

Data Collection

      The study institution's department of Constituent Services provided the ID numbers of the sample population based on the criteria given for inclusion. The Director of Institutional Effectiveness assisted with creation and administration of the electronic NPRQ survey via the campus intranet for both the pilot and research sample populations. An introductory e-mail (Appendix E) was sent to the sample population, briefly explaining the purpose of the survey questionnaire which would soon be sent. This was followed by the NPRQ survey itself, which was available for completion over a two-week time period. During that time frame, two electronic reminders were sent at random intervals to the population— thanking those who had completed the survey and urging those who had not yet completed the NPRQ to do so. The institutional statistician provided the quantitative student data related to individual grades, scores, and

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demographics as requested by the researcher, using university software databases. These records were paired with survey responses using student ID numbers, which were then replaced with randomly assigned numbers to ensure student anonymity. Statistical analysis assistance was provided. Descriptive statistics were utilized to answer the research questions.

Dissemination of Results

Education. Study results will be shared, via oral presentation, with nurse-educators and administrators at Gardner-Webb University and at the study institution. Bound copies of the entire thesis will be kept within the Division of Nursing and in the Dover Library at Gardner-Webb University and in the study institution.

Research. A full-text article may be written, based on the research and findings, for submission to a peer review journal. Publication may encourage other nursing faculties to examine their programs for any areas of needed improvement. Further research may be undertaken, based on need as indicated in current study results.

Nursing Education Practice. Supportive services, based on research findings, may be developed and presented to the Chairman of the Division of Nursing in the study institution for possible implementation in an effort to enhance NP retention. Dissemination of findings may be of help in other programs of nursing as faculties evaluate and address retention among their students.

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CHAPTER 4

Results

The purpose of this study was to identify factors exhibited by students who completed, did not continue in, and persisted in the study institution's BNP.

Research Questions

1. What personal and academic factors are identified in students completing the BNP at a particular university in the Southeastern U.S.?

2. What personal and academic factors are identified in students not continuing in the BNP at a particular university in the Southeastern U.S.?

3. What personal and academic factors are identified in students persisting in the BNP at a particular university in the Southeastern U.S.?

Data was collected using a researcher-developed questionnaire, the Nursing Program Retention Questionnaire (NPRQ), which requested both general demographic and write-in responses. The questionnaire was sent, via intra-campus e-mail, to the convenience sample population of all current and former nursing majors in the target university since fall 2004 who were still enrolled in university courses during the spring semester of 2009. The voluntary survey was available for completion via campus intranet for two weeks, and two reminders were sent via e-mail during that time requesting completion.

Demographic Description of Sample

Survey questionnaires were electronically sent to the population ($N = 243$) of all current or former nursing students enrolled and persisting in the target university between fall 2004 and spring 2009. Voluntary survey completion was returned at 70.37% ($n = $

171) of the original population. Of this sample, ten subjects were eliminated due to incomplete data regarding pre-nursing or science GPAs or both when student records were accessed, resulting in a sample size of *n* = 161. Possible explanations for missing data include the following: the subject was an international RN transferring in for BSN completion and was not required to take the institution's pre-nursing courses; the subject had not yet encountered all of the required science courses in the curriculum or had left the nursing major without completing them.

Items 17 and 18 in the NPRQ asked how many total years of education the respondent's father and mother completed, respectively. Responses such as, "none," "three," "four," "seven—college and anesthesia school," and "not sure" made it apparent that this was not a valid item for inclusion. Descriptive statistics were not included for this item.

Of the sample (*n* = 161), 143 (88.8%) were female. Respondents self-classified their ethnicity as follows: Asian, 10 (6.2%); Hispanic, nine (5.6%); interracial, three (1.9%); and white, 139 (88.3%). The mean age of the sample when beginning the BNP was 18.52 years old with SD of 1.9 and range of 16-32. The majority, 153 (95%), were born in the U.S. and eight (5%) were not. The primary language was English for 156 (96.9%), followed by primary languages of Korean and Spanish with two (1.2%) each.

Academic descriptors include the following: pre-college schooling preparation included Christian, 91 (56.5%); home, 53 (32.9%); public, 15 (9.3%); and private, two (1.2%). The number of self-reported high school math courses taken with a grade of greater than or equal to ($\geq$) B had a mean of 4.02 with SD of 1.30 and a range of 0-7. The number of self-reported high school laboratory science courses taken with a grade of $\geq$ B

had a mean of 1.82 with SD of 1.11 and a range of 0-3.

ACT scores of the sample averaged from 21.39 to 25.58, depending on section of testing. Highest GPAs were achieved in English, followed by pre-nursing, and then science. Table 1 addresses these academic descriptives of the sample.

Table 1

Academic Descriptives of Sample

Variable	*M*	*SD*	Range
ACT Scores			
English	24.74	5.81	14-35
Math	21.39	4.57	13-35
Reading	25.58	6.16	11-35
Science	22.30	3.72	11-30
Composite	23.65	4.42	12-34
GPA			
Pre-nursing	2.71	0.73	0.5-4.0
College Science	2.55	0.76	0.5-4.0
English	2.93	0.62	0.75-4.0

The majority of the respondents thought their instructors were helpful (149, 92.5%), accessible (148, 91.9%), and supportive (141, 87.6%). Most respondents further reported that their advisors were also helpful (138, 85.7%), accessible (148, 91.9%), and supportive (146, 90.7%).

An almost equal number of respondents reported their reasons for choosing nursing as their college major as a calling (53, 32.9%) or a desire (52, 32.3%). Only 26 (16.1%) reported choosing nursing as a career. For the purpose of this study, calling is defined as the God-ordained prompting to follow a particular vocational path. Desire refers to a personal choice to pursue a particular vocational path. On-time completion of a

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degree within four years of beginning college was anticipated by 96 (59.6%) but not

anticipated by 65 (40.4%).

Description of Groups

The sample (n = 161) was divided into the following three groups: attrition (n =

17, 10.6%), completion (n = 27, 16.8%), and retention (n = 117, 72.7%). Those who

indicated that they are no longer nursing majors were placed in the attrition group. Those

who graduated in May 2009 were placed in the completion group. Those who continued

to persist in the nursing major and had not graduated were placed in the retention group.

Survey Results: Descriptives

Among the groups in the study, the respondents were primarily female, white

ethnicity, and averaged 18.52 years of age. Table 2 shows the distribution among the

groups.

Table 2

*Gender and Ethnicity Percent Distributions (Top) and Mean Age with Standard Deviation
and Range (Bottom) by Group*

Variable	Attrition (n = 17)		Completion (n = 27)		Retention (n = 117)	
Gender						
Female	82.3		81.4		91.4	
Male	11.7		18.5		8.5	
Ethnicity						
Non-White	23.6		14.9		12.0	
White	76.4		85.1		88.0	
	M (SD)	Range	*M (SD)*	Range	*M (SD)*	Range
Age at beginning of BNP (SD, range)	18.35 (0.70)	17-20	18.56 (1.8)	16-26	18.53 (2.0)	16-32

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Four primary types of pre-college schooling were represented among the three groups as follows: Christian, home, public, and private. Among the groups, the most prevalent pre-college schooling was Christian, although the slightly larger percentage (58.5%) was found in the attrition group. The largest percentage of pre-college home school-prepared students was in the completion group at 40.7%. The largest representation of public pre-college schooling was in the retention group at 12.0%.

Although no significant variation among groups, the completion group had slightly more high school math courses taken with grade of B or above attained at 4.15 courses (SD = 0.98, range = 2-6). Additionally, the completion group had slightly more lab science courses with grade of B or above at 1.93 courses (SD = 1.17, range = 0-3). Table 3 depicts pre-college schooling type and numbers of pre-college math and lab science courses taken with a grade of B or above attained among the three groups.

Table 3

Type of Pre-College Schooling Percentage (Top) and Number of Pre-College Math and Science Courses (Bottom) by Group

Variable	Attrition ($n = 17$)		Completion ($n = 27$)		Retention ($n = 117$)	
Type of Schooling						
Christian	58.5		55.5		56.4	
Home	35.3		40.7		30.8	
Public	0		3.7		12.0	
Private	5.9		0		0.8	
	M (SD)	Range	*M* (SD)	Range	*M* (SD)	Range
Number of high school math courses with grade $\geq$ B	3.76 (1.64)	0-7	4.15 (0.98)	2-6	4.03 (1.31)	1-7
Number of high school lab science courses with grade $\geq$ B	1.76 (1.09)	0-3	1.93 (1.17)	0-3	1.80 (1.10)	0-3

There was little variation among groups in ACT math, reading, science, or composite scores. While the completion group had the highest mean math ACT score at 21.8, the attrition group's means were highest in reading (26.9), science (23.0), and composite (24.1).

The GPAs examined in the study showed little variation among the three groups, as well. The retention group showed the highest GPAs with pre-nursing at 2.73, science 2.57, and English 2.95.

The completion group had the highest percentage (92.7%) of no repeated courses taken among the groups while the attrition group had the highest percentage (17.6%) of

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repeated courses. Table 4 gives further data related to ACT scores, GPAs, and total

repeated courses among the groups.

Table 4

Percentage of Total Repeated Courses (Top) and Mean ACT Scores and GPAs with Standard Deviation and Range (Bottom) by Group

Variable	Attrition ($n = 17$)		Completion ($n = 27$)		Retention ($n = 117$)	
Total Repeated Courses						
0	82.3		92.7		85.4	
1	17.6		3.7		6.8	
2	0		0		7.6	
	M (SD)	Range	*M (SD)*	Range	*M (SD)*	Range
ACT						
Math	21.3 (4.6)	15-29	21.8 (4.0)	17-32	21.3 (3.8)	13-35
Reading	26.9 (6.2)	15-35	25.4 (4.8)	17-32	25.4 (4.9)	11-34
Science	23.0 (3.7)	15-30	22.0 (3.3)	16-29	22.3 (3.0)	11-30
Composite	24.1 (4.4)	16-31	23.6 (3.4)	19-32	23.6 (3.3)	12-34
GPA						
Pre-Nursing	2.66 (0.73)	1.0-3.8	2.65 (0.85)	0.5-3.9	2.74 (0.74)	0.5-4.0
Science	2.50 (0.70)	1.0-3.6	2.49 (0.81)	0.5-3.7	2.57 (0.76)	0.5-4.0
English	2.88 (0.68)	1.5-4.0	2.90 (0.58)	1.5-4.0	2.95 (0.63)	0.75-4.0

Among the groups, the completion group had the largest percentage (29.6%) of

students not working any hours at a job, working 1-5 hours (22.2%), and working 21

hours or more (11.1%). The retention group had the largest percentage working 6-10

hours (38.4%). The attrition group had the largest percentage of students working 11-15

hours (23.5%) and 16-20 hours (11.8%). Table 5 delineates hours worked by group.

Table 5

Percentage of Working Students and Hours Worked per Week by Group

Variable	Attrition ($n = 17$)	Completion ($n = 27$)	Retention ($n = 117$)
Hours worked per week			
0	5.8	29.6	24.7
1-5	17.6	22.2	9.4
6-10	35.2	18.5	38.4
11-15	23.5	7.4	18.8
16-20	11.8	11.1	6.8
≥ 21	5.8	11.1	1.7

The two most highly selected reasons for choosing the nursing major by the

completion and retention groups were calling (33.3%; 35.0%) and desire (48.1%; 29.1%).

The attrition group's primary reason for selecting the nursing major was desire (29.4%).

However, there was no majority secondary reason for the choice but a four-way tie

between categories at 17.6%. Table 6 shows the distribution of reasons for selection of

the nursing major among groups.

Table 6

Reasons for Choosing Major Percentages by Group

Variable	Attrition (*n* = 17)	Completion (*n* = 27)	Retention (*n* = 117)
Reasons for choosing major			
Calling	17.6	33.3	35.0
Desire	29.4	48.1	29.1
Career	17.6	14.8	16.2
Outside Influence	17.6	3.7	10.3
Random Choice	17.6	0.0	3.4
No Response	0.0	0.0	6.0

The majority of the attrition, completion, and retention groups found instructors and advisors to be helpful, accessible, and supportive. However, the attrition group also had the highest percentage that did not find instructors and advisors to be helpful, accessible, and supportive. When asked whether they would have remained in the nursing major with different support, the majority (94.1%) of the attrition group said they would not have. The two reasons most frequently given for leaving the nursing major among the attrition group were a different career focus (35.2%) and an inability to produce desired results (29.4%). Table 7 discusses findings specific to the attrition group in these areas.

Table 7

Results Specific to Attrition Group by Percentages

Variable	Attrition (*n* = 17)
Would remain in the nursing major with different support	
Yes	5.9
No	94.1
Reasons for changing major	
Inability to produce	29.4
Health Related	5.8
Different Career Focus	35.2
Personal Reason	23.5
Calling	5.8

CHAPTER 5

Discussion

The descriptive, non-experimental approach was undertaken in this study in an effort to identify factors exhibited by students who completed, did not continue in, and persisted in the study institution's BNP. The desire was to attain an understanding of the reasons why students leave the nursing major in an effort to decrease the attrition and thereby increase the completion rate within this specific NP.

Since the first nursing class to graduate from the university in May 1982 through May 2009, graduating classes have ranged in number from 18 to 42 with an average of 27 graduates eligible to take the licensure exam for the first time. Incoming sophomore level clinical classes have generally begun with close to 50 students. This number, however, tapers over the next three years. Although licensed to accommodate 50 new clinical students each fall, this BNP has never graduated a class of that size. Such shortfall will not help to meet the serious shortage of RNs anticipated within the next couple of decades in the U.S. and worldwide.

While the personal and academic factors leading to nursing student attrition have been explored in the literature, this study was designed to provide more information regarding these factors specific to this BNP. This chapter includes a discussion of the major findings of the study, conclusions that may be drawn from these findings, and study limitations. After a brief summary, implications for nursing education and recommendations for future research are presented.

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<p style="text-align:center">Findings and Conclusions</p>

Sample

The typical response rate is "usually between 60 and 80% for on-campus surveys" (personal communication, Kathy Sykes, Constituent Services, August 2009). The response to this survey falls within normal expectations for this study institution.

Subject Demographic Information

Of the sample ($n = 161$), 88.8% were female. This NP is comprised of 90% female students—slightly different from the state's female to male RN ratio. The gender distribution of practicing RNs in the state of South Carolina (SC) is 93.4% female (Office of Research and Statistics, SC Budget and Control Board in Cooperation with State Board of Nursing, 2003).

Broad distribution of the sample by self-classified ethnicity was as follows: 86.3% white and 13.7% ethnic minorities. According to the Sullivan Commission (2000), in March 2000, the population in the U.S. was made up of 71.8% white and 27.6% other ethnicities. Additionally at that time, the report states that the RN work force was represented by 86.6% white and 12.3% ethnic minorities. This university has an ethnic distribution in its NP typically found in the RN work force.

Discussion of Descriptive Results

The descriptive results did not show appreciable disparity between the groups in their ACT and GPAs. Other studies have discussed that these may be factors in BNP attrition, completion, and retention; however, this study did not demonstrate that ACT and GPAs were indeed factors. The fact that a convenience sample was used in this study may have had an affect in the results.

<p style="text-align:center">56</p>

According to the results, there was a greater percentage within the attrition group of repeating one college course compared to the completion and retention groups. This may be due to inadequate pre-college preparation or lack of commitment to the major. The retention group had the highest percentage of two repeated courses. While this may demonstrate inadequate college preparation, it may also demonstrate persistence and commitment as demonstrated by the groups' primary reasons for choosing the major.

According to Wong and Wong (1999), higher high school biology and chemistry grades were among the academic factors associated with successful completion of the BNP. Since math follows the same thought processes required for science and nursing theory, and since math is required throughout the BNP's science and nursing courses, high school math courses may have an influence on BNP outcome. However, results among the three groups in the current study showed little differences.

Much of the literature reviewed pointed to college science GPA as contributing to BNP completion (Campbell & Dickson, 1996; Byrd, Garza, & Nieswiadomy, 1999; Wong & Wong, 1999). However, this study did not support that claim as there were no appreciable differences between the means of the three groups.

Membership of ethnic minority groups and not having English as one's primary language in schools of nursing in the U.S. have been found to be related to lack of NP success in the literature reviewed (Gardner, 2005; Jalili-Grenier & Chase, 1997; Seago & Spetz, 2005). This was not found to be the case in the sample of this study, perhaps because of the small number of ethnic minorities within the sample. However, the majority of the ten surveys eliminated due to incomplete student records belonged to foreign-born, ESL students. This may have impacted the results of this study.

Close to one-third (32.9%) of the entire sample chose nursing because they believed it was a God-ordained prompting to follow a particular vocational path. Less than one-fifth indicated having selected the nursing major due to career opportunities. It may be that, because this is a private Christian school, the university draws students who are more committed to principles of Christian service than to career opportunities. One respondent indicated that the nursing major was chosen out of the subject's desire "for missions, creative access to closed nations, and [to] have valuable skills for helping in emergency situations." While the subject is still interested in mission work, the focus has turned to another service degree instead due to the struggle encountered in the nursing major while taking chemistry and anatomy and physiology at the same time. Others mentioned an interest in nursing as a means of mission work or helping people, as well.

According to the survey responses, "desire" was the primary reason for choosing the nursing major by the completion group (48.1%) and by the attrition group (29.4%). The secondary reason for choosing nursing by the completion group was "calling" (33.3%), but secondary reasons were evenly divided among "calling," "career," "outside influence," and "random choice" at 17.6% by the attrition group. This may indicate that the completion group was more committed to serving others through nursing from the beginning.

Among the retention group, "calling" was the primary reason for choosing nursing at 35.0%. This might further support the idea that personal commitment is necessary for persisting in the BNP. Additionally, those within the completion and retention groups who felt God's leading, influence, and strength in their lives may have been able to overcome obstacles that other students saw as insurmountable. Studies by

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Andrew, Salamonson, Weaver, Smith, O'Reilly, and Taylor (2008), Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006), Wright and Maree (2007), and Uyehara, Magnussen, Itano, and Zhang (2007) address some of the challenges that students may see as insurmountable reasons for leaving the nursing major.

Shelton (2003) examined the relationship between perceived faculty support and student retention. Shelton found that "students who persisted in a nursing program from their first clinical nursing course to the final semester had significantly greater perceived faculty support, in terms of both psychological and functional support" (p. 74) than those students who were not retained either due to academic failure or withdrawal from the program.

Overall, the completion and retention groups in this study found instructors and advisors to be helpful, accessible, and supportive. However, there was a lower percentage among the attrition group that found instructors and advisors to be helpful, accessible, and supportive while in the nursing major. This may mean that the students were frustrated, overwhelmed, and found the instructors and advisors adversarial rather than helpful and supportive. Magnussen and Amundson's (2003) and Mashaba and Mhlongo's (1995) studies reveal similar reports related to lack of perceived helpfulness, accessibility, and supportiveness from both current and prior nursing students. In Mashaba and Mhlongo's study, some of these had left the program without completion.

Specific examples within the attrition group of negative comments toward instructor/advisor-student interactions are evident in the following: "I had a teacher who laughed at me when I came to him with questions." This subject left the BNP after struggles in the science courses. Another commented, "I felt like I was not given a chance

in the nursing program. . . . I did not feel that they worked with me at all." One stated, "They did not have many office hours;" another, "I felt like I was wasting their time." One subject remarked, "They seemed hard-hearted. I was really trying to work hard but they didn't seem to give me much hope when I couldn't do well." This subject did not begin college in the BNP: "My first advisor gave very little guidance. I never had the opportunity of making a schedule before, so I had no idea what to do, and when I went to his office, he informed me that he couldn't see me until I had made a schedule. In nursing, my advisor seemed very cold and not encouraging. My advisor was very intimidating." A subject in the completion group made this remark: "I feel like most of the nursing faculty want to discourage me from actually being a nurse." A subject in the retention group said, "Depends on the class. Some teachers bent over backward to help me—others make you feel like you are imposing on them."

While not all of the comments were specific to nursing faculty, some obviously were. Whether adversarial interactions between instructors or advisors and students were real or perceived, a lack of communicated empathy and caring on the part of nursing faculty in the presence of the stress experienced may contribute further to attrition. The nurse-educator of a Christian university desires to interact in a Biblical way with others— students included. A Biblical approach can readily utilize Orem's Self-Care Deficit Nursing Theory (SCDNT) as the nurse-educator desires to guide and direct in a supportive, nurturing manner. The negative responses in this survey, even if unwarranted on the part of a frustrated student, may indicate that regular in-service reminders regarding supportive faculty-student interaction should be implemented. The Christian nurse-educator will want to demonstrate an approachable, caring, and empathetic

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demeanor with students as described by Orem's SCDNT.

In the attrition group, an overwhelming 94% would not have remained in nursing with different support. These students may have fallen into the category of one- third of freshmen changing their major, or it may have been due to lack of fit in the major. Reasons for leaving the nursing major among the attrition group were primarily a change of career focus and an inability to produce desired academic results. This may indicate a lack of genuine interest in nursing. An example of change of career focus is seen in the comment, "I figured out that I really didn't want to help people in that way. I took a year off between my freshman and sophomore years and there I really did find out what I wanted to major in."

A response that may indicate insufficient pre-college preparation or academic skills follows: "I was struggling with my science course and not quite comprehending everything that was going on." This particular respondent did not indicate having participated in any high school science courses containing a lab component which would jeopardize success in this BNP's rigorous science requirements. Such insufficient pre-college preparation is in alignment with a study at a university in Louisiana which found the failure or drop-out rate in their biological science course to be between 50-60% (Kumar, 2005). In another study, Campbell and Dickson (1996) reported similar findings: "students tend to have the greatest difficulty with nursing courses that require a strong science background" (pp. 56, 57). Among 35% of students who dropped out of an ADNP in a study reviewed by Gaynor, Gallasch, Yorkston, Stewart, and Turner (2006), 81.3% of discontinuers indicated that the course was different from their expectations—most evident in science subjects.

While there was little variation in type of high school preparation between groups, there may be disparity among individual curricula when it comes to math and science. Out of the sample, 20.5% did not indicate having taken science courses with lab components. This could contribute to inadequate preparation for the science courses required for BNP completion. One possible example of this was noted above in a comment related to inability to produce desired academic results. Other examples may be reflected in the following statements: "Nursing was too hard. I didn't enjoy the classes;" and "I was struggling with two classes…I think I could have passed both chemistry and anatomy, but not while I took them together."

Most respondents in the completion group did not work during the school year. Most of those in the attrition and retention groups worked between six and ten hours weekly. The hours worked during the semester may play an important role in BNP outcome, although it was not found to be a major contributor to NP outcome in the review of literature. One qualitative study by Magnussen and Amundson (2003) explored the lived challenges and stressors that undergraduate nursing students experience. The first major theme to appear involved a problem with meeting conflicting demands. Most of the students had to juggle with work responsibilities in order to stay in school. This, in turn, contributed to loss of sleep and a feeling of not enough time to do everything required. This may be a factor in BNP attrition, completion, and retention.

Summary of Study Findings

Although this study added little new knowledge to the understanding of BNP completion and attrition, it does add evidence to what is known and provides new avenues of inquiry. Summarizing the study's findings, this BNP has a slightly higher

percentage of male students than is reflected in the practicing RN population of the state in which the school is located. Additionally, the ethnic distribution of the BNP is typical of the RN work force. Ethnic and cultural issues did not play a significant role in this BNP's completion rates. However, caring nursing faculty members have the obligation to identify struggles sometimes inherent within non-dominant ethnic groups and cultures and to intervene in a helpful and supportive manner as needed.

This study's completion group evidenced the most high school math and laboratory science courses completed with a grade of B or above, followed by the retention group, and finally the attrition group. However, BNP completion was not significantly impacted by these courses. Mean college science GPA of the sample was 2.55—just above the acceptable cumulative GPA of 2.50 required for BNP acceptance and progression. Several students commented specifically regarding academic struggles in science courses. This is an area within the BNP that may warrant additional academic support services in an effort to strengthen likelihood of program completion for all nursing students.

In spite of overall satisfaction within the sample regarding instructors' and advisors' helpfulness, accessibility, and supportiveness, several comments indicated a need for continual vigilance in that area. Both Biblical principles and Orem's SCDNT roles as applied to the nurse-educator ought to guide faculty interactions with students.

Limitations

Since the curriculum of each BNP varies, factors may differ. Findings will not be generalizable to other programs due to differing entry, progression, and curriculum requirements; hence, each program should conduct internal studies in order to identify

factors exhibited by students who complete, do not remain in, and persist in that institution's BNP. Use of a convenience sample within a specific NP limits generalizability of findings from this study. Additionally, different timing for administering this survey may have increased participation, as this was a very busy time of year for final projects and end-of-year assessments. Several students expressed interest in the study by beginning the survey, although they did not complete it-- perhaps due to timing issues. They were, therefore, not able to be included in analysis.

It is not known whether responses of participants would have differed from those who chose not to participate. Incomplete surveys decreased the sample size for inclusion in description, yet completed surveys introduced significant information that can direct additional studies. The completion group was all from the same graduating class which may not allow a representative sample of the population. This convenience sample did not include students who had completed the BNP and graduated during the years of 2005-2008, nor did it include students who had left the program and the institution.

Implications for Nursing Education

Implications for nursing education begin with fostering an even more supportive nursing faculty who will give greater consideration to their roles in student retention. In keeping with retention support strategies in the literature, various steps may need to be taken to ensure adequate qualification of BNP candidates. Additional areas of recommendation are campus counselors and BNP advocates; remediation, tutoring, and study group enhancement; and student support groups.

Supportive Nursing Faculty

In keeping with Orem's SCDNT, positive and aggressive action may need to be

taken on the part of the BNP faculty in order to strengthen and implement new strategies to support students toward successful program completion. While negative survey responses were the minority in regard to student perceptions of instructors and advisors' helpfulness, supportiveness, and accessibility, it was evident that some very strong negative statements were evoked. Even if these were misperceptions on the part of the subjects, there is room for improvement upon messages conveyed to students by instructors and advisors.

Perhaps an in-service at the beginning of each school year might be conducted within the Division of Nursing that includes such reminders as the following: therapeutic communication techniques applied to students; the fact that these students are present to learn from faculty and advisors—that they should not be expected to already know new material; that the students are likely under various stressors and may need spiritual, emotional, psychological, and, at times, physical support from faculty.

The provision and maintenance of a caring environment should be maintained to support the personal development of the novice pre-nursing student through that of the excellent graduate nurse. This may be achieved by purposeful action and commitment on the part of the entire nursing faculty working in tandem with other university supportive student services.

Support Strategies Suggested in the Literature

In Higgins' study regarding strategies for lowering attrition rates and raising NCLEX-RN pass rates (2005), ADNP directors suggested four major categories to focus on: preadmission requirements, such as increasing admission GPAs and using preadmission testing with cut-off scores; campus counselors; remediation; and increased

faculty involvement, such as weekly study sessions. Nursing faculty suggested tightening admission requirements, developing mentorship programs, and improving faculty development and workload. Students suggested mandatory classes in test-taking skills, test reviews, study groups, and faculty contact with at-risk students. A perception of having a supportive faculty on the part of the nursing student may enable the student to persist in spite of the personal stress experienced. Hopkins (2008) points out that "support systems may include peer tutoring, course content review sessions, personal and academic counseling, study skills workshops, and other student support groups" (p. 258). Such strategies would likely be useful in enhancing BNP completion.

Adequate Qualification of Candidates

Part of the attrition from the BNP in this study was possibly related to minimally qualified students. Campbell and Dickson (1996) maintain that "interventions designed to increase student success should begin at the pre-nursing level" (p. 56). Newton, Smith and Moore (2007) have pointed out the need "to ensure selection of applicants who can be successful in the curriculum" (p. 440).

Although not mandated, the university's Division of Nursing recommends that prospective students take at least two years of math, a year of biology, and a year of chemistry in high school in preparation for the nursing major (Bob Jones University, 2008). Advisors strongly recommend that those students with weak math and/or science backgrounds follow a five-year curriculum track that redistributes and lightens the heavy academic load to a more manageable level and in some cases includes remedial science and math courses. Approximately one-fifth of the sample (35, 21.7%) self-reported having had no high school laboratory science courses. Perhaps the preparatory science

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recommendations should be changed to mandatory pre-requisites, with the addition of mandatory participatory laboratory science components, in order to be considered minimally qualified for the nursing major. Such mandatory requirements may be fulfilled either on the high school level or upon entry to the university as a five-year remedial curriculum nursing major.

Campus Counselors and BNP Advocates

The Office of Admissions in the university employs staff and graduate student assistants as admissions counselors. Additionally, undergraduate students are trained to call prospective students. When a prospective student requests information on a particular major, a packet of information is mailed. A "student caller" will follow up with a call to the prospective student a couple of weeks later to answer any questions. The NP has some unique requirements, including that upon entrance into the nursing major, all science courses must be taken at the university. Adequate training regarding the specifics of the NP is essential for student callers, staff, and graduate student assistants for providing accurate program information to prospective BNP students. Creation of a nursing faculty liaison position would be helpful. This liaison could meet with Admissions staff at the beginning of each semester, including summer, to review BNP policies and requirements. The liaison would also be available throughout the school year as a resource for Admissions staff. Further, nursing faculty advisors could inform their advisees who are in the clinical portion of the BNP and seeking on-campus employment of the student work positions available in the Admissions department. Students in the clinical BNP would be well versed to answer prospective nursing student questions.

Each year, a group of administrators and educators from the university are guest

panelists at a forum for the institution's high school's seniors, which are also located on the campus. A member of the nursing faculty is generally invited to participate. While this takes several hours out of a busy schedule, it is an opportunity to reach hundreds of students at once about the BNP. Many questions are answered, and vital information may be given that will help students to be as prepared as possible for program requirements. Perhaps an opportunity to address all of the high school students, as well as those in the institution's junior high and elementary levels, could be sought. Campbell and Dickson (1996) point out that "interventions designed to increase student success should begin at the pre-nursing level" (p. 56). It may already be too late to begin such preparation if a student is an upper class high school student. Even pre-college, prospective BNP students "need to be advised of the extensive academic demands of the . . . nursing curriculum and informed of the necessity that pre-nursing courses prepare them sufficiently if they hope to be successful" (Newton, Smith, & Moore, 2007, p. 444).

Remediation, Tutoring, and Study Groups

A university in Louisiana offering both a BNP and an ADNP found a failure or drop-out rate in their biological science courses to be between 50-60% (Kumar, 2005). In accordance with the role of acting or doing for another (the failing students), two faculty members worked to compile companion study guides to go with student bio-science books after a trial of such proved successful academically for the students. The guides are composed of 100 questions that direct students back to searching within the text as needed in order to answer. Final grades of As and Bs rose from 25% of microbiology students in 2003 to 73% of them in 2005 as students utilized the study guides. Percentage of As and Bs in Human Physiology rose from 20% to 55% during the same period, as

well. Similar steps may be followed as the study institution faculty identifies specific problem areas for students within the curriculum and works to help students achieve greater success.

A new Academic Success Center (ASC) was instituted in fall 2009 at the study institution, based on the already established Learning Resource Center (LRC) which was in place for students diagnosed with *bona fide* learning and physical disabilities. Students with suspect learning difficulties may be referred for evaluation to the LRC. Otherwise, academic advisors may refer students to the ASC for help with study skills, reading skills, and certain tutorial assistance. Courses are available without credit in study and rapid reading skills and may be recommended by academic advisors. Perhaps these courses should become mandatory, based on certain established criteria. But the ASC and LRC are not the sources to accommodate remediation for all classes.

The institution of a new science learning resource center within the Division of Nursing could greatly enhance students' access to needed academic assistance in the area of the sciences. Some respondents indicated a lack of access to instructors due to limited office hours, feeling like they were a burden or bother when going for help, and even being laughed at for questions. The creation of a science faculty resource liaison position within the nursing division could broaden accessibility. Further, selection of an excellent science professor with a passion for communicating the material—even to struggling students—could greatly enhance students' grasp of the material.

At the beginning of each school year, an upper level BNP clinical course coordinator takes names of upper level nursing students who are willing to tutor underclassmen in specified science courses. A list is made and circulated to all nursing

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advisors for use with students who are struggling academically in a science course. Perhaps these tutors could conduct weekly sessions, based on the course(s) they are tutoring in, with access to the science faculty liaison for support. Between peer tutoring and the science faculty resource liaison, access to help with science courses should greatly improve.

Within the nursing major, clinical course coordinators monitor grades closely in an effort to identify marginal or failing grades early. Students are contacted as needed by these course coordinators and advised to schedule regular sessions to review tests and report on study habits. Perhaps the creation of a peer tutoring/mentorship program for nursing courses could be implemented by the university's student nurse association in league with faculty oversight.

Advisors may submit the names of new students with low ACT scores to clinical coordinators for close monitoring of grades. Advisors themselves may monitor their advisees with low ACT scores in order to identify need for remediation or tutoring at an early stage.

Peer-led nursing study groups may be another area for consideration. Unofficial student groups currently meet to study within the various classes, but something more didactic may be of benefit. Perhaps the school would approve creation of some student-worker positions that would entail leadership of a study group in an area of proven ability by a particular student.

Support Groups

There is an optional university student nurse association that meets regularly, but membership is based on full acceptance to the clinical NP. Perhaps some within this

group could voluntarily rotate to attend regular gatherings that could function as a support group for those not yet accepted to the clinical BNP. All students could be encouraged to attend their respective gatherings on occasion by pre-arranging for discussions on pertinent suggested topics and perhaps guest speakers.

Summary of Implications for Nursing Education

Based on the findings of this study, many actions might be taken within the studied BNP that could enhance successful BNP completion. These include the following: strengthening the supportiveness of the nursing faculty; enhancing adequate qualification of nursing student candidates; enhancing training for campus counselors; becoming more aggressive with BNP promotion; and enhancing the current approach to remediation, tutoring, and study and support groups.

Recommendations for Future Research

Recommendations for future research include the use of an inferential study with particular attention to hours worked and cumulative GPAs. Regarding hours worked, most respondents in the completion group did not work during the school year, and those in the attrition and retention groups worked between six and ten hours. Hours worked during the semester and type of work may play a role in BNP outcome. For example, some student jobs involve sitting at a desk as a lab monitor and students are able to do their own homework when not needed in the assisting of others. Most student jobs allow no time for personal study, which means study time is affected. Consideration of cumulative GPA, which was not a part of this current study, may affect BNP outcome. It may be of significance to note the cumulative GPA at time of departure from nursing by the attrition group. Further, assessment of the mean cumulative GPA for the completion

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group may be helpful in the discussion of potential changes to the BNP entry and progression criteria.

An *ex post facto* approach on existing student records may provide a means for an inferential study. This would broaden group sizes to include all potential subjects with complete records rather than relying on a volunteer sample of nursing students.

With a current RN and NP faculty shortage already in effect, and prospects of these shortages increasing tremendously within the next decade or so, serious efforts must be made to address the problem of BNP attrition. This study contributes to what is known about BNP attrition, but further studies will be needed to discover and test strategies that will help stem the loss of these students.

References

ACT, Inc. (2004). *What works in student retention?* Appendix 1. Retrieved from

http://www.act.org/path/postsec/droptables/pdf/Appendix1.pdf

ACT, Inc. (2006). *National collegiate retention and persistence to degree rates.*

Retrieved from http://www.act.org/research/policymakers/pdf/ retain_2006.pdf

ACT, Inc. (2008). *2008 Retention/Completion Summary Tables*. Retrieved from

http://www.act.org/research/policymaker/pdf/retain_trends.pdf

Alligood, M. R., & Tomey, A. M. (2006). *Nursing theory: Utilization and application*

(3rd ed.). St. Louis: Mosby, Inc.

American Association of Colleges of Nursing. (2007). *Press release: Enrollment growth*

slows at U.S. colleges and universities in 2007 despite calls for more registered

nurses. Retrieved from http://www.aacn.nche.edu/Media/NewsReleases/2007

/enrl.htm

American Association of Colleges of Nursing (2009). *Media Relations: Nursing shortage*

fact sheet. Retrieved from http://www.aacn.nche.edu/media/FactSheets

/NursingShortage.htm

Andrew, S. (1998). Self-efficacy as a predictor of academic performance in science.

Journal of Advanced Nursing, *27*, 596-603.

Andrew, S., Salamonson, Y., Weaver, R., Smith, A., O'Reilly, R., & Taylor, C. (2008).

Hate the course or hate to go: Semester differences in first year nursing attrition.

Nurse Education Today, *28*, 865-872. doi: 10.1016/j.nedt.2007.12.007

Bob Jones University. (2007). *Bob Jones University 2008-2009 Undergraduate Catalog*,

82. Greenville, SC: Bob Jones University Press.

Byrd, G., Garza, C., & Nieswiadomy, R. (1999). Predictors of successful completion of a
baccalaureate nursing program. *Nurse Educator*, *24*(6), 33-37.

California Postsecondary Education Commission. (2003). Admission policies and
attrition rates in California community college nursing programs. *Commission
Report*, 03-02. Retrieved from http://www.cpec.ca.gov/completereports
/2003reports/03-02.pdf

Campbell, A. R., & Dickson, C. J. (1996). Predicting student success: A 10-year review
using integrative review and meta-analysis. *Journal of Professional Nursing*,
12(1), 47-59.

Colon, E. J. (1997). Identification, accommodation, and success of students with learning
disabilities in nursing education. *Journal of Nursing Education*, *36*(8), 372-377.

Daley, L. K., Kirkpatrick, B. L., Frazier, S. K., Chung, M. L., & Moser, D. K. (2003).
Predictors of NCLEX-RN success in a baccalaureate nursing program as a
foundation for remediation. *Journal of Nursing Education, 42*(9), 390-398.

Ehrenfeld, M., & Tabak, N. (2000). Value of admission interviews in selecting of
undergraduate nursing students. *Journal of Nursing Management*, 8, 101-106.

Gardner, J. (2005) Understanding factors influencing foreign-born students' success in
nursing school: A case study of East Indian nursing students and
recommendations. *Journal of Cultural Diversity*. *12*(1), 12-17.

Gaynor, L., Gallasch, T., Yorkston, E., Stewart, S., Bogossian, F., Fairweather, C., et al.
(n.d.). The future nursing workforce in Australia: Baseline data for a prospective
study of the profile, attrition rates and graduate outcomes in a contemporary
cohort of undergraduates. *Australian Journal of Advanced Nursing*, *25*(2), 11-20.

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Gaynor, L., Gallasch, T., Yorkston, E., Stewart, S., & Turner, C. (2006). Where do all the

    undergraduate and new graduate nurses go and why? A search for empirical

    research evidence. *Australian Journal of Advanced Nursing*, *24*(2), 26-32.

Higgins, B. (2004). Relationship between retention and peer tutoring for at-risk students.

    Journal of Nursing Education, 43(7), 319- 321.

Higgins, B. (2005). Strategies for lowering attrition rates and raising NCLEX-RN pass

    rates. *Journal of Nursing Education, 44*(12), 541-547.

Hopkins, T. H. (2008). Early identification of at-risk nursing students: A student support

    model. *Journal of Nursing Education. 47*(6), 254-259.

Ishitani, T. T. (2003). A longitudinal approach to assessing attrition behavior among first-

    generation students: Time-varying effects of pre-college characteristics. *Research

    in Higher Education, 44*(4), 433-449.

Jalili-Grenier, F., & Chase, M. M. (1997). Retention of nursing students with English as a

    second language. *Journal of Advanced Nursing*, *25*, 199-203.

Jeffreys, M. R. (2007). Tracking students through program entry, progression,

    graduation, and licensure: Assessing undergraduate nursing student retention and

    success. *Nurse Education Today, 27*, 406-419. doi: 10.1016/j.nedt.2006.07.003

Kennesaw State University. (2007). *2007 YFCY national survey results for first-time full-

    time college freshmen. An analysis of survey responses.* Retrieved from

    http://vic.kennesaw.edu/documents/pdf/study/YFCY_2007.pdf

Kumar, R. (2005). A problem-solving strategy for teaching biosciences to nursing

    majors. *The ABNF Journal,* September/October, 93-94.

Magnussen, L, & Amundson, M. J. (2003). Undergraduate nursing student experience. *Nursing and Health Sciences*, 5, 261-267.

Mashaba, G., & Mhlongo, T. (1995). Student nurse wastage: A case study of the profile and perceptions of students of an institution. *Journal of Advanced Nursing,* 22, 364-373.

National League for Nursing. (2005). *Nurse faculty shortage fact sheet.* Retrieved from http://www.nln.org/aboutnln/shortage_info.htm

National League for Nursing. (2006). Press Release: *NLN data reveal slowdown in nursing school admissions growth.* Retrieved from http://www.nln.org/aboutnln/research_survey.htm

Need, A., & De Jong, U. (2001). Do local study environments matter? A multilevel analysis of the educational careers of first-year university students. *Higher Education in Europe, 26*(2), 263-278. doi: 10.1080/0379772012008265 1

Nevidjon, B., & Erickson, J. (January 31, 2001). The nursing shortage: Solutions for the short and long term. *Online Journal of Issues in Nursing, 6*(1), Manuscript 4. Retrieved from http://nursingworld.org/ojin/topic14/ tpc14_4.htm

Newton, S. E., Smith, L. H., & Moore, G. (2007). Baccalaureate nursing program admission policies: Promoting success or facilitating failure? *Journal of Nursing Education, 46*(10), 439-444.

Noel-Levitz, Inc. (2008). *Third annual national freshman attitudes report.* Retrieved from http://www.noellevitz.com/freshmanreport

Office of Research and Statistics, South Carolina Budget and Control Board in Cooperation with State Board of Nursing. (2003). *A profile of the South Carolina*

nursing workforce, 2003. Retrieved from http://www.ors2.state.sc.us/manpower /nurs/2003Nursing.pdf

Peterson, C. (January 31, 2001). Nursing shortage: Not a simple problem—no easy answers. *Online Journal of Issues in Nursing, 6*(1), Manuscript 1. Retrieved from http://nursingworld.org/ojin/topic14/tpc14_1.htm

Potolsky, A., Cohen, J., & Saylor, C. (2003). Academic performance of nursing students: Do prerequisite grades and tutoring make a difference? *Nursing Education Perspectives, 24*(5), 246-250.

Sayles, S., Shelton, D., & Powell, H. (November/December 2003). Predictors of success in nursing education. *The ABNF Journal,* 116- 120.

Seago, J. A., & Spetz, J. (2005). California's minority majority and the white face of nursing. *Journal of Nursing Education, 44*(12), 555- 562.

Shelton, E. N. (2003). Faculty support and student retention. *Journal of Nursing Education, 42*(2), 68-76.

The Sullivan Commission. (March 2000). *Missing persons: Minorities in the health professions.* Retrieved from http://aacn.nche.edu/media/ pdf/SullivanReport.pdf

Tomey, A. M., & Alligood, M. R. (2002). *Nursing theorists and their work* (5th ed.). St. Louis: Mosby, Inc.

U.S. Department of Health and Human Services Health Resources and Services Administration. (2004). *The registered nurse population: Findings from the 2004 national sample survey of registered nurses.* Retrieved from http://bhpr.hrsa.gov /healthworkforce/rnsurvey04

Uyehara, J., Magnussen, L., Itano, J., & Zhang, S. (2007). Facilitating program and

    NCLEX-RN success in a generic BSN program. *Nursing Forum, 42*(1), 31-38.

Wong, J., & Wong, S. (1999). Contribution of basic sciences to academic success in

    nursing education. *International Journal of Nursing Studies*, *36*, 345-354.

Wright, S. C., & Maree, J. E. (2007). First year baccalaureate nursing students: Reasons

    for drop-out? *South African Journal of Higher Education*, *21*(5), 596-608.

Appendix A

Nursing Program Retention Questionnaire

Nursing Program Retention Questionnaire

My name is Mrs. Lori Shrock. I am working on my Master of Science degree in nursing education at Gardner-Webb University. Because you are or have been a nursing major in the past, your participation in this survey will be most helpful. I am requesting your student ID number in order to link your responses with additional research that I will be doing. Specifically, I will be obtaining and analyzing overall GPA, individual science and nursing course grades, current major, and the dates of any changes that you might have made to your academic career.

Your name will not in any way be included in the published results (you will remain anonymous in the reporting but confidential to me in the collection of data). Once I have collected the data necessary for this study, individual names and ID numbers will be removed from the data.

Your participation in this survey will be most helpful to my research. Completion of this survey indicates your permission for me to access your records as part of my research project. Please take a few minutes to think about and respond to the survey questions.

Question		
1. What is your current major?		
2. If your current major is different from your first major, during what semester (or month) and year did you make this change?		
3. Are you on schedule to complete your college degree program within four years of coming here?	Yes	No
4. When do you anticipate graduation? (For example: if you are completing your program in December 2008, your graduation date will be May 2009). Listed choices: May 2009, May 2010, May 2011, May 2012, May 2013, Other.		
5. What was your declared major when you began college here?		
6. Why did you select it?		
7. How many semesters have you been in (or were you in) that major? Listed choices: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 or more		
8. If you have changed your major, please explain the reason(s) for this:		
9. Would you have remained in your original major with different support?	Yes	No
10. Please give examples related to your answer in question 9:		
11. Have you found your instructors helpful in working with you? Please give examples related to your answer in question 11.	Yes	No
12. Have you found your instructors accessible in working with you? Please give examples related to your answer in question 12.	Yes	No
13. Have you found your instructors to be supportive in working with you? Please give examples related to your answer in question 13.	Yes	No
14. Have you found your advisor(s) to be helpful in working with you? Please give examples related to your answer in question 14.	Yes	No
15. Have you found your advisor(s) to be accessible in working with you? Please give examples related to your answer in question 15.	Yes	No
16. Have you found your advisor(s) to be supportive in working with you?	Yes	No

Please give examples related to your answer in question 16.		
17. How many total years of education did your father complete?		
18. How many total years of education did your mother complete?		
19. Were you born in the United States (US)?	Yes	No
20. How many years have you lived in the US?		
21. What do you consider to be your primary language? Listed choices: English, Spanish, Chinese, Korean, Other.		
22. What is your secondary language? Listed choices: English, Spanish, Chinese, Korean, Other.		
23. If English is not your primary language, how many years have you studied English?		
24. What type of schooling did you have for the majority of your high school (HS) years (or equivalent academic level)? Listed choices: Christian, Public, Private, Home School, Other.		
25. Please indicate your best grade in each of the following high school courses, if applicable: Listed courses: Business Math, General Math, Algebra I, Algebra II, Geometry, Trigonometry, Calculus, Biology I, Biology II, Chemistry, English. Listed choices: Did not take, A, B, C, D, F.		
26. Did you participate in laboratory experiments in high school science courses?	Yes	No
27. List all college math courses you have taken:		
28. How old were you when you began the nursing program?		
29. How many hours a week do you work at a job? Listed choices: I do not work, 1-5 hours, 6-10 hours, 11-15 hours, 16-20 hours, 21 or more hours.		

Debriefing Statement

There is a serious shortage of registered nurses (RNs) anticipated within the next ten to twenty years in the United States (US) and worldwide. The purpose of this survey, in combination with other information from your student records, is to identify and predict nursing program completion and attrition (leaving the program) factors in our Division of Nursing. This information may give us useful knowledge that can lead to additional pre-requisites for admission, as well as programs that will decrease the rate of students leaving the nursing major, thereby increasing the number of graduate nurses completing the program annually.

This survey has been sent to all students who are nursing majors at this university or who have been at any point since the school year of 2005-2006 and are still students at this institution. In the survey, you have provided me with information specific to you as an individual. This study will help me to gather the information I need in order to see if there might be some ways we can help future students to be even better prepared to begin and successfully complete the nursing major here.

Thank you for participating in this questionnaire. I value your taking the time to help me, and perhaps subsequently our nursing program, in this way.

* This is not the same format as the electronic survey but is a representation of the items and response choices on the NPRQ.

Appendix B

Introductory Letter to Study Population Regarding Nursing Program Retention

Questionnaire

Nursing Program Retention Questionnaire

My name is Mrs. Lori Shrock. I am working on my Master of Science degree in nursing education at Gardner-Webb University. I am currently writing my thesis on the phenomenon of completion versus non-completion in nursing programs and have constructed a survey that will provide more information on this topic.

Because you are or have been a nursing major in the past, your participation in this survey will be most helpful. I am requesting your student ID number in order to link your responses with additional research that I will be doing. Specifically, I will be obtaining and analyzing your overall GPA, individual science, English, and nursing course grades, current major, and the dates of any changes that you might have made to your academic career.

Your name will not in any way be included in the published results (you will remain anonymous in the reporting but confidential to me in the collection of data). Once I have collected the data necessary for this study, individual names and ID numbers will be replaced with randomly generated numbers and identifying information will be removed from the data and destroyed. Please take a few minutes to think about and respond to the survey questions. If you have questions for me, either now or later, feel free to contact me at 864-370-1800, ext. 2291. You may also contact my faculty advisor, Dr. Eileen Colon, at ecolon@gardner-webb.edu or 704-406-4362. Your participation in completing this survey is voluntary and if you decide not to participate there will be no consequences. Your completion of the survey will indicate your permission to use your responses in my study report as well as indicating permission to access your records to use your overall GPA, individual science and nursing course grades, current major, and the dates of any changes that you might have made to your academic career.

Thank you in advance for taking the time to complete this survey. It will be on ASQ for two weeks, so if you're not able to do it today, please return to it soon, complete, and submit it.

Thank you so much for your helpful participation!

Appendix C

Institutional Review Board Certification, Gardner-Webb University

CERTIFICATE OF COMPLETION

This certificate is awarded to

Lani Shrock

In recognition of completion of the training protocol of the institutional review board

Gardner-Webb University

Jackson A. Johnson, Ph.D.
IRB Administrator

2.23.09
Date

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Appendix D

Approval from the Institutional Review Board of Gardner-Webb University

The Institutional Review Board
of
Gardner-Webb University

This is to certify that the research project titled
A Study of Program Completion and Attrition in One Baccalaureate Nursing
Program in the Southeastern United States

being conducted by ___Lori J. Shrock_____

has received approval by the Gardner-Webb University IRB.

Date___March 30, 2009_____

Signed_____

     IRB Chair or Department/School/Program Representatives

_____

     (2 Signatures are required for approval.)

Expiration date _March 30, 2010_____

IRB Approvals:

___X__   Exempt

_____   Expedited

_____   Full IRB Review

Appendix E

Approval from Bob Jones University
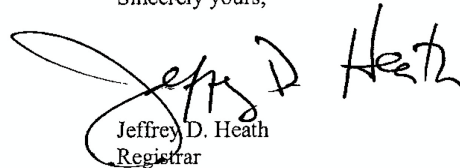
BOB JONES *University*

GREENVILLE · SOUTH CAROLINA 29614-0001 · 864-242-5100 · ADMISSIONS 1-800-BJ-AND-ME

March 6, 2009

Dear Lori:

I am granting permission for you to study factors related to retention and attrition in the nursing program at Bob Jones University. You may use the resources located in the Records Office to review the records of those students who have been in the nursing major here from the fall semester of 2004 to the present (Spring 2009) for your study.

Sincerely yours,

Jeffrey D. Heath
Registrar

JDH:cac

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Appendix F

Approval from Bob Jones University for Release of Nursing Program Retention

Questionnaire

Mail Message

N

❌ Reply ▾ 📩 ↻ 🔖 Read Later ↪   📬 🖨

Mail   Properties

From:	"Greg Martin (ASQ)" <gmartin@bju.edu>	Wednesday - September 3, 2008 4:15 PM
To:	Gmartin@bju.edu	
Subject:	Your ASQ "Nursing Program Retention Questionnaire" was approved	
Attachments:	Mime.822 (1196 bytes) [View] [Save As]	

ASQ "Nursing Program Retention Questionnaire" has received complete approval.

It will be released at the owner's discretion.

Gregory S. Martin
Director of Institutional Effectiveness

Bob Jones University
Greenville • South Carolina • 29614-0001
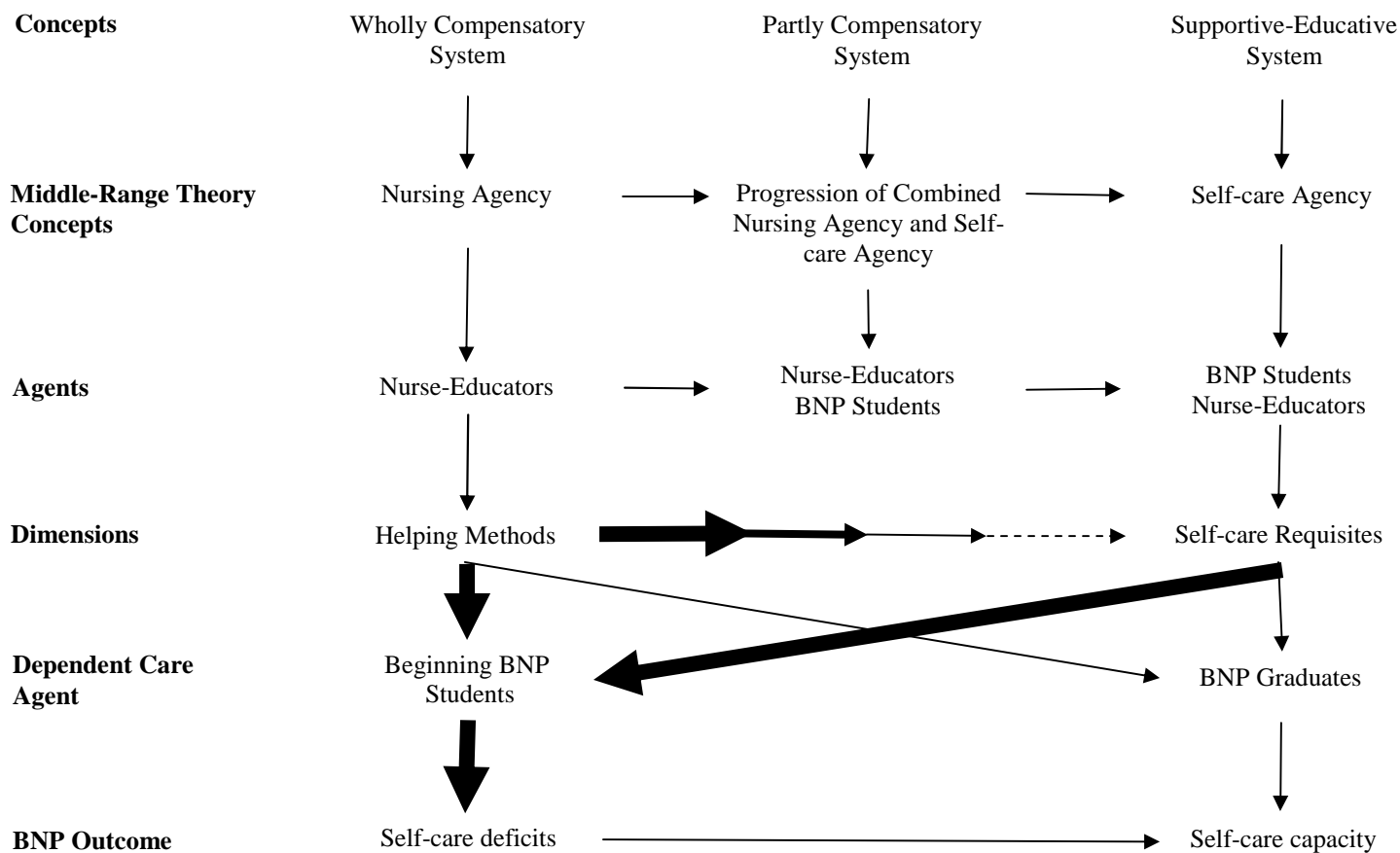864-242-5100 Ext 1015 • Fax 864-233-9829
gmartin@bju.edu • www.bju.edu

9/3/2008 4:40 PM

Appendix G

Conceptual-Theoretical-Empirical Model

Conceptual Model   Orem's Self-Care Deficit Nursing Theory

Concepts	Wholly Compensatory System	Partly Compensatory System	Supportive-Educative System
Middle-Range Theory Concepts	Nursing Agency	Progression of Combined Nursing Agency and Self-care Agency	Self-care Agency
Agents	Nurse-Educators	Nurse-Educators BNP Students	BNP Students Nurse-Educators
Dimensions	Helping Methods		Self-care Requisites
Dependent Care Agent	Beginning BNP Students		BNP Graduates
BNP Outcome	Self-care deficits		Self-care capacity

Based on Orem's Self-Care Deficit Nursing Theory (1995). Tomey and Alligood (2002).