

ABSTRACT

EVANS, DENA BATYKEFER. An Examination of the Influence of Select Non-Cognitive Variables on the Intention of Minority Baccalaureate Nursing Students to Complete a Baccalaureate Nursing Program. (Under the direction of Timothy Hatcher).

On college and university campuses nationwide, understanding the phenomenon of student retention has become an institutional imperative. The loss of any student is costly to a college or university, resulting in considerable financial loss (Siedman, 2005). For some programs of study, such as nursing, retention is paramount, not only for the institution but for the communities which are served by its graduates. Moreover, retaining minority nursing students is of particular importance because it holds the key to the resolution of a long-standing absence of minority representation in the nursing profession, the nursing shortage and the elimination of health disparities among minority healthcare recipients (Davidhizar, Dowd, & Giger, 1998; Shi & Stevens, 2005). Using Tinto's (1993) Model of Institutional Departure, the present study explored the relationship between select non-cognitive variables and students' intention to complete their program of study. Unique data characteristics required the use of both parametric and nonparametric statistical analyses, including a Zero Inflated Poisson regression, not traditionally seen in retention research. Statistical analyses revealed significant differences between minority and non-minority prelicensure baccalaureate nursing students. The final regression model which included age, race, gender, academic development, faculty interaction, peer interaction, hours worked and faculty concern, accounted for 29% of the variation in intention scores.

An Examination of the Influence of Select Non-Cognitive Variables on the Intention
of Minority Baccalaureate Nursing Students to Complete a
Baccalaureate Nursing Program

by
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DEDICATION

Dedicated to my best friend and husband

Patrick David Evans

for his friendship, love, support and patience.

BIOGRAPHY

Dena Evans was born and raised in Lilesville, North Carolina and is currently a resident of Richmond County, North Carolina. She credits her desire for lifelong learning to her grandmother, Grace Downer, who always imparted that education was “something that can never be taken away from you.” Desires to become a journalist were quelled when Mrs. Evans’ father insisted that she pursue a more stable career in nursing. Mrs. Evans graduated from Richmond Community College in May of 1988 with an Associate of Applied Science Degree in Nursing. She earned her Bachelor’s degree in nursing from Gardner-Webb University in 1992 and a Masters in Public Health, from the University of North Carolina at Chapel Hill, in 2000. Her teaching career began with the North Carolina Community College System in 1994 where she held positions as a faculty member as well as chair of the Health Sciences Division until leaving the system in 2006, to pursue a career within the University of North Carolina System. She is currently an Assistant Professor of Nursing with the University of North Carolina at Pembroke where she also helped to design and implement a Learning Enhancement Center (LEC) for the nursing department. As coordinator of the LEC, Mrs. Evans focuses on the academic and social integration of pre-nursing and pre-licensure students in an attempt to improve program retention rates, and NCLEX® success rates. Mrs. Evans is a Certified Nurse Educator, a member of the Sigma Theta Tau Nursing Honor Society, the North Carolina Nurses’ Association, and the American Association of Colleges of Nursing.

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Chapter One

Background

On college and university campuses nationwide, understanding the phenomenon of student retention has become an institutional imperative. The loss of any student is costly to a college or university, resulting in loss of state appropriations, tuition, student fees and auxiliary revenue (Nora, Cabrera, Hagedorn & Pascarella, 1996). Yet for some programs of study, such as nursing, retention is paramount, not only for the institution but for the communities which are served by its graduates. Moreover, retaining minority nursing students is particularly important because it holds the key to the resolution of a long-standing absence of minority representation in the nursing profession, the nursing shortage and the elimination of health disparities among minority healthcare recipients (Davidhizar, Dowd, & Giger, 1998; Shi & Stevens, 2005).

Nationally, the profession of nursing has long struggled with a lack of racial and ethnic diversity. In the year 2000, the National Advisory Council on Nurse Education and Practice convened the Expert Workgroup on Diversity to create a national agenda to address the lack of racial and ethnic diversity in nursing. The organization's Report to the Secretary of Health and Human Services, in 2003, reveals that despite a national action agenda, creating diversity within the profession remains a priority. According to the United States Census Bureau, (2001) while approximately 31% of the U.S. population describes itself as racially or ethnically diverse, the Bureau of Health Professions Division of Nursing (2001) reports that 86.6% of the registered nurse

population is Caucasian. Furthermore, the Sullivan Commission Report on Diversity in the Healthcare Workforce (2004) found that while African Americans, Hispanics and American Indians make up 25% of the population, they account for only 9% of the nation's nurses. Comparatively, findings from the 2004 National Sample Survey of Registered Nurses found that while there were an estimated 2,915,309 individuals in the United States currently licensed to practice as Registered Nurses, only 10.3 percent identified themselves as racially and ethnically diverse. Throughout the nursing retention literature it is clear that the need to increase the ethnic diversity in the nursing profession is paramount to insuring quality healthcare for an ever-increasingly diverse population (Abriam-Yago, Yoder, & Kataoka-Yahiro, 1999; Lester, 1998; Davidhizar, Dowd, & Geiger, 1998; Dowell, 1996).

Additional findings from the 2004 National Sample Survey identified geographic variations in minority nursing practice. Specifically, while the Pacific region of the U.S. boasted higher percentages of minority nurses, higher proportions of Hispanics nurses were located in the Pacific and Mountain regions. African American nurses were more likely to be found in the Southern region of the U.S. Yet despite these findings, a 2001 survey conducted by the Southern Regional Education Board Council on Collegiate Education for Nursing, revealed that 74% of all nursing students, in the Southern region of the US, were reported as Caucasian (USDHHS, 2000). The Council, which consists of 16 member states, including North Carolina, has become a leader in planning and activities designed to strengthen nursing education in the South.

According to the North Carolina Board of Nursing (2007), 67% of the 105,463 currently licensed Registered Nurses in North Carolina are white. Although not as alarming as the national statistics presented, given the large minority presence in North Carolina, a lack of racial and ethnic diversity in the states' nursing population is cause for concern. Currently, 14 North Carolina counties are considered "majority-minority," meaning non-Hispanic white residents are currently outnumbered by African Americans, Hispanics, and Asian Americans. While Robeson County is reported as having the highest proportion of minority residents, the counties of Hertford, Bertie, Warren, Edgecombe, Northhampton, Halifax, Hoke, Vance, Durham, Washington, Anson, Green and Scotland are also "majority-minority" counties (U.S. Census Bureau, 2007). African Americans, Hispanic Americans and Native Americans tend to receive substandard healthcare and less health care than white Americans, which results in higher mortality rates for these groups (Sitzman, 2007). Segregation, disparate treatment, racism and mistrust continue to fuel an epidemiologic gap between whites and minorities. And, without racial and ethnic diversity within the nursing profession, equity may never be achieved and current health disparities will be bolstered (Gonzalez, Gooden & Porter, 2000). Clearly, the impact of these population trends on long-standing minority health disparities, coupled with the current lack of racial and ethnic diversity in North Carolina's nursing population, create a health care challenge for the state.

World-wide, African Americans have the highest rate of cardiovascular disease; among African Americans, Native Americans and Hispanics, diabetes has become

epidemic; and cancer deaths are more prevalent in African Americans, Asian Americans and Hispanics (USDHHS, 2000). In North Carolina, the statistics are similar. Age-adjusted mortality rates, provided by the North Carolina Center for Health Statistics (2005), reveal that death rates due to heart disease, cerebrovascular disease, cancer and diabetes are higher for minorities than for Whites. To further compound these disparities, DeNavas-Walt, Proctor and Smith (2007) found that households in the South continue to have the highest rate of uninsured citizens, and in North Carolina the uninsured are disproportionately minority. A 2004 report by Families USA revealed that 80.5 percent of North Carolina's minority population is uninsured as compared to 11.7% of its white-non-Hispanic population. Additionally minorities in the South have higher poverty and unemployment rates than minorities in other regions of the U.S. (DeNavas-Walt, et al., 2007). Furthermore, there is a history of poor treatment of minorities in the South, particularly directed towards African Americans, which began with slavery and quickly found its way into medicine, creating a culture of mistrust in the health care system. Therefore, the role that this history plays in minority healthcare in the South, should not be overlooked.

Throughout history, African Americans have experienced much suffering at the hands of physicians. For example, Dr. Marion Sims performed surgical experiments on slaves, without the benefit of anesthesia, in order to perfect his technique for repairing vesicovaginal fistulas before attempting the procedure on white females. Slaves were also used by Dr. Thomas Hamilton as he experimented to find the correct treatment for heat

strokes. Academic medical centers, in need of cadavers for gross anatomy practice, used the cadavers of African Americans as teaching material (Randall, 1996; Washington, 2007). Then, there is the Tuskegee Syphilis study.

Initiated in 1932 by the U.S. Public Health Service, the study denied syphilis treatment to 299 poor, uneducated African American sharecroppers in Alabama. The “subjects” did not give informed consent and were not informed of their actual diagnosis. Even when *Penicillin* was introduced as a treatment in 1947, the medication was withheld from study subjects and, as a result, many died. While this is no doubt alarming, even more shocking is the fact that this study was allowed to continue until 1972 (Kennedy, Mathis, & Wood, 2007). Thirty-six years after the Tuskegee Syphilis study, African Americans share a collective memory of injustice which creates a barrier to quality health care in the 21st century (Blendon, et. al 1995). African American men are less trusting of hospitals (Boulware, 2002), more suspicious of reasons physicians use to disconnect life sustaining therapies (Blackhall, Frank, Murphy, Michel, Palmer & Azen, 1999), and less trusting of the health care system overall (Freedman, 1998; Gamble, 1997; Minniefield, 2001). A 2009 study conducted by Michigan State University found that 70% of minority women believed that healthcare organizations deceived or mislead patients. The study included 341 Arab-American, African American and Latina women and also revealed that while African American women had higher levels of mistrust than their Arab-American and Latina counterparts, 44% of the women studied felt that healthcare organizations had often conducted harmful experiments on patients without

their knowledge (Michigan State University, 2009).

While mistrust of the medical system is a well documented as it pertains to African Americans, other minorities also experience the same mistrust. For example, an article by Thom and Campbell (1997) points to lack of respect, lack of privacy and death of friends or relatives due to poor medical care as reasons for mistrust cited by African Americans and Hispanics in focus groups. Moreover, minorities report more difficulties in communicating with their healthcare provider (Commonwealth Fund, 2002) and minorities are more likely to believe that their healthcare providers treat minority patients differently than they do white patients, even if it is unintentional (Harvard Forums on Health, 2003). A 2006 random survey of 4,156 U.S. adults revealed that minorities often perceive their health care differently than whites, with a substantial portion revealing that they felt that they were discriminated against when it came to receiving quality health care (Blendon, et. al, 2007). According to Randall (1996), the pervasive lack of minority health care professionals leaves the care of minorities in the hands of the dominant culture. Therefore, the need for more racial and ethnic diversity in the nursing profession is fueled, not only by the need to narrow the epidemiological gap between whites and minorities, but also to create cultural awareness and cultural competence among health care providers.

According to the U.S. Department of Health and Human Services (2000), minority providers are five-times more likely to treat other minorities in underserved areas. Additional research reveals that underrepresented minority health care

professionals are consistently more likely to provide care to the underserved (Saha & Shipman, 2008). A more diverse nursing workforce can ensure the delivery of culturally competent care, provide role models for other minorities and ultimately help to eliminate health disparities (IOM, 2004; Center for Health Workforce Planning, 2003). Given the previously described “majority-minority” status of many counties in North Carolina, university nursing programs can play an integral role in the elimination of health disparities and the creation of a culturally competent nursing workforce through focused efforts to recruit, retain and graduate minority nurses.

According to Wong, Segó, Keane and Grumbach (2008), there is a tremendous amount of research focused on factors that predict success for college students in general and minorities in particular. However, very little research is focused on nursing students. And, while much research has been conducted on the recruitment and retention of minority students in higher education, most of the emphasis has been placed on recruitment (Childs, Jones, Nugent & Cook, 2004). In general, recruitment of qualified nursing applicants poses little challenge for nursing programs (McLaughlin, 2008). According to the AACN (2008), the number of applicants to baccalaureate nursing programs has increased dramatically over the last five years. Yet, the recruitment and retention of qualified *minority* students remains an imperative for professional nursing programs in the United States (American Association of Colleges of Nursing, 2001).

Research has identified a number of recruitment barriers including lack of institutional commitment to diversity (Harris 1990); racially hostile climates (Smith,

1986); lack of adequate financial assistance (Cardenas & Warren, 1991); and inadequate student preparation for college (Mulder, 1991; Shom, 1991). These same barriers are identified in nursing literature related to minority student retention (Amaro, Abriam-Yago, & Yoder, 2006; Andrews, 2003; Dowell, 1996; Evans, 2004; Guiffrida, 2005; James, 1997; Jefferys, 2004; Mills-Wisneski, 2005; Steward, 2005). Many of these barriers are not unique to one particular minority group. For example, the Sullivan Commission Report (2004) identified many similar access barriers for Latinos who desire to enter the nursing profession including high cost, overreliance on standardized tests to make admission decisions, unsupportive campus cultures and limited support for adult learners. So even though the U.S. Census Bureau (2000) estimates that by the year 2050, Hispanics will make up 23% of the U.S. population, according to Warda (2008), they make up only 5.6% of all baccalaureate nursing students. According to Manzo (2005), the affordability of two-year community college programs has made them the primary entry way for Latino's into higher education; however, Latino students are far more likely to attain a baccalaureate degree if they begin their education at a four-year university (Torres & Castillo, 2006). However, Hurtado and Carter (1997) pointed out that the higher the selectivity of the college or university, the more difficulty Latinos would have with their transition.

Studies have found that the social environment on predominantly white campuses can be difficult even for minority students who have strong academic backgrounds (Castellanos & Jones, 2003). A recent study by Hagedorn, Chi, Cepeda &

McLain (2007) examined the role of critical mass on the retention of Latino students at an urban community college. Critical mass refers to the level of representation that provides comfort or familiarity within the educational environment. The study found that a critical mass of Latino students did in fact have a positive impact on the educational achievement of minority students within this urban community college. Without this critical mass of minority students, as well as faculty, a lack of sensitivity and understanding emerges, often resulting in feelings of marginalization. Research conducted by Hurtado and Carter (1997), revealed that Latino students perception of a hostile campus climate had a negative academic impact on this minority population.

According to Wilson, Andrews and Leners (2006), ethnic minority enrollment represents less than 13% of nursing students, and fewer than 10% of minority students graduate from nursing programs. The authors also share that this lack of minority nursing student success could be associated with a lack of minority faculty and administration in nursing schools. Only 8.7% of faculty and 6.8% of administration reflect the “federal panethnic minority population (pg. 18).” While numerous studies have been conducted in order to identify characteristics associated with minority students who persist or drop out (Hyche-Johnson, 1995; Jalili-Grenier, & Chase, 1997; Allen, Nunley, & Scott-Warner, 1988; Rodgers, 1990; Yoder, 1996), according to Hammack (2003), few nursing programs implement aggressive minority recruitment and retention programs.

Baccalaureate nursing programs are under pressure to produce safe, qualified, entry-level practitioners, capable of passing the national licensure exam (NCLEX-RN).

Therefore, programs must identify reliable admission and progression criteria due to the challenges of limited clinical slots, qualified faculty and financial resources, all of which limit enrollment possibilities (Byrd, Garza & Nieswiadomy, 1999). Use of entrance exams to screen students, identifying students who are weak in math and science, use of reading standardized test scores, use of a minimum grade point average (GPA), and dismissing students who fail two or more nursing classes, were found to be significant predictors of success on the standardized NCLEX-RN examination (Crow et al., 2004; Giddens & Gloeckner, 2005; Higgins, 2005; Morrison, Free, & Newman, 2006). According to Nayer (1992), “the purpose of admission procedures is to select students who will complete the educational program and go into professional careers, do well in the program, perform creditably in professional practice and possess the traits of character and ethical values desired of a professional person” (p. 41). However, when it comes to allied health programs such as nursing, research shows very little consistency in admission criteria and procedures and even less evaluation of processes which are in place (Dietrich & Crowley, 1982). Selection of applicants for health professions programs is typically a multi-stage, highly competitive process because there are usually more applicants than there are available slots (Salvatori, 2001). And, while most programs use a combination of cognitive and non-cognitive factors to determine admissions (Johnson & Edwards, 1991), nursing programs have historically relied on overall GPA as a predictor of student success (Porter, 2008; Byrd, Garza & Nieswiadomy, 1999). While literature suggests that GPA is a strong predictor of student success (Sayles,

Shelton, & Powell, 2003; Fleming, 2002; Kim, 2002; Pascarella & Terenzini, 2005; Zheng, et al., 2002; Tross, et al., 2000) use of GPA as the only means for evaluating student potential places minority students at a disadvantage (Jay & D'Augelli, 1991; Torres & Solberg, 2001).

While the use of a student's overall GPA as a part of the nursing program admission process is a common practice, according to Porter and Barbee (2004), most programs often use standardized preadmission testing results. Yet standardized tests, originally created for white males, provide very little in the way of an accurate assessment of abilities for non-traditional, non-white students (Sedlacek, 2004; Sedlacek & Gaston, 1992). According to Sedlacek (2004), students who score low on standardized tests are presumed to need remedial instruction. Conversely, those who score high are presumed to be capable of learning on their own.

There are many standardized tests on the market for use in nursing and other health professions programs, including the Nurse Entrance Test (NET), (Health Education Systems, Inc.) HESI and Assessment Technologies Institute (ATI). However, there is no consistency among college and university nursing programs as to which one should be used and even fewer studies examining how well these entrance tests predict student success (Femea et al., 1995; Newton, Smith & Moore, 2007; Simmons & Haupt, 2003; Newton, Smith, Moore, & Magnan, 2007). Furthermore, use of standardized testing is not limited to preadmission decision making. Indeed, these standardized tests may also be used to promote content mastery and truthful self-evaluation for students

once enrolled in a nursing program (McGann & Thompson, 2008). And, although discouraged by the North Carolina Board of Nursing, these standardized tests may also be used for the purposes of determining progression in a nursing program.

According to Schmeiser and Ferguson (1979) differences in performance on standardized tests among ethnic groups may be attributed to: (1) culturally biased content, (2) technical features of the test, (3) which cognitive skills are being measured, and (4) socio-cultural characteristics. Indeed, the NCLEX-RN, the standardized test developed by the National Council for State Boards of Nursing (NCSBON), has recently come under fire for not being culturally sensitive for students of color and international students. Nurses argue that because of this lack of cultural sensitivity, fewer minority students pass this mandatory licensing examination. However, according to Sitzman (2007) additional research related to the cultural barriers associated with the NCLEX-RN is needed to fully understand the concern.

Other admissions criteria which may pose a problem for minority students include the pre-requisite science courses required of all nursing programs. Indeed, according to Porter and Barbee (2004), these admission criteria do have an impact on nursing student retention. A study by Lewis and Lewis (2000) found a direct relationship between the number of anatomy and physiology classes taken and success in the nursing program. The study did not, however, find any link between pre-requisite course grades and retention. The study (Lewis et al, 2000) did find a positive correlation between completing Anatomy & Physiology II and Microbiology and successful

completion of the nursing program. Pre-requisite science courses, which may be necessary for an understanding of nursing theory and practice, may pose specific barriers for minority students since research reveals that minority students often come to college and university campuses with poor academic preparation and therefore may perform poorly in college-level courses. Others may feel intimidated by the number of sciences courses required and simply not consider nursing as a career choice or, once accepted into a nursing program, may decide that they have made the wrong career choice (Mashaba & Malong, 1995). Berliner and Ginzberg (2002) succinctly describe the crux of the issue: “Since minority women are well represented in other caring occupations, it seems likely that their absence in nursing is due in considerable measure to educational deficits that could be corrected with time and effort” (p. 2743).

According to Mashaba and Malong (1995), most studies of nursing student retention have focused on aggregated data across semesters or after several years of a particular course. This (Mashaba, et al., 1995) fails to recognize that a student’s reasons for leaving may vary according to the time he or she chooses to leave. In fact, they found that students leaving in their first semester typically cited the reason of having made the ‘wrong choice,’ whereas students in subsequent semesters did not use wrong choice as a rationale for leaving the program. The current study will address this identified gap in the research by comparing intention to complete at both the junior and senior level in select nursing programs. Additional reasons for leaving a nursing program include family, academic, financial, health and wrong career

choice (Glossop, 2002). The amount of science required for a nursing program (Last & Fulbrook, 2003), as well as demographic characteristics (Fleming & McKee, 2005) and even student ethnicity (Gardner, 2005), all non-cognitive in nature, have also been attributed to nursing student attrition.

While schools of nursing struggle to retain minority nursing students, a focus on non-cognitive variables may provide a "...different way to predict student performance in college" (Kanoy, Wester & Lata, 1989, p. 65). Indeed, for allied health programs, surveys indicate that the trend is to use a combination of cognitive and non-cognitive variables for admission decisions (Salvatori, 2002). In fact, according to the Sullivan Commission (2004), admission criteria which rely primarily on GPA and standardized test scores continue to create a barrier for talented minority students desiring a career in the health professions. While opponents of non-cognitive variables cite inconsistent methodologies and limited longitudinal studies providing evidence of relationships between non-cognitive variables and academic success, many continue to support their inclusion in recruitment and retention programs (Sedlacek, 1993). A meta-analysis conducted by Lotkowski, Robbins, and Noeth (2004) to examine more than 400 studies of academic and nonacademic factors associated with student retention found that, overall, nonacademic factors carried more weight in predicting retention than academic factors. Concern regarding differences between the admission rates of minorities and non-minorities, using traditional predictors, has sparked interest in the standardization of non-cognitive predictors of student success (Boyd, 1989; Wilds & Wilson, 1998). In

support of the Sullivan Commission Report (2004), past research, while not specific to nursing, also indicates that the use of a combination of cognitive and noncognitive variables may be more beneficial for minority students (Fuentes & Sedlacek, 1994).

Clearly, a strict reliance on cognitive variables for retaining minority nursing students has produced poor results, marginalized minorities, enhanced the overall nursing shortage and shortage of minority nurses and has ultimately negatively impacted existing minority health disparities. The present study aims to explore the relationship between the non-cognitive variables of age, race, gender, family, residence, work obligations, academic and social experiences, on the intention of minority baccalaureate nursing students to complete a baccalaureate nursing program.

Thus far, discussion has focused on the retention of minority nursing students in order to create a more diverse nursing workforce and to decrease health disparities between minorities and others. While this is the focus of the current study, it is important to point out that the retention and graduation of minority nurses also serves additional purposes such as: (1) addressing the current nursing shortage, (2) increasing the number of available minority mentors for other minority students in nursing programs, (3) increasing the pool of minority nursing students for graduate nursing programs, (4) creating future minority nursing educators, and (5) potentially, by reducing/addressing the nursing shortage, decreasing the need for international nurses in the United States.

Theoretical/Conceptual Framework

The conceptual framework for the present study (Figure 1.1) is largely based on Tinto's (1993) Model of Institutional Departure. According to Tinto (1993), the Model of Institutional Departure "seeks to explain how different interactions among different individuals and the communities which comprise them lead individuals of different characteristics to withdraw from that institution prior to degree completion" (p. 113).

Although Tinto receives much of the credit for advancing research on student retention, his work is based on the previous research of William Spady (1971), who developed a model of social integration based on Emile Durkheim's (1951) sociological explanation of suicide (Wisely, 2000).

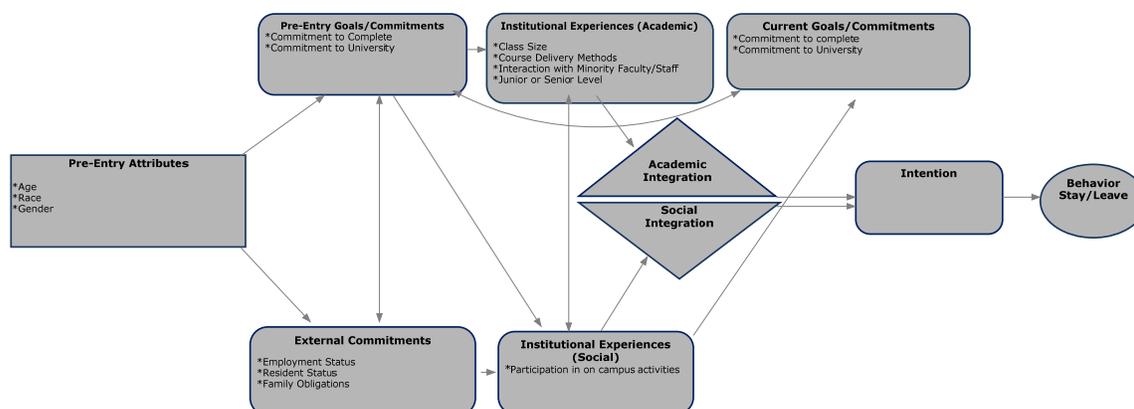


Figure 1.1: Conceptual Framework

Spady's model attributed such factors as study habits, the relationship between one's abilities, aptitude, attitude and/or goals, as well as family and social support, as paramount to student retention. Tinto also based his model (1975, 1993) on the rites-of-passage framework of Arnold Van Gennep, a Dutch anthropologist (1960). According to Van Gennep, the movement of individuals and societies over time was largely dependent upon their ability to separate, transition and incorporate into a new group or established membership (Rendon, Jalomo & Nora, 2000).

Tinto's model (1993) consists of five categories: **Pre-entry attributes**, **Goals/Commitments and External Commitments**, **Institutional Experiences**, **Integration** and **Outcome** (Tinto, 1975, 1993). While Tinto's (1975, 1993) model is widely used in retention research, according to Coll and Stewart (2008) "its application to professional programs within universities remains largely unconsidered, since the bulk of the work in this

area focuses on first year students who are not yet part of professional preparation programs that usually induct students after the freshman year” (p. 41). Therefore, its application to professional baccalaureate nursing programs within the North Carolina University System serves to bridge the gap described by Coll and Stewart (2008).

In considering **Pre-entry attributes**, Tinto points to a student’s family background, student’s skills and abilities, as well as prior schooling. It is these Pre-Entry attributes that help to formulate a student’s initial intentions, goals and commitments. Intentions, as included in Tinto’s (1993) model, refer to the level and type of education desired by the student, whereas commitment refers to the student’s commitment to attain their goals at the institution they enter (Benda, 1991). The inclusion of intention as a predictor of retention has been widely studied in organizational theory as a means to predict and explain nurse turnover within healthcare organizations and to determine students’ intention to engage in certain behaviors (Boyle, Bott, Hansen, Woods & Taunton, 1999; Gregory, Way, LeFort, Barrett & Parfrey, 2007; Hellman, 1997; Hellman, Hoppes & Ellison, 2006; Lambert, Hogan & Barton, 2001; Lynn, 2005; McCarthy & Lehane, 2007; Murray, 1983; Parry, 2008; Sheilds & Ward, 2001; Sourdif, 2004; Takase, Maude, & Manias, 2006; Tett & Meyer, 1993).

In Tinto’s (1993) model, commitments are further delineated as either *external* (weakly held norms that are associated with avoiding punishment) or, *internal* (strongly held internalized norms). **External Commitments** refers to those influences beyond the walls of the college community and include work and family obligations, as well as neighborhood.

According to Tinto (1975, 1993), these factors may influence a student's decision to leave if they are not in support of the student's **Goals and Institutional Commitments**. Moreover, if the student's external community differs vastly from the college community and is not supportive of the student's efforts, the student may opt to leave the college community. According to Tinto (1993) "goals specify the level and type of education and occupation desired by the individual" (pg. 115). Commitments reflect the degree to which the individual is committed to attaining their goals and how committed they are to the institution into which they gain entry (Tinto, 1993).

A key feature of Tinto's model is **Institutional Experiences**, which he posits will directly impact a student's departure decision. In accordance with Tinto's model, **Institutional Experiences** are categorized as either *academic* or *social*. Academic institutional experiences are considered formal experiences which occur within the classroom setting, while social institutional experiences are informal and consist of faculty/staff interactions with students outside of the classroom setting. Increasingly, research shows that institutions with a culturally diverse campus and workforce report improved student outcomes (Bowen & Bok, 1998; Hurtado, Milen, Clayton-Pederson & Allen, 1999; Wilson, Andrews & Leners, 2006). Moreover, studies have shown that minority faculty presence is essential to the achievement (Astin, 1993; Terenzini & Wright, 1987), satisfaction (Astin, 1999) and retention (Stoecker, Pascarella & Wolfe, 1988; Tinto, 1993) of minority students. Research related to minority student retention within nursing programs also supports the need for not only faculty and staff

interaction but also for a minority faculty presence (Allen, Nunley & Scott-Warner, 1988; Buckley, 1980; Jeffreys, 2004; Gardner, 2005; Wong, Seago, Keane, & Grumbach, 2008). A lack of such positive **Institutional Experiences**, according to Tinto (1975, 1993), will negatively impact the student's institutional integration and weaken their **Goals and Commitments**. This, in turn, increases the likelihood of departure.

Tinto's model (1993) has provided the framework for much research over the years, most of which focuses on students leaving during their first year of college. These studies have supported Tinto's theory that social integration (Berger, 1997), extracurricular involvement (Berger & Milen, 1999; Milem & Berger, 1999), and institutional commitment (Nora & Cabrera, 1993) are in fact related to student retention and the academic success of first-year college students. It is noted that focus of the present study is not on first-year college students. However, the participants are *first-year* nursing students which, according to a 2007 qualitative study by Andrew, McGuinness, Reid and Coronan, is when most attrition in nursing programs occurs.

Additional research supporting Tinto's model includes the 1980 findings of Terenzini and Pascarella in which they reported on findings involving six studies designed to test the construct validity of Tinto's model and found that students' informal contact with faculty was related to persistence. Additionally, they found that while a student's background characteristics are not directly related to attrition, they do influence how a student interacts with the institution. Therefore, they found that Tinto's model could provide a valuable

framework for researchers and administrators alike who are interested in studying retention as related to institutional and other non-cognitive measures. In an additional study using Tinto's model at a residential campus, results revealed that student background characteristics, such as gender and academic aptitude, had an indirect effect on persistence because they impact the student's ability to academically and socially integrate. Moreover, according to Murguia, Padilla, and Pavel (1991), social integration is enhanced for ethnic minority students when there are ethnic social opportunities on campus.

So, while it is clear that Tinto's model (1993) has been used exhaustively in the study of student retention, its application in professional programs within universities is limited (Coll & Stewart, 2008). The current study uses Tinto's model with professional baccalaureate nursing programs located on the campuses of the North Carolina University System. In doing so, knowledge regarding the applicability of Tinto's model to professional programs on university campuses is expanded. Additionally, for the current study, use of Tinto's model provides a future opportunity to explore how nursing education programs may differ from other professional programs on university campuses. The models' primary focus on non-cognitive variables also supports the purpose of the present study which is to determine how useful non-cognitive variables can be in predicting students' intention to complete in their program of study.

Conceptual Framework

The conceptual framework for the present study (Figure 2, pg. 15) organizes input variables (pre-entry attributes, pre-entry goals and commitments, external commitments,

institutional experiences-academic, institutional experiences-social, goals and commitments) and output variable (intention to complete) of the study. The framework depicts relationships which are interconnected and sequential. As explained by Braxton (2000), students will enter the college environment with certain characteristics which will ultimately have an impact on their initial commitment to the institution. This initial institutional commitment will consequently affect their continued or subsequent commitment to the institution. Subsequent commitment has an impact on the student's academic and social integration and the more committed the student is to the institution the more likely he or she to stay.

The output variable of the study, intention, is not new to the social sciences. In fact, intention can be found in many student attrition and departure models as a means to explain behavior (Ajzen, 1985; Bean, 1990; Tinto, 1975; 1993). While it is understood that intention and retention are not synonymous, it has been argued (Bean, 1992) that student attrition is analogous to turnover in the workplace and that the use of student intention as a means to predict or measure enrollment behavior is appropriate. Consequently, in a student conducted at a Midwestern university, Bean (1992) found that a student's intention to leave was the most powerful predictor of attrition. Bean's work supported previous works by Fishbein and Ajzen (1975), whose Theory of Reasoned Action posits that the best predictor of an individual's behavior is intention.

Statement of the Problem

Our ever-increasing racially and ethnically diverse population has diverse health care needs and suffers disproportionately from chronic health care problems. A nursing

profession which does not mirror the racial and ethnic diversity of the population it serves is ill-equipped to provide adequate care, yet minorities remain underrepresented in nursing programs in the United States (Samson, 2004). The current nursing shortage, lack of minority nursing mentors and lack of qualified minority faculty only serves to perpetuate the problem of minority nursing student retention, as does strict reliance of cognitive factors in the nursing program admissions process. Research exists that indicates a strict reliance on student cognitive variables such as GPA, SAT and other standardized test scores for nursing admission and progress decisions places minorities at a disadvantage (Jay & D'Augelli, 1991; Schmeiser & Ferguson, 1979; Sedlacek, 2004; Sedlacek & Gaston, 1992; Torres & Solberg, 2001).

Purpose

The purpose of this study is to evaluate the impact of non-cognitive **Pre-Entry Attributes** (age, race, gender); **Pre-Entry Goals/Commitments** (commitment to completing program of study and commitment to the university); **External Commitments** (employment status, residence, family); **Institutional Experiences-Academic** (class size, course delivery methods); **Institutional Experiences—Social** (interaction with minority faculty, interaction with minority staff, participation in campus extracurricular activities) variables on student's intentions to complete their baccalaureate nursing program.

Research Questions

1. Do descriptive statistics for each minority group (Black, Asian/Pacific Islander, Hispanic, Native American or Alaskan Native) reveal significant differences in the levels of social and academic integration?
2. Do significant mean differences exist in social and academic integration levels for different minority groups?
3. What impact does a nursing students' minority status, academic and social integration, pre-entry attributes, and external commitments have on their intention to complete their program of study?
4. Do significant variances in intention exist between students based on minority status?
5. Do significant variances in intention exist between students based on junior or senior status?
6. What is the predictive value of pre-entry attributes (age, race, gender) and pre-entry goals and commitments (commitment to complete and commitment to the university) on the intention of minority baccalaureate nursing students to complete their program of study?

Significance of the Study

Given the societal needs for adequate, culturally sensitive nursing care, the projected overall nursing shortage and the difficulty that most schools of nursing have in retaining minority nursing students, the current study provides a lens through which to view nursing retention at the program level.

The current study contributes to the growing body of retention research related to health care and, in particular to the field of nursing education. Furthermore, results of the current study are useful to the University of North Carolina System by providing empirical evidence of the need to examine retention at the

program level. Moreover, results of the current study have the potential to aid colleges and universities in the development of quality nursing retention programs aimed directly at minority nursing students. The results of this research should also be helpful to new and existing programs as they examine variables, unique to nursing and individual nursing programs, which could impact minority student retention. In doing so, programs can become proactive in making necessary program-level changes which could greatly improve retention, such as crafting admissions criteria which are sensitive to the unique needs of minority students. Ultimately, the current research elevates the importance of non-cognitive variables in making admissions decisions, help to reduce strict reliance on cognitive variables, and enhance programs' understanding of the need for academic and social integration efforts at the program level.

Given the majority-minority status of many North Carolina counties, the citizens of North Carolina also benefit from the results of the current study. By increasing the number of minority nurses, quality of and access to health care may be greatly improved. As research shows (Gonzalez, Gooden & Porter, 2000), without equity within the nursing profession, health disparities will continue to grow.

Lastly, use of Vincent Tinto's (1993) model within the context of a professional university program is limited (Coll & Stewart, 2008). Therefore, this study provides empirical evidence which may or may not support the use of the model in this unfamiliar context. Additionally, the inclusion of intention as an outcome variable, while seen extensively in organizational turnover research (Boyle, Bott, Hansen, Woods & Taunton,

1999; Gregory, Way, LeFort, Barrett & Parfrey, 2007; Hellman, 1997; Lambert, Hogan & Barton, 2001; Shelids & Ward, 2001; Sourdif, 2004; Tett & Meyer, 1993) has been extremely limited in nursing student retention research. Therefore, results of the present study provide insight into the usefulness of this outcome variable for nursing education.

Limitations of the Study

1. Study participants were chosen from the state of North Carolina. Therefore, the results are not be generalizable to nursing programs in other states.
2. The number of students in certain minority groups were limited thereby resulting in instances where results were not statistically significant.
3. The use of survey research poses a limitation as it forces respondents to choose among prescriptive responses and does not allow for the expression of opinion.
4. Surveys pose yet another limitation in that once the survey has been validated and disseminated, respondents cannot seek clarification on questions which, to them, may be unclear.
5. Research design does not provide evidence of causal relationships.
6. Use of Internet-based survey tool to collect data resulted in instrumentation limitations as computer literacy is assumed.
7. Nonresponse bias may have occurred if individuals selected to participate in the survey are unwilling or unable to participate (Dillman, 2009).
8. The self-report methods of data collection used in the study are limited to what individuals know and what they are willing to share.
9. The use of convenience sampling had the potential to introduce bias (Polit & Beck, 2004).

Assumptions

1. Survey participants honestly answered questions related to program experiences.

2. Extant data acquired from the North Carolina University System was complete and comprehensive.
3. The Universities selected for this study were forthcoming with information requested.
4. Respondents were computer literate and able to effectively interact with Internet-based survey tool.
5. The number of students in each minority group was large enough to conduct statistical tests which will yield significant information.
6. Response rate was sufficient for study.
7. Survey questions were valid.

Definition of Terms

AACN – American Association of Colleges of Nursing. Organization which serves as the national voice for America’s baccalaureate and higher degree nursing programs.

Academic Integration – The development of a strong affiliation with the college academic environment both in the classroom and outside of class. Includes interactions of an academic nature, with faculty, academic staff, and peers (Nora, 1993).

Anatomy and Physiology I – An introductory course emphasizing the relationship between and function of the body's organ systems.

Anatomy and Physiology II – Extension of Anatomy and Physiology I which builds on previous knowledge. Content remains centered around structure and function of the human body.

Microbiology – The study of microorganisms.

Baccalaureate prepared nurse – A nurse educationally prepared at the baccalaureate level. Nursing education occurs at the associate, baccalaureate, master’s and doctoral levels.

Cognitive variable – defined as those variables which involve quantitative measure such as GPA, SAT scores, or performance on standardized examinations that rely on perception, reasoning or judgment.

Cultural awareness – Having a general awareness of cultural differences among clients.

Cultural competence – Understanding differences among clients’ cultures and applying this knowledge to the provision of holistic client care.

GPA (Grade Point Average) – Based on a 4-point scale and is the sum of the product of credit hours and the quality point equivalent of the grade for all courses taken, divided by the sum of all credit hours for a particular semester.

Goals and Commitments – As defined by Vincent Tinto (1993) “ goals specify the level and type of education and occupation desired by the individual” (pg. 115). Commitments reflect the degree to which individuals are committed to attaining their goals and how committed they are to the institution into which they gain entry (Tinto, 1993).

Intention – The measure of the likelihood that a student will engage in a particular behavior. In the current study, the behavior is staying in the current program of study.

Junior-level student – A student who has completed their first two-years of general education requirements and has entered the 3rd year of a 4-year program.

Longitudinal study – A study defined by repeated observations of the same items over a long period of time.

Meta-analysis – Combined results of several studies related to a research hypothesis.

Methodology – Principles and procedures of inquiry.

Pre-Entry Variables – Defined as a student’s age, race and/or gender.

Prerequisite – A preliminary requirement that must be satisfied before a course can be taken.

Program of Study – The track, outline or major that a student follows in order to successfully complete all program requirements for degree completion.

Program Variables – Defined as course delivery methods, class size, minority and non-minority faculty/staff interaction, peer group interaction.

Minority – Minority is defined by using the American Nurses Association (1998), definition of a diverse nurse which is a non-White nurse from one or more of the following classifications: Black, Asian/Pacific Islander, Hispanic, Native American or Alaskan Native.

NCLEX-RN – A computerized adaptive test, prepared by the National Council of State Boards of Nursing (NCSBN), to measure competence for entry-level practice for students who graduate from a nursing education program which is approved by the North Carolina Board of Nursing (NCBON, 2008).

NCSBON – National Council of State Boards of Nursing.

Noncognitive predictors of success – Non-cognitive predictors are defined as course delivery methods, class size, minority faculty/staff interaction and peer group interaction.

Nursing – Defined by Nursing’s Social Policy Statement (2003) as “the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations”(p. 6).

Retention – In keeping with the NC Board of Nursing, retention is measured by those students who complete the nursing program on-time. *On-time* is defined as “graduating within the prescribed semester sequence required by the nursing education program in which the student is enrolled” (North Carolina Institute of Medicine, 2007, p. 16).

Senior-level student – A student who is entering the last year of a 4-year program.

Social Integration – The development of a strong affiliation with the college social environment both in the classroom and outside of class. Includes interactions of a social nature, with faculty, academic staff, and peers (Nora, 1993).

Standardized test - A testing instrument that is administered, scored, and interpreted in a standard manner. It may be either norm-referenced or criterion-referenced.

The Sullivan Commission – Commission funded by the W.K. Kellogg foundation whose efforts were aimed at increasing diversity in America’s health professions education training programs at all levels of preparation, across the country.

Chapter Two

Literature Review

The current study examines the relationship between the independent variables (age, race, gender, employment status, resident status, family obligations, class size, course delivery methods, minority faculty and staff interaction, participation in university social activities, student commitment to complete their program and commitment to the university) and the dependent variable, the intention of minority baccalaureate nursing students to complete a baccalaureate nursing program. This chapter describes the procedures used in conducting the literature search. An additional visual representation will be provided in the form of a Theory Map (Figure 3) which will depict the theoretical underpinnings of the current study. An overview of nursing shortage literature, including the minority nursing shortage will be provided, followed by a discussion of major retention theories. The dependent variable, intention, will be explored using its theoretical base. An examination of the literature regarding each independent variable will follow. Lastly, a summary of the literature will be provided.

Literature Search

The literature search for the current student was conducted using multiple online and manual resources. These resources included electronic databases (NCLIVE, CINAHL Plus Full Text, Google Scholar, and HealthSource) and the on-line catalogs of The University of North Carolina at Pembroke, East Carolina University and North

Carolina State University. Each database contained numerous resources which were readily available. However, the inclusion of the East Carolina and UNC-Pembroke catalogs were needed in order to conduct an adequate search of the nursing literature. Searches of these databases began as early as 2006 and continue through 2009. Key words used in the search included, but were not limited to, minority, nursing, student, retention, attrition, shortage, theories, persistence, minority, baccalaureate program, student characteristics.

The electronic searches resulted in a great deal of information regarding minority student retention in higher education. Information related to retention of minority baccalaureate nursing students was much more limited. Additionally, quantitative studies using Tinto's model in the context of baccalaureate nursing education were few. Once relevant, peer-reviewed journal articles were located, abstracts were reviewed for information which closely related to the focus of the current study including the independent and dependent variables. After searching the literature using the aforementioned sources and methods, over 300 relevant books and articles relating to the current study, were examined in detail.

A Theory/Concept/Model Map (Figure 2.1) is presented below to provide visual representation of the theoretical support for the constructs and variables included in the current study. A brief explanation of each area will follow.

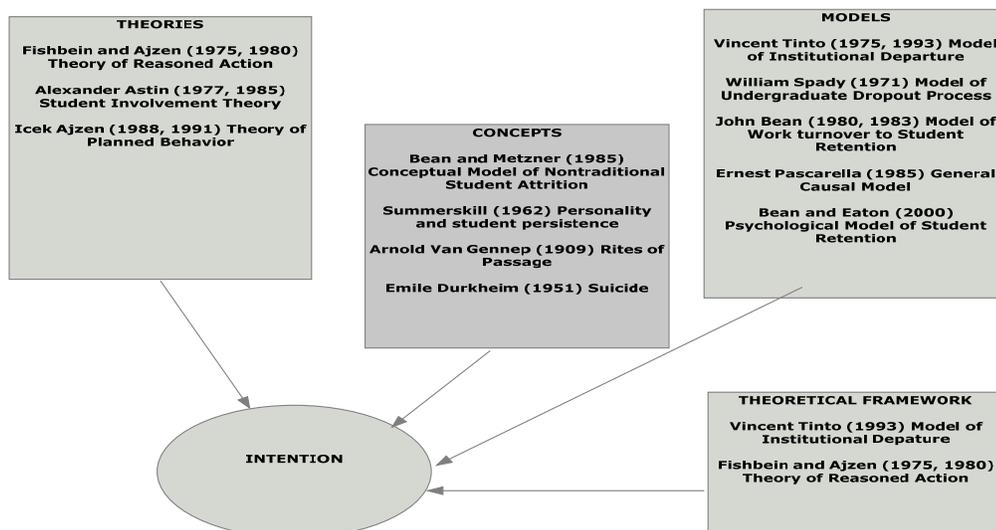


Figure 2.1 Theory Map

Theoretical Underpinnings

Retention research has been shaped by the works of psychologists, sociologist and educators alike. In Emile Durkheim's sentinel work *Suicide* the author concludes that there are social causes of suicide based on two social forces: social integration and moral regulation (1951). In 1971, using the works of Durkheim (1951), William Spady constructed a Model of Undergraduate Dropout Process in which the author drew parallels between suicide and dropping out of school, concluding that in both instances one is leaving a social system. Tinto (1975, 1993), used the works of Spady (1971) and Arnold Van Gennep (1909) to construct the academic and social integration underpinnings of his Longitudinal Model of Institutional Departure (1993). Van Gennep's book *Rites of Passage* (1909) argued that in order for one to successfully integrate into a new group, he or she must successfully move through three phases: separation, liminality and re-incorporation. Failure to do so will result in the individual being unable to successfully socially integrate into the new group or culture. The construction of additional models, theories and concepts have been largely shaped by the aforementioned works, in particular the works of Tinto, as researchers seek to improve the predictive ability of Tinto's (1993) model.

Other researchers have added valuable information to the conversation on student retention. For example, John Bean (1980, 1983) was the first to examine student retention through the lens of organizational theory. Bean posited that student attrition could be compared to work turnover and that environmental variables (those outside of the

college) could impact retention. Bean also found that a student's intentions were the best predictor of student retention. Tinto would later incorporate these variables into his Longitudinal Model of Institutional Departure (1993). In 2000, Bean and Eaton detailed a psychological model of student retention using four psychological theories to underpin their model: (1) attitude-behavior theory, (2) coping behavioral theory, (3) self-efficacy theory and (4) attribution theory. The authors highlighted the importance that the institution make available for students, opportunities for involvement in learning communities.

In 1984, Alexander Astin constructed a developmental theory of student involvement. This early work was designed to identify factors in the institutional environment which could impact student retention. Later, in 1993, Astin conducted an empirical study of his student involvement model and found that there were three important forms of student involvement: academic involvement, involvement with faculty and involvement with peer groups. Results of this study supported the theory that academic and social integration were important factors in predicting student retention.

Pascarella (1985) added to the conversation on student retention with the development of his general causal model. Pascarella's model incorporated student pre/entry and background characteristics as well as organizational characteristics which he posited directly influenced the college environment. Results of the empirical study of the general causal model reveal that residential facilities and dominant peer group strongly influenced academic achievement. Furthermore, the study uncovered that

positive informal faculty/student interaction outside of the classroom also influenced student retention.

While the works of Bean (1990) and Tinto (1993) support the inclusion of intention as a variable of study, the works of Fishbein and Azjen (1975, 1980) and Ajzen (1988, 1991) are of equal importance in explaining the use of intention in the current study. The Theory of Reasoned Action and the Theory of Planned Behavior have been applied to numerous studies in health care (Burns, 2009; Hevery, Pertl, Thomas, Maher, Chuinneaga, & Craig, 2009; Lemmens, et al., 2009, Jung & Heald, 2009; Nehl, et al., 2009) to organizations (Cronan, & Al-Ratee, 2008; Hansen, 2008, Rosser, 2004) and to education (Atmeh & Al-Khadash 2008; Hellman, Hoppes & Ellison, 2006). According to Fishbein and Azjen (1975) the best predictor of a individuals behavior is intention. Even though intention has been used in the educational setting to predict retention, empirical studies in nursing using intention as a variable are limited.

The Nursing Shortage

Australia, Canada, France, Germany, Ireland, the United Kingdom and the United States, all find themselves in the same predicament—in the midst of a nursing shortage unlike any other ever experienced in the past (Klein, 2003). Historically, nursing shortages have been cyclical in nature, responding to supply and demand (Allan & Alderbron, 2008; Buchan, 2001). However, the current nursing shortage is different. Demand continues to rise but the supply, particularly in the United States, does not increase to meet current needs (Klein, 2003). In fact, a recent study by the Bureau of

Labor Statistics revealed that the nursing shortage is expected to worsen over the next seven years and peak in 2016. The Bureau estimates that approximately 233,000 jobs for registered nurses will become available each year through 2016. This is in addition to the 2.5 million existing jobs. However, only about 200,000 graduates passed the NCLEX-in 2008. Moreover, nurses are leaving the profession by the thousands. Hospitals, faced with this massive shortage, are offering incentives for nurses to simply interview. The shortages have also set off an international *carousel* of nurses (Kigma, 2006) through an increasing reliance on foreign nurses, particularly from India and the Philippines (Brush & Sochalski, 2007). According to Klein (2003), the United States is one of the leading receivers of foreign nurses. Therefore, it bears mentioning that the increasing use of foreign nurses not only impacts the U.S. nursing shortage by masking its true magnitude but it also has dire consequences for the health of the citizens of these overseas countries who are left with few qualified healthcare providers (Ball, 2004; Brush, et al., 2007; McElmurray, Solheim, Kishi, Coffia, Worth & Janepanish, 2006).

According to Walker (2009), “this apparent shortage is complex, and there are many factors that contribute to this lack of nurses in the country” (p. 81). For example, nursing is “the most feminized of professions and has long been regarded as being one of the most extreme examples of the influence of gender on occupational choice,” (Ball, 2004, p. 119). However, Buerhaus, Staiger and Auerback (2000) reveal that over the last 20 years, as employment opportunities for females have expanded, interest in nursing has declined. Next, fewer and fewer young people entering the profession means that

there has been a increase in the average age of nurses (Buerhaus, 1998; Buchan, 1999; Steinbrook, 2002). In fact only 12 % of nurses in the workforce are under the age of 30, a decline of 41% compared to a one percent decline for all other occupations since 1983 (Beurhas et al.). In order to support the healthcare needs of every American, nurses are a necessity (Siela, Twibell & Keller, 2009). In fact, the large cadre of baby boomers, 78 million strong, will place many demands on healthcare, including an increase in the demand for nurses. However, with fewer young people entering the nursing profession, nurses, many of whom are baby boomers themselves, will be left without adequate healthcare support. In fact, Buchan and Aiken (2008) share that the scarcity of qualified health care professionals, including nurses, is one of the largest obstacles to achieving an effective health care system.

The shortage of nurses in the healthcare system can be blamed, in large part, on a severe shortage of qualified nursing faculty. According to the American Association of Colleges of Nursing (AACN), a nationwide nursing faculty shortage continues to limit student capacity at a pivotal time when the need for nurses is growing. Aging faculty, budgetary constraints and increased competition for clinical placement opportunities, continues to fuel the nursing shortage (2004). The AACN's 2003-2004 report on *Enrollment in Baccalaureate and Graduation Programs in Nursing* tells the story. In 2003, U.S. nursing schools turned away 15,944 qualified applicants to entry-level BSN programs due to lack of faculty, space, preceptors and funds. In North Carolina, the issues are much the same. According to the North Carolina Institute of Medicine's Task

Force on the North Carolina Nursing Workforce Report (2007), a shortage of qualified nursing faculty continues to be a major reason for the nursing shortage in the state.

Thousands of qualified applicants to nursing programs are turned away each year due to lack of qualified nursing faculty.

Several reasons for the nursing faculty shortage can be found in the literature. Increase in faculty age means that the amount of time left for current faculty to work is limited (Allan & Aldbron, 2008; Buerhaus, Staiger & Auerback, 2000; Goodin, 2003; Sloane, 1999), and pay for nursing educators is relatively low when compared to pay in the clinical and private sectors (Berlin & Bednash, 2002; Brendtro & Hegge, 2000). Additionally, Master's and Doctoral nursing programs are not producing enough graduates to fill the slots of retiring nurse educators (Siela, Twibell & Keller, 2009). For instance, in 2006, 63% of full-time nursing faculty, were between the ages of 40-60 while 9% were over 61. Doctoral prepared faculty ages were between 51.7-59.1, while Master's prepared faculty ages were 50.1-58.9 (Allan & Aldbron, 2008). Given that the average faculty member retires at age 62.5, it is easy to see that the faculty shortage is on track to worsen since the number of students currently preparing to take their places is limited (Allan, et al., 2008).

According to the AACN Issues Bulletin (1999) the percentage of master's nursing students pursuing academic careers suffered a 27% decline from 1997-1998 alone. In 2003, the organization reported that Master's and Doctoral degree graduation rates declined by 2.5% and 9.9% respectively. Berlin and Sechrist (2002) reveal that

nationally, during the fall of 2001, 3070 students were enrolled in 79 doctoral programs in nursing. Graduates from August 1, 2000 to July 31, 2001 numbered 394, a 11.1% decrease from the previous year. The authors also state that these graduation figures only reflect 12.8% of enrollees. What makes these graduation rates so alarming is the fact that the number of doctoral programs increased 68% between 1992 and 2001 (Berlin, et al., 1998).

In a 2006 report by the North Carolina Center for Nursing entitled *The Next Nursing Shortage in North Carolina: Causes, Projections, Solutions*, an historical analysis of registered nurse education and work patterns in the state revealed that between 1995 and 2004, the number of master's or doctoral prepared nurses doubled. However, during this same timeframe, proportionately fewer were employed in Schools of Nursing each year. In 1995, 15% of Master's or doctoral prepared nurses were employed in nursing education. By 2004, this percentage declined to 11%. The Center estimates that by 2020, the percentage could be as low as 8.7%.

According to Snarr and Krochalk (1996), studies related to nursing satisfaction have largely been focused on nurses in the clinical setting, with little research on nursing faculty satisfaction. Studies of nursing faculty satisfaction related to pay have yielded mixed results (Christian, 1986; Donahue, 1986; Hinshaw & Atwood, 1983; Kennerly, 1988). However, others note that increased salaries for nurses in clinical positions and an increase in opportunities outside of academia have contributed to the nursing faculty shortage (Brendtro & Hegge, 2000). In fact, according to the American Association of

Colleges of Nursing (AACN, 1994), salaries do play a role in successful faculty recruitment and retention efforts. Through a survey, the organization found that doctoral-prepared university nursing faculty earned only \$66,132 in the 1998-1999 academic year. According to Steinbrook (2002), in 2000, the average annual salary of a full-time registered nurse working in a hospital was \$46,782. It is important to note that hospital nurses are typically trained at the Associate degree (two-year) level, making it easy to see that many nurses may find the payoff for continuing their education to the Master's or Doctoral level minimal, at best.

Additional results from the AACN survey support this mindset as the survey found nursing educators were opting for lucrative early retirement packages or resigning in order to find more lucrative work in the private sector. In fact, a cross-sectional, randomized study of 129 nurse educators from 61 schools of nursing was conducted by Kowalski, Dalley and Weigand (2006) to determine factors associated with retirement plans. The researchers reported a 37.6% response rate and results revealed that respondents, on average, would like to retire at age 62. Factors which were identified as influencing retirement decisions were workplace issues and personal family health. However, the factor exerting the most influence was financial security. Faculty who felt more financially secure planned to retire early. Strategies to retain senior nursing faculty include providing financial incentives, flexible assignments, contracting for special initiatives (Hinshaw, 2000) and providing ongoing assistance in learning new technology (Mathews, 2003).

A conversation regarding the nursing shortage, and in particular the minority nursing shortage, would not be complete without first addressing the dismal number of minority nursing faculty. It is argued that the decline in minority enrollment within higher education is due, in part, to the lack of minority faculty available to serve as role models and mentors (Astin, 1982; Blackwell, 1988; Rendon, 1989). Research shows (Cherry, 2002; Childs, Jones, Nugent & Cook, 2004; Davidhizar & Shearer, 2005) that the presence of minority nursing faculty is important to minority students. Students indicate that having a role model, someone to look up to, someone that understands that they are unique, is very important to their academic success (Amaro, Abriam-Yago & Yoder, 2006). According to Hassouneh (2008), nursing has failed to recognize that the Eurocentric power hierarchy found in nursing education traditionally portrays minority students from a deficit-based perspective. The author goes on to say that often, Eurocentrism and racism are masked as academic tradition and standards.

Fleming (1984) studied African American students at predominantly white institutions (PWI) and historically black colleges and universities (HBCUs), finding the minority students reported difficulty in establishing relationships with white faculty. This finding is supported by additional research which found that minority students were more likely to seek assistance from friends, counselors, family who were minority instead of seeking assistance from white faculty (Guiffrida, 2005; Lundberg & Schreiner, 2004; Sanchez, Marder, Berry & Ross, 1992). This same behavior can be seen within minority health care. According to the U.S. Department of Health and Human Services

(2000), minority providers are five times more likely to treat other minorities in underserved areas and underrepresented minority health care professionals are consistently more likely to provide care to the underserved (Saha & Shipman, 2008).

Minority Nursing Shortage

Even as the nursing profession struggles to find ways to narrow the ever widening chasm between supply and demand, it faces yet another challenge—a national struggle with lack of racial and ethnic diversity within the profession. In general, graduation rates for ethnic minorities and white students in the United States differ dramatically. Even though the percentage of African American, Latino and American Indian students who enroll at 4-year universities has increased, they graduate in fewer numbers (Zea, Reisen, Beil, & Caplan, 1997). Students of color simply tend to leave college at higher rates than their Caucasian counterparts (Rendon, Jalomo & Nora, 2000). Some argue that the current shortage of minority nurses is due, in large part, to a shortage of minority nursing students in the pipeline. According to Dowell (1996), minority attrition rates, in nursing programs, range from 15%-85%. While these figures demonstrate a tremendous range, it is argued that it is difficult to get exact figures due to inadequate documentation among nursing programs (Lilley, 1997).

In 2001, the United States Census Bureau reported that 31% of the U.S. population described itself as racially or ethnically diverse. However, 86.6% of the nursing force is Caucasian (Bureau of Health Professions, 2000). The Sullivan Commission Report on Diversity in the Healthcare Workforce (2004) found that even though African

Americans, Hispanics and American Indians constitute 25% of the U.S. population, they account for a meager 9% of the nation's nurses. Additionally, results from a 2004 National Sample Survey of Registered Nurses revealed that while there were an estimated 2,915,309 individuals in the U.S. currently licensed to practice as registered nurses, only 10.7% identified themselves as racially or ethnically diverse. The current lack of racial and ethnic diversity in nursing is significant given that minority populations are overrepresented when it come to health-related issues (Gilchrist & Rector, 2007). The nursing literature is replete with evidence indicating the need to increase racial and ethnic diversity in the nursing profession so that our ever-increasing diverse population may be afforded quality healthcare (Abriam-Yago, Yoder, & Kataoka-Yahiro, 1999; Andrews, 2003; Branch, 2001; Edwards, 2003; Lester, 1998; Davidhizar, Dowd, & Geiger, 1998; Dowell, 1996; Scott, 2008).

Without racial and ethnic diversity within the nursing profession, equity may never be achieved and current health disparities will be bolstered (Gonzalez, Gooden & Porter, 2000). World-wide, African Americans have the highest rate of cardiovascular disease. Among African Americans, Native Americans and Hispanics, diabetes has become epidemic and cancer deaths are more prevalent in African Americans, Asian Americans and Hispanics (USDHHS, 2000). In 1985, the Department of Health and Human Services (DHHS) released a Report of the Secretary's Task Force on Black and Minority Health which revealed that minorities were not were not benefiting equally the ability of the medical profession to diagnose, treat and cure disease. The formation of this

task force represented the first coordinated effort of DHHS to raise awareness of racial and ethnic health disparities. Unfortunately, a 15-year retrospective review of the literature, conducted by Mayberry, Mili and Ofili (2000) found that minorities still do not have the same access to health care as whites. Moreover, they identified that while insurance and socioeconomic status play a role in the inequity, there are other forces at play which are ill-defined and difficult to quantify.

Major Retention Theories

Contemporary ideas regarding factors associated with student retention have been informed by the works of Spady (1971), Astin (1975, 1977, 1982, 1991, 1992), Bean (1982, 1983, 1984) and Pascarella and Terenzini (1978), among others. Yet the works of Vincent Tinto (1975, 1986, 1993), which incorporate anthropological, sociological and psychological perspectives of student retention, have reached almost paradigmatic status (Berger & Braxton, 1998; Braxton, Sullivan & Johnson, 2000).

Tinto's model of dropout first appeared in the literature in a 1975 article entitled: *Dropout from higher education: A theoretical synthesis of recent research*. In the article, Tinto describes student dropout as a longitudinal, *social* process with its foundations in the interaction between student and institution. Tinto (1975) noted:

The process of dropout from college can be viewed as a longitudinal process of interactions between the individual and the academic and social systems of the college during which a person's experiences in those systems (as measured by his normative and structural integration) continually modify his goal and

institutional commitments in ways which lead to persistence and/or to varying forms of dropout (p. 94).

And, while Tinto receives much of the credit for advancing research on student retention, his 1975 article clearly points out that its roots are found in Durkheim's (1951) theory of suicide. While William Spady (1971) was the first to apply Durkheim's theory of suicide to dropout, Tinto indicated that his theoretical model built upon Spady's work to provide a tool for predicting dropout rather than merely describing the phenomenon (Tinto, 1975).

Conversations regarding Tinto's (1975) theoretical model of drop out, led to Tinto's recognition that he had failed to include other theoretical perspectives, thus leading to a revised model (1986) which included constructs from economic, sociological and psychological perspectives providing a more explanatory interactionist theory of student departure (Braxton, 2000). The most recent iteration (1993), of Tinto's Longitudinal Model of Departure from Institutions of Higher Education "seeks to explain how interactions among different individuals within the academic and social systems of the institution and the communities which comprise them, lead individuals of different characteristics to withdraw from that institution prior to degree completion" (p. 113).

While Tinto's (1975, 1993) model has been well received and supported, it is not without its critics, who point to its underlying affiliation with Durkheim's (1951) sociological explanation of suicide. Critics assert that the assumption that suicide and student attrition are comparable is a leap. Furthermore, this link with Durkheim's (1951) theory irrevocably places student attrition in a negative light, ignoring that it can, in some instances,

be positive (Brunsden, Davies, Shevlin & Bracken, 2000). Moreover, the model has been criticized for its lack of consideration of the uniqueness of each and every student—in particular, minorities (Tierney, 1999), its focus on traditional students only, and therefore its subsequent lack of general application, and its lack of attention to institutional factors (Berger, 2000).

Additionally, while Tinto's (1975, 1993) model has been tested extensively, results have been mixed—especially in relation to the impact of pre-college, commitment and integration factors. These mixed results have been attributed to the type of institution being studied, gender, ethnicity, and measurement flaws. However, external variables, not controlled for in the model, could be to blame (Cabrera, Castaneda, Nora & Hengstler, 1992; Tinto, 1982). Terenzini and Pascarella (1980) reported on findings involving six studies designed to test the construct validity of Tinto's (1975) model. They found that students' informal contact with faculty was related to persistence. Additionally, they found that while a student's background characteristics are not directly related to attrition, they do impact how a student interacts with the institution. Therefore, they found that Tinto's model could provide a valuable framework for researchers and administrators alike who are interested in studying retention.

Another study conducted on a nonresidential campus by Pascarella, Duby & Iverson (1983), using Tinto's theoretical model of student withdrawal, revealed that many of Tinto's constructs did not hold true for nontraditional students. For example, there was a negative correlation between social integration and persistence, while sex and academic aptitude had

positive direct effects on persistence. In previous studies using Tinto's model at a residential campus, these results were quite different, since student background characteristics, such as sex and academic aptitude had only an indirect effect on persistence as they were transferred through measures of social and academic integration. Additional studies also concluded that Tinto's theory had limited value for use in two-year institutions (Ashar & Skenes, 1993; Webb, 1988; Pascarella & Chapman, 1983). Further research on student retention also supports the necessity of social and academic integration (Pascarella & Chapman, 1983). According to Murguia, Padilla, and Pavel (1991), social integration is enhanced for ethnic minority students when there are ethnic social opportunities on campus.

Alexander Astin

Alexander Astin's Student Involvement theory (1985), similar on many levels with Tinto's model, is also widely known in the field of higher education. Astin's (1984) theory posits that the more students are involved in their educational experience, both physically and psychosocially, the more likely they are to persist. Involvement, as defined by Astin (1999) "refers to the amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). Moreover, while Astin identified five categories of involvement (Chaves, 2006)—academic, faculty, peers, work and elsewhere—he theorizes that the most important types are academic involvement, involvement with faculty and involvement with peer groups (Hunt, 2003; Astin, 1996). Astin (1970, 1977, 1991, 1993) is also credited with the I-E-O Model (Input-Environment-Outcome) which, according to Astin, was "designed to address the

basic methodological problems with all nonexperimental studies in the social sciences, namely the nonrandom assignment of people (inputs) to programs (environments)” (p. 252). Both models are widely used and accepted in organizational and retention research (Bird, Anderson, Anaya, & Moore, 2005; Kelly, 1996; Milem & Berger, 1997; Thurmond, 2003). While Tinto’s model focuses on student isolation, maladjustment and poor institutional fit, Astin’s model focuses primarily on student involvement, or lack thereof. The models are similar in that they both focus on the importance of student interaction, both intellectual and social; however, organizational factors were of limited consideration in determining reasons for attrition.

John Bean

Until the work of John Bean, little attention had been paid to organizational factors which could impact student retention. Bean (1980) developed an explanatory model of student retention and would later (Bean & Eaton, 2000) develop a psychological model of retention which emphasized the importance of behavioral intentions and persistence. While his model was originally based on work turnover theory, it would later evolve to be based primarily on a psychological model which linked current behavior with past behaviors, normative values, attitudes and intentions. While similar to Tinto’s model (1975, 1993) in that it was complex, longitudinal in nature and focused on traditional students, Bean’s model was dissimilar to Tinto’s due to its inclusion of environmental variables and student intentions.

With the assistance of Barbara Metzner, Bean (1985) developed a conceptual model of Nontraditional Student Attrition. The purpose for the development of the model was the apparent rise in the percentage of nontraditional students enrolling in post secondary education coupled with the fact that previous models did not consider variables unique to the nontraditional student. Indeed, Bean and Metzner (1985) posited that the biggest difference between attrition among traditional and nontraditional students was that the external environment had more of an impact on the nontraditional student. Their model of Nontraditional Student Attrition did not focus on social integration since, as they hypothesized, social integration was not as important to nontraditional students (older, commuter, nonresident) as it was to traditional students. To help validate their conceptual model, Bean and Metzner (1987) conducted a study of 624 nontraditional students attending a Midwestern urban university. Their findings supported the model and revealed that nontraditional students leave school for academic reasons or because of lack of institutional commitment, not because of social factors.

In explaining the inclusion of variables in their Nontraditional Student Attrition model, Bean and Metzner (1985) stated that environmental variables (finances, hours of employment, outside encouragement, family responsibilities and opportunity to transfer) are presumed to have more impact on nontraditional than traditional students. They support the inclusion of background and defining variables by pointing out that these variables (age, enrollment status, educational goals, high school performance, ethnicity and gender) have been included in previous retention models and that research indicates that one's past

behavior is expected to impact future behavior. Their inclusion of academic variables (study habits, academic advising, absenteeism, major certainty and course availability) is based on the notion that nontraditional students interact with the institution through these variables. It is through this interaction, as stated by Tinto (1975, 1993), that a student becomes integrated; therefore, retention is enhanced. Further support for Bean and Metzner's (1985) inclusion of finances can be found in the literature which identifies the importance of financial aid on recruitment and retention (Perna, 1998; St. John, Cabrera, Nora & Asker, 2002; Gansemer-Topf & Schuh, 2006; Glenn, 2007) Moreover, even though research has found that financial aid has a positive impact on enrollment for all students, it is especially important in the recruitment and retention of low-income, minority students (St. John & Noell, 1989). As pointed out by Nora and Cabrera (1996), adequate financial aid can improve academic performance, facilitate social integration and ultimately improve a student's chance to persist to graduation.

Pascarella and Terenzini

Over the years, Pascarella and Terenzini have worked diligently to expand upon the works of Spady, Tinto, Astin and Bean and have added to the growing conversation regarding student attrition by escaping the boundaries of single-institutional studies (Pascarella, Terenzini & Wolfe, 1986). In keeping with the previous works of Spady, Tinto, Astin and Bean, Pascarella and Terenzini also used involvement, in particular via interaction with faculty and peers. In 1980, the authors created a model which focused on the interrelationships of faculty and students and examined how informal

contact with faculty enhanced retention. Moreover, the model proposed that this informal contact with faculty, coupled with student and institutional characteristics impacted student retention. Student characteristics and institutional characteristics were posited to influence faculty interaction.

Many similarities exist between Pascarella and Terenzini's model and that of Tinto. In particular, all of these researchers include background characteristics such as family support, encouragement, socioeconomic status, ethnicity, academic background, all of which are said to impact students' institutional commitment, academic and social integration and therefore their decision to stay or leave. The authors created and subsequently validated a 30-item Institutional Integration Scale (1980) to determine the predictive ability of academic and social integration based on elements of Tinto's conceptual model. The instrument has been used in numerous research studies (Baker, Caison, & Meade, 2007; Bers & Smith, 1991; Mallette & Cabrera, 1991; Torres & Solberg, 2001) and has produced validity and reliability results similar to those found in Pascarella and Terenzini's original validation study.

Retention in Higher Education

Research related to student retention is abundant. According to Rendon, Jalomo and Nora (2000) much of the retention research has focused on testing and validating Vincent Tinto's (1975, 1987, 1993) model of student departure which has provided ample evidence of the model's validity.

While Tinto's model (1975, 1993) has been criticized for its lack of applicability to non-traditional and minority students on the campuses of 4-year universities (Tierney, 1999), others have used the model on more diverse populations on higher education campuses. For example, in an attempt to merge constructs from Tinto's Student Integration Theory and Bean's Student Attrition Model to form an integrated model of persistence, Cabrera, Nora and Castaneda (1993), conducted a longitudinal study of 2,549 freshmen at a large southern, urban institution. The researchers were interested in measuring the impact of (1) financial attitudes, (2) encouragement from friends and family, (3) academic and social integration, (4) academic performance, (5) institutional commitment, (6) goal commitment, (7) intent to persist, on student persistence. The integrated model accounted for 45 percent of observed variance in the dependent variable of persistence and 42 percent of the variance in intent to persist. The authors report that the chi-square for the overall model was 368.84 ($df = 96$) and significant at $p = 0.001$. Results of this study supported the existence of structural relationships among academic and social integration factors as well as commitment factors consistent with the frameworks of Tinto and Bean. Specifically, the study found that institutional commitment, encouragement, goal commitment, academic integration, social integration and financial attitudes, respectively, had the greatest impact on student intent to persist.

In a study designed to explore the relationship between the perception of prejudice and its impact on the adjustment of minority students, Nora and Cabrera (1993)

found four factors which accounted for variance in minority academic and intellectual development during freshman year: academic experiences with faculty and staff, parental encouragement, social integration and perception of prejudice. The study, conducted on a large, predominantly white, commuter, doctoral-granting institution in the Midwest, found that minority students that had more positive academic experiences and social integration, as well as encouragement from family and friends, were more likely to experience academic and intellectual development during their freshman year. Moreover, the study found that students with perceptions of prejudice were less likely to experience academic and intellectual development than their non-minority counterparts.

In an application of Tinto's model on a Midwestern commuter campus, Liu and Liu (1999) conducted a study of 14, 476 students to determine the impact of sex, race, age and transfer status on the dependent, dichotomous variable of stay or dropout status. Using probit analysis and ordinary least squares regression, the researchers included students of various scholastic abilities, religions and ethnicities while also including transfer and native freshmen, as well as male and female students. Results revealed that gender ($b = -.12270$) made no significant impact on student retention. However, the researchers did find that race ($b = .35369$) had a significant relationship with student retention, as did transfer status ($b = 1.94110$). The retention of transfer freshmen was much higher than the retention of native freshmen. Age ($b = -.09072$) was found to have an inverse relationship revealing that younger students had higher graduation rates than did their older counterparts.

Results of these studies and others (Hausmann, Schofield & Woods, 2007; Nora, 1987; Nora & Rendon, 1990; Nora, Attinasi & Matonak, 1990) support the use of Tinto's model within the university setting with diverse student populations. While it has already been noted that Tinto's model has traditionally focused on freshmen students and has not been used extensively in professional programs on university campuses (Coll & Stewart, 2008), its application within the context of the current study will add to the knowledge of how the model performs in this area.

Minority Retention Studies in Higher Education

According to the United States Census Bureau (2001), approximately 33% of the United States population describes itself as racially or ethnically diverse. However, this diversity is not being mirrored in the classrooms of higher education. The U.S. Department of Education reported in 2001 that minorities constituted only 28% of the total college enrollment for degree-granting institutions (Braxton, Hirschy & McLendon, 2004). Furthermore, according to the National Center for Educational Statistics (2003), approximately 67% of all degrees conferred during the 2002-2003 academic year were awarded to White, non-Hispanic students. This is not to say that the enrollment of minority students in higher education is down—quite the contrary. From 1986-1996, the enrollment of African American students increased by 38.6%, while Asian Americans saw an increase of 83.8% and Latinos 86.4% (Smith, Altback & Lomotey, 2002). However, these enrollment figures do not address the dismal retention rates among these minority groups.

Factors Influencing Minority Retention

It is argued that much of the minority retention issue can be attributed to lack of educational preparation (Dowell, 1996; Pavel, 1991; Rendon & Nora, 1988; Tinto, 1987) socioeconomic background (Swail, Redd & Perna, 2003) and campus climate (Chung & Sedlacek, 1999; Fleming, 1984; Gardner, 2005; Hurtado, 1992; Hurtado, Carter & Spuler, 1996; Jay & D'Augelli, 1991; Jones, 2001; Lundberg, 2007; Nora & Cabrera, 1996; Pascarella & Terenzini, 2005; Sotello, Turner, & Garcia, 2005; Watson, Terrell & Wright, 2002). These broad categories are further delineated in retention research and can encompass a wide-range of sub-variables which are of interest to researchers including, but not limited to, the variables of interest in the current study.

Review of NAEP data by Swail, Redd and Perna (2003) reveals that small percentages of minority students score at proficient levels in science, reading and math. Additionally, low income and minority students, with the exception of Asian and Pacific Islanders, earn much lower scores on the SAT (Scholastic Aptitude Test) than their white counterparts (Swail et al., 2003). Studies indicate that there is no stronger predictor of a students' college success than SAT scores and high school GPA (Fleming, 2002). While other studies (Ott, 1988) reveal that high school GPA is a better predictor of student success, especially for African-American students (Connor, 1990), institutions of higher education continue to view these standardized tests as the strongest indicator of a students success, assuming that minority students, who often score lower than their white counterparts, are simply not capable of achieving (Watson, Terrell, Wright & Associates,

2002). Still others contest the predictive value of standardized test scores in minority populations (Hoffman & Lowitzki, 2005), suggesting that test bias creates an unfair disadvantage for students of color.

A study by Hoffman and Lowitzki (2005) conducted at a Lutheran, predominantly white institution in the Southwest, was designed to identify the limitations of using high school grades and test scores to predict minority student success. The population consisted of 863 full-time students enrolled at the university in 2000. The ending sample contained 522 students. Using Tinto's (1975, 1993) model to guide their research and structural equation modeling, the authors looked at the input variables of race, religion, sex, hours worked, aid, high school achievement, ability (SAT), housing and class (freshman, sophomore, junior, senior), and their impact on student success and academic and social involvement. Results revealed that the impact of high school grades on involvement was weak for minority students but was strongly associated with academic achievement for students of color (.33). The relationship between SAT scores and academic achievement was weak for students of color (.18) and actually had a negative effect on satisfaction for students of color (-0.32). Living in residence halls had a very strong effect on social integration (0.53) and academic involvement (0.31) for students of color, but a negative relationship with retention for students of color (-.28). It is noteworthy, given that the current study intends to use class level as an input variable, that in the Hoffman and Lowitzki study, the impact of class level on satisfaction was stronger for students of color (.54) than for any other cohort. This study highlights that

perhaps viewing students' past achievements and ensuring that a plan is in place to aid the student in the social integration process, particularly on predominantly white campuses, may be more important in retaining that student than traditional approaches which focus solely on cognitive measures.

Additional consideration must also be given to the socioeconomic status (SES) of minorities. Students from families of different SES will attend and complete college at different rates and they will also tend to select colleges based on their ability to pay. Students from higher SES will tend to gravitate towards private more selective universities while those from lower SES will tend to seek out community colleges and state universities (Chapman, 1984). Furthermore, students from lower SES tend to have fewer resources--cultural capital-- needed to make informed decisions regarding college. An American Council on Education study found that when it came to the public's knowledge and attitudes regarding financing higher education, many were unaware of the differences between public and private institutions, two-year and four-year colleges and equally unaware of the opportunities available for funding a college education (St. John, Paulsen & Carter, 2005).

When students from lower SES are unaware of funding options, they may be forced to work full time in order to attend college, and non-traditional students may also have families to support, which requires them to work a full-time job. To further complicate matters, many scholarships for which students may qualify have restrictions that do not allow the student to work full-time or that greatly reduce the number hours

they can work (Furr & Elling, 2002). And, it is equally important to be cognizant of a culture's comfort in assuming debt from the use of financial aid, especially Hispanics who are used to the cash-based economy of Mexico (Doutrich, Wros, Valdez & Ruiz, 2005).

The increased reliance on student employment to offset the costs of college, coupled with the increase in non-traditional students who have delayed their entrance to college, work full-time or part-time and may have dependents, (Farrell, 2005; Ehrenburg & Sherman, 1987) supports the need to evaluate the effect of work obligations on retention. Using a 22 item Student Perception Appraisal-1 as a pre- and post-test instrument, Jefferys (2002) completed a prospective and retrospective nursing student survey. Variables within the survey instrument were based on the Bean and Metzner model of nontraditional student attrition and included environmental variables. Jefferys (2004) found that two-thirds of the nursing students were employed and that, retrospectively, finances and family obligations were ranked as being highly restrictive in their ability to remain in the nursing program. Many nursing authors report the student employment responsibilities hinder successful academic outcomes (Merrill, 1998; Tucker-Allen & Long, 1999; Vecchione, 1995).

In 1984, Astin reported that students who worked many hours off-campus (more than 15) were less likely to be retained. However, students who were employed on-campus (less than 15 hours), were more likely to be retained, concluding that the on-campus employment was associated with social integration, which resulted in the

improved likelihood of retention. Kuh (1995) points out that working off campus may be beneficial in that it encourages students to budget and manage their time. This is supported through the research of Nora (1990) which reveals that working on-campus has a differential positive effect over working off-campus. However, according to Horn and Berktold (1988) the more hours students work the more likely they are to report problems with the number of courses they can take, scheduling issues, problems with library access and academic performance. Other researchers have also reported negative effects of employment including decreased academic persistence, less social and academic integration and longer time to degree completion (Pascarella & Terenzini, 2005; Choy, 2002; Bean & Metzner, 1985; Ehrenberg & Shreman, 1987). For minority students, the impact of employment may be more detrimental, as a 1996 study by Nora, Cabrera, Hagedorn, and Pascarella revealed that family and work obligations had the largest negative impact on persistence for minorities.

According to Cabrera (1999), “Exposure to a climate of prejudice and discrimination in the classroom and on campus has gained attention as the main factor accounting for differences in withdrawal behavior between minorities and non-minorities” (p. 135). Altbach and Lomotey (1991) share that for minority students the prevailing view of campus climate is one of poor race relations, low social interaction and self-segregation of students from different racial and ethnic groups. Most importantly, perceptions of discrimination can play a role in minority students’ ability to academically and socially integrate into the academic environment (Bean, 1984; Tinto,

1993; Villarruel, Canales & Torres, 2001, Yoder, 2001).

A study conducted by Rankin and Reason (2005) attempted to identify differences between students of color and white students in their perception of campus climate for underrepresented groups. Using a climate assessment instrument developed by Rankin, the researchers surveyed 7,347 students on 10 campuses. Survey results revealed that students of color reported harassment at higher rates than did the Caucasian students. Additionally, minority students perceived the climate as more racist and less accepting than their white counterparts, while white female students reported more gender harassment.

Locks, Hurtado, Bowman and Oseguera (2008) shared the results of a study using a hypothesized model based on several conceptual frameworks and scholarship including Allport (1954) and Feldman and Newcomb (1969). The intent of the study was to further examine perceptions of the racial climate, identified in previous models, and to explore students' interactions with diverse peers as well as the nature of their contact with diverse peers. Using data from a national, multi-institutional project entitled "Preparing College Students for a Diverse Democracy," which included responses from 10 public universities, the researchers randomly selected a sub-sample of students for analysis. The unweighted sample was made up of 69% Whites, 17% Asian/Pacific Islanders, 8% Hispanic/Chicano/Latinos, 4% African Americans and 1% American Indians. The independent variables measured included: (1) proportion of whites in pre-college environments; (2) pre-college predisposition to participate in diverse activities; (3) positive interactions with diverse peers in college; (4) anxiety interacting with diverse

peers in college; (5) hours per week socializing with other students; (6) lived with parents; (7) gender, and (8) perceived racial tension on campus. Results revealed a positive interaction with diverse peers resulted in a greater sense of belonging for both white and minority students, while perceived racial tension decreased the sense of belonging for minority students. Moreover, living with parents decreased sense of belonging for both white and minority students.

Cabrera, Nora, Terenzini, Pascarella and Hagedorn (1999) conducted a study to compare White and African-American students in their perceptions of campus racial climate and their adjustment. A total of 1,454 subjects were included in the sample, which was made up of 1,139 white students and 315 African-American students. The researchers used Nora's (1997) Social Adjustment Model and Cabrera and Nora's (1994) Perception of Prejudice and Discrimination Model to define constructs, develop items and measures; the theoretical frameworks of Tinto (1987, 1993) and of Bean and Metzner (1985) were the underpinnings of the study. Findings revealed that perceptions of prejudice and discrimination had the largest negative effect on the academic experiences of African Americans and that their social experiences were negatively dominated by perceptions of discrimination. The variables which most directly impacted the academic and intellectual development of the African-American students were academic experiences, academic ability and social experiences.

Minority Retention Studies in Nursing

In spite of the overwhelming evidence regarding the need to increase minority retention and graduation in nursing programs, there are few data to be found in the nursing literature regarding retention of minority students. While several authors have discussed the importance of retention strategies focused on supporting student progression, graduation, and successful licensure to practice (Dowell, 1996; Lockie & Burke, 1999; Nugent, Childs, Jones, & Cook, 2004; Stokes, 2003), Wells (2003) points out that much of the research on nursing retention was conducted in the 70's and 80's when the typical student was white, middle class and right out of high school. Others, like Roberts and Group (1995) blame the lack of focus on minority nursing retention on the idea of the stereotypical ideal nurse as being “female, white, middle class, heterosexual, able bodied, and nice, with the added qualities of the mythical Nightingale nurse, obedient and nurturing.”

Nursing research does exist which supports the importance of academic and social integration in the success of undergraduate nursing students. For example, phenomenological qualitative study by Gardner (2005) identified eight themes related to minority student attrition on a predominantly white institution (PWI). Overwhelmingly, the 15 participants described feelings of loneliness and isolation, a feeling of being different, not having their individuality acknowledged by faculty or peers and the stress of dealing with discrimination. While this study was conducted on the campus of a PWI, social integration is a common construct in retention research as it relates to minority

student retention (Hurd, 2000; Schwitzer, Griffin, Ancis & Thomas, 1999; Watson & Kuh, 1996). Dowell (1996) points out that high attrition rates have been associated with a lack of institutional affiliation described as the absence of social support groups, student and peer study groups and lack of faculty support.

In a 1984 study by Allen, Nunley and Scott-Warner, barriers to admission and retention were explored. Both public and private universities in the East, South, Midwest and West were included in order to obtain an adequate sample of African-American baccalaureate nursing students and faculty. The questionnaire which was employed in this study was a modified version of the questionnaire created for the National Advisory Committee on Black Higher Education and Black Colleges and Universities. The sample consisted of Black female students (30%), Black faculty and administrators (12%) and white faculty and administrators (57%). The total sample size was 136. The questionnaire evaluated perceptions using a Likert-type scale with responses ranging from “unimportant,” “slightly important,” “somewhat important,” to “very important.”

Barriers to admission and retention were identified. Results revealed that students felt that alienation and loneliness (90%) were very important factors in attrition, followed by inadequate academic preparation (78%). Students shared that high school counselors had not encouraged them to attend nursing school, thereby creating an admission barrier. Finally, a hostile university environment was cited by 94% of black faculty, 63% of black students and 48% of white faculty as being a detriment to retention.

In a qualitative study of ethnically diverse nurses (n=17) with varying levels of

educational preparation, Amaro, Abriam-Yago and Yoder (2006) identified four categories of needs related to overcoming perceived retention barriers. The categories were (1) personal needs, (2) academic needs, (3) language needs and (4) cultural needs. Under the category of personal needs, participants indicated that lack of finances, time, family responsibilities and language difficulties created barriers since many had to work full time and care for families, which created tremendous anxiety and frustration. Academic needs were identified as (1) study workload, (2) need for tutoring, and (3) the need for study groups. Limited time, coupled with a heavy workload and poor study habits, made success difficult. Some participants revealed that although tutoring programs were available, they did not meet their linguistic needs. The category of language needs revealed that students for whom English is a second language, not only had reading and writing difficulties but also struggled with verbal communication. Finally, participants described cultural differences such as communication, assertiveness and lack of ethnic role models as obstacles in their nursing education.

Intention

Intention, as a means to predict behavior, is not new to the social sciences. Fishbein and Ajzen's Theory of Reasoned Action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980), Ajzen's Theory of Planned Behavior (Ajzen, 1985), John Bean's (1990) student attrition model, and Vincent Tinto's (1975, 1993) model of institutional departure all incorporate the use of intention to explain behavior. According to Fishbein and Ajzen (1975) the best predictor of an individual's behavior is intention.

The Theory of Reasoned Action and the Theory of Planned Behavior have been applied in a variety of arenas from health care (Burns, 2009; Hevey, Pertl, Thomas, Maher, Chuinneaga, & Craig, 2009; Lemmens, et al., 2009; Jung & Heald, 2009; Nehl, et al., 2009;) to organizations (Cronan, & Al-Ratee, 2008; Hansen, 2008; Rosser, 2004) to education (Atmeh & Al-Khadash, 2008; Hellman, Hoppes & Ellison, 2006; Lepre, 2007; Mathieson, 2004; White, Thomas, Johnston & Hyde, 2008). The use of the TPB in the prediction of work turnover is well-known and its application to nurse turnover (Arnold, Loan-Clark, Coombs, Wilkinson, Park, & Preston, 2006; Liou, 2009; Murrells, Robinson, & Griffiths, 2008; Parry, 2008) is of particular interest given the context of the current study.

In Murray's 1983 study, 246 nurses and students completed questionnaires which were analyzed to determine if role conflict could help explain nurses' intention to seek alternative employment. Results revealed that 13% of respondents definitely intended to leave nursing altogether, while 54% were uncertain. Only 22% indicated they were certain they would not leave. Intention to leave was found to be the strongest among third year students while the majority of the ward sisters did not intent to leave. The study revealed a significant difference in intention ($p < 0001$) between years. Helman, Hoppes and Ellison (2006) investigated factors associated with student intentions to engage in volunteer community service. Using a web-based questionnaire to assess community service attitudes and intentions, the researchers found that a sense of community connectedness, cost and benefit considerations and the significance of the community

needs were significant in explaining students' intent to engage in community service. Using an adapted version of the Organizational Turnover Intentions scale by Bozeman and Perrewé, Parry (2008) conducted a small study (N=131) to determine nurses' intention to leave the profession. A repeated measures design was employed and participants were surveyed via mail. Results of the study provide support for the use of intention to study nurse turnover since model estimation indicated that job satisfaction and organizational commitment were statistically significant and negatively related to organizational turnover intention. Additionally, the study found that intention to change professions was statistically significant and positively related to nurses' intention to change employer. Clearly, previous research has used intention as a variable to predict turnover, enrollment patterns and behavior. Moreover, the use of a survey design is also common. However, few research studies have been found using intention to study nursing student retention in general (Bers, 1991; Vanhanen & Janhonen, 2000) and none could be identified using only minority nursing students.

It is understood that intention and retention are not synonymous; however, Bean (1982) argued that student attrition is in fact analogous to turnover in the workplace and emphasizes the importance of using student intentions to stay or leave to predict their enrollment behavior. Through the use of path analysis and using data from a sample of full-time, unmarried freshmen at a Midwestern university, Bean discovered that a student's intention to leave was the most powerful predictor of attrition. This use of intention as a

predictor of attrition has found support from others as well. Vorhees (1987) found that academic and social integration were not predictors of persistence. Instead, he reported that intent to leave, sex and purpose for enrolling were significantly related to retention. Mulligan and Hennessey (1990) go so far as to suggest that the Institutional Commitment Scale created by Pascarella and Terenzini, and used in this study, can be defined as intent to leave. They also indicated that intent to leave was the single best predictor of retention for most part-time students at a community college. Based on these studies that use survey methodologies, it is reasonable to suggest that understanding a student's intent to stay or leave may aid university nursing programs to craft meaningful minority retention programs.

Variables for Current Study

Empirical support for the variables of interest in the current study can be found throughout the retention literature and are also discussed in Chapter 3. Pre-entry attributes, a category found in Tinto's (1993) model, are limited in the current study to age, race and gender. Skills and abilities, as well as prior schooling, would include cognitive measures which are not of interest to the researcher.

The use of the select pre-entry variables in retention research is widespread (Arbona & Nora, 2007; Jefferys, 2007; Strauss & Volkwein, 2004; Hu & St. John, 2001; Cabrera, Nora, Terenzini, Pascarella & Hagedorn, 1999; Astin, 1993; Grosset, 1991; Attinasi, 1989) and may be categorized as *Background* or *Demographic variables*.

A 2007 retrospective cohort study (N=1259) revealed that students who were older were more likely to complete their university nursing program. Moreover, a meta-

analysis by Campbell and Dickson (1996) found that age and parental education were the strongest predictors of nursing student success. In a 2004 study by Strauss and Volkewin seeking to uncover predictors of student commitment at two-year and four-year institutions, age (significant at $p < 0.05$ level) and belonging to a minority group (significant at $p < 0.01$ level) were found to be significant predictors of institutional commitment. The inclusion of age and minority status as independent variables in the current study is supported by additional research (Braxton & Mundy, 2002; Cabrera, Nora & Castaneda, 1993; Nora & Cabrera, 1993; Tinto 1975, 1993) which indicates that institutional commitment is a strong indicator of student retention.

Bean and Metzner (1985) reported gender as a background and defining variable which influences the retention of nontraditional students (Jefferys, 2004). The use of gender in studies related to student retention is also prevalent (Nora, Cabrera, Hagedorn, & Pascarella, 1996). Nursing has long been viewed as a feminine profession. According to a 1999-2000 report by the AACN, men only accounted for 9.6 percent of graduates from BSN programs. Master's programs reported 8.3 percent male graduation rate and doctoral programs, a meager 2.6 percent. According to Trossman (2003), less than 6% of the U.S. nursing profession is male, despite a 226% increase over the last 20 years.

According to Tinto (1993) "females generally and certainly those from specific ethnic groups, are more likely than males to face external pressures that will impact their educational participation" (p. 77). In a study by Nora, Cabrera, Hagedorn and Pascarella (1996), gender differences were found to play an important role in students' institutional

experiences, academic achievement and environmental pull factors, thereby influencing persistence.

Goals and Commitments

The study conducted by Strauss and Volkwein (2004) evaluated the role of pre-college characteristics (age, member of an underrepresented group and marriage); financial aid and attitudes; social integration and social growth, as well as academic integration and academic growth, and their impact on institutional commitment. As defined in their study, institutional commitment refers to “the student’s overall impression of, sense of belonging to, satisfaction with, and choice to attend the institution again” (p. 209). The study found that classroom experiences, social activities and friendships are strong predictors of institutional commitment. The results of this study are of particular interest due to the increase in the number of nontraditional students enrolling in baccalaureate nursing programs. Moreover, the use of underrepresented groups as a measure lends support to the inclusion of minority status as a variable of interest in the current study.

In a structural equations modeling test of a combined model using Tinto’s Student Integration Model and Bean’s Student Attrition Model, Cabrera, Nora and Casteneda (1993) found support in their final model for institutional and goal commitment. While the largest total effect on student persistence was seen in their Intent to Persist (0.485), Institutional Commitment (0.273) and Goal Commitment (0.133) were also significant. The largest total effect on Intent to Persist was attributed to Institutional Commitment

(0.562).

A 1996 national study by Nora, Cabrera, Hagedorn, and Pascarella (N=3900) contained one block of variables entitled 'Background Characteristics,' which represented characteristics that the students brought with them upon entering the college or university, including students' commitment to the institution and pre-college educational aspirations (goal commitment). Students' commitment to the institution was measured through the use of a single item asking the importance of completing a college degree at their *current* institution using a Likert-type scale ranging from 1 (Not at All Important) to 4 (Very Important). Similarly, goal commitment was measured with a single item "How important is it for you to complete a college degree in your lifetime?" Again, a Likert-type scale was used with scores ranging from 1 (Not at all Important) to 5 (Very Important). The model created by the authors was found to be a significant predictor of persistence (PCP 87.58% to 93.16%). Variables contained within this significant model are similar to those proposed for the current study and provide empirical evidence that students' goals and commitments play a strong role in persistence.

Nora (1987) tested a modified version of Tinto's student attrition model on Chicano students attending two-year colleges. Using structural equation modeling and LISREL VI, the researcher found a plausible causal model of Chicano student retention. While the study could not substantiate Tinto's entire model, it did find that measures of initial commitment had a large direct effect on retention. While this study was conducted

at a two-year institution, its findings support the impact of commitment on retention, particularly for this minority group.

Using National Survey data, Mallette and Cabrera (1991) conducted an exploratory study to determine if factors associated with withdrawal decisions are similar to factors associated with transfer decisions. While the researchers found support for Tinto's position on differentiating voluntary from involuntary withdrawal, the results revealed that, while many elements of Tinto's model discriminated between persisters and dropouts, only final institutional commitment and goal commitment discriminated between students who persisted and those who transferred. Similarly, Wetzel, O'Toole, and Peterson (1999) combined Tinto's goal commitment and institutional commitment with financial considerations to determine their impact on persistence decisions. Using data from all freshman and sophomore students attending an urban public university between 1989-1992, the researchers found that students' academic and social integration were the most significant factors in persistence decisions.

In 1995, Allen and Nora published the first investigation of the construct validity of goal commitment and its impact on persistence. Through their research, they found that the construct of goal commitment could be broken down into several latent constructs. These constructs were identified as: (1) a factor entitled goal commitment that groups items related to goal importance, goal specificity and situational influence; (2) a factor represented by items which indicated students' certainty of purpose, and (3) a factor which contains items related to goals in general. Once the subcomponents were

established, their predictive validity related to different student persistence outcomes was established. The researchers found that goal commitment had a significant direct effect on students intent to persist and actual persistence behavior. Goal commitment was found to be the only construct with significant predictive ability.

Goal commitment has been measured in a variety of ways since being introduced to the field of education. However, when testing in quantitative models, results have been mixed. When studying female students, Pascarella and Terenzini (1983) found no connection between goal commitment and persistence, while Pascarella, Duby and Iverson (1983) found that on a nonresidential campus, goal commitment was not impacted by academic and social integration, nor did goal commitment impact persistence. However, Tinto (1993) posits that goal commitment may vary based on the type of departure behavior being considered. Therefore, while results may vary based on institution type, departure behavior, gender, age and myriad other factors, there is sufficient empirical evidence to support the inclusion of goals and commitments in the current study.

External Commitments

While students may be faced with many external commitments, for the purposes of the present study work, family obligations and resident status are included under the category of **External Commitments**. Resident status is included due to support found in the research which indicates that students who live at home or off campus may be impacted by external commitments more so than students who reside on campus (Tinto,

1995). Therefore, it is included in the present study to capture differences between those who reside on campus and those who do not.

Employment

The increased reliance on student employment to offset the costs of college, coupled with the increase in non-traditional students who have delayed their entrance to college, work full-time or part-time and may have dependents (Farrell, 2005; Ehrenburg & Sherman, 1987), supports the need to evaluate the effect of work obligations on retention. Furthermore, exploration of how employment impacts retention of nursing students has been studied very little.

In 1984, Astin reported that students who worked many hours off-campus (more than 15) were less likely to be retained. However, students who were employed on-campus (less than 15 hours), were more likely to be retained; Astin concluded that on-campus employment was associated with social integration, which resulted in the improved likelihood of retention. Kuh (1995) points out that working off campus may be beneficial in that it encourages students to budget and manage their time. This is supported through the research of Nora (1990) which reveals that working on-campus has a differential positive effect over working off-campus. However, according to Horn and Berktold (1988), the more hours a student works the more likely they are to report problems with the number of courses they can take, scheduling issues, problems with library access and academic performance. Other researchers have also reported negative effects of employment including decreased academic persistence, less social and

academic integration and longer time to complete degree (Pascarella & Terenzini, 2005; Choy, 2002; Bean & Metzner, 1985; Ehrenberg & Shreman, 1987). For minority students, the impact of employment may be more detrimental, as a 1996 study by Nora, Cabrera, Hagedorn, and Pascarella revealed that family and work obligations had the largest negative impact on persistence for minorities.

According to Childs, Jones, Nugent and Cook (2004), for African-American students financial difficulties have a major impact on drop out. The authors and others (Furr & Elling, 2002; Hurd; 2000; Villarruel, Canales & Torres, 2001) share that many African-American students are forced to work full-time due to increased tuition rates and may be unable to receive many lucrative scholarships due to restrictive rules related to working. In addition, Fuertes and Sedlacek (1990) and others (Catellanos & Jones, 2003;Rodriquez, Guido-DiBrito, Torres, & Talbot, 2000) share that Latinos also often perceive money problems as a reason to dropout of school.

Jefferys (2002) conducted a prospective and retrospective nursing survey which included variables found in Bean and Metzner's model of nontraditional student attrition. Jefferys found that two-thirds of the nursing students were employed and that retrospectively, finances and family obligations were ranked as being highly restrictive in their ability to remain in the nursing program. The study was conducted at a single institution and with a small sample (n=80) which limit its generalizability. However, in a larger prospective, quantitative study (n=267), Australian researchers Salamonson and Andrew (2006) found that over 78% of second year students were employed, the majority

in nursing-related jobs. Of those students who were employed, over half were employed more than 16 hours a week during the semester. Further analysis revealed that those students who were not employed had the highest academic achievement in pathophysiology and nursing practice. While not seen as a widely-studied variable in the nursing literature, there are studies that reveal that student employment responsibilities hinder successful academic outcomes (Merrill, 1998; Tucker-Allen & Long, 1999; Vecchione, 1995). However, Astin (1984) found that the issue may not simply be employment but may in fact be how many hours are worked and if those hours of employment are on campus or off.

A study by Norman, Buerhaus, Donelan, McCloskey and Dittus (2005) aimed at assessing the characteristics of nursing students currently enrolled in nursing education programs, including how they finance their nursing education. Using data from a survey administered to a national sample of 496 nursing students, the researchers found some significant differences regarding funding based on age and minority status ($p < 0.05$). Specifically, younger students were more likely to receive financial support from parents or institutional scholarships while minority students reported less parental support and more reliance on financial aid and government loans. Older students were more likely to use personal savings than their younger counterparts. The majority of the respondents were single, white females with an average age of 26. Less than 15% of respondents were over the age of 36, one-third had children at home under the age of 18 and one-fourth reported being married or living with a significant other. While the current study does

not measure how nursing students finance their education, the study does include an employment variable seeking to determine the number of hours students work while enrolled in the program. Relationships between hours of work and location of employment are expected to mirror the findings of Astin (1984). Moreover, given the increase in the number of nontraditional students enrolling in nursing programs and the need for many older minority students to find educational funding from sources other than savings, employment may be seen as a necessity. While the availability of financial aid has much support as a predictor of minority student retention (St. John, Cabrera, Nora & Asker, 2003), it is not a variable of interest in the current study. However, it is noted that adequate financial aid packages could theoretically reduce the number of hours some nursing students feel that they need to work.

Family Obligations

While some may be unaware, nursing students do have demands placed on them that are over and above what may be experienced by students in other programs. For example, nursing students are subject to shift work, driving long distances for clinical placement, long hours away from family, the emotional burden of a caring profession and, in some instances, a 45 week academic year (Lauder & Culberthson, 1998). Given this reality, the need to examine family obligations and their impact on minority nursing student success, is great.

Nora and Wedham (1991) examined the influence of environmental pull factors of college students. Results revealed three constructs which had a pulling-away effect on

the student's decision to remain enrolled and on their academic and social integration. The constructs were family responsibilities, working off-campus while enrolled in college courses, and commuting to college every day. In addition, Aitken (1988) found that concerns with family and personal problems were significant negative predictors (-0.080) of students' intent to return to college.

According to Jefferys (2004) "it is presumed that family responsibilities are most applicable for commuter students as residential students do not have daily tasks and responsibilities within the family....residential students may be influenced adversely if their inability to participate in previously held responsibilities is perceived negatively" (p. 85). According to Levine and Cureton (1998), 83% of college students are part-time, commuting adults struggling to incorporate academic commitments with their work and family obligations. Peter and Horne (2002) cite that 27% of today's college students are parents and that 13% are single parents.

Quarry (1990) interviewed 37 Black female students who did not complete the junior year of their baccalaureate nursing program. Subjects reported that the primary reason they did not complete was a combination of family opposition and academic workload. A 2006 qualitative study using an interpretive case study methodology was used by Taxis to explore the experiences, perceptions and constructed meaning of institutional and interpersonal factors influencing retention and graduation of nine Mexican American baccalaureate nursing students and revealed similar concerns. Results revealed that maintaining an ongoing supportive family relationship, as well as adequate

financial support, were most helpful the goal achievement of the participants (N=28). In 2004, Evans reported that racism, cultural and family isolation, as well as a lack of faculty support, were deterrents for academic success among Hispanics and American Indian students.

Residential Status

According to Horn and Berktold (1998), more than 86% of today's college students are commuters. Jacoby (2000) defines a commuter student as "as all students who do not live in institution owned housing on campus," (pg. 4) and she reveals that minorities make up the largest percentage of commuter students. A student's status as a commuter or non-commuter student is important in terms of his or her ability to academically and socially integrate. As Tinto (1988) explains, in order for a student to fully academically and socially integrate with the college campus, they must physically and socially disassociate from communities of the past. According to Alford (1998) those students who do not reside on campus must make psychological shifts between their homes and their schools and, while they attempt to become involved in their campus community, family and work obligations often interfere (Jacoby, 2000).

Academic and social integration, hallmarks of Tinto's (1975, 1993) theory, rely on a student's ability to interact with the campus environment. Given the environmental pulls associated with today's ever-increasing nontraditional student body, academic and social integration may be difficult. However, in a 1997 article Tinto expresses the importance of the classroom for the academic and social integration of commuter

students. He states "...for students who commute to college, especially those who have multiple obligations outside the college, the classroom may be the only place where students and faculty meet, where education in the formal sense is experienced. For those students, in particular, the classroom is the crossroads where the social and the academic meet" (p. 599). Braxton, Milem and Sullivan (2000) expanded on Tinto's theory and found that classroom experiences, in particular those that involve active learning, do increase academic integration.

A study of 8,867 undergraduate students at Oregon State University between 1991 and 1996 found that resident students had higher retention rates than did non-resident students (Murtaugh, Burns & Schuster, 1999). According to research by Astin (1999) student residence is a significant environmental factor associated with retention, exerting a positive effect regardless of the institution type, family background, sex, race or ability of the student. Astin (1999; 1982; 1977; 1973) and others (Chickering, 1974) have consistently found similar results.

Institutional Experiences

According to Tinto (1993), positive institutional experiences will serve to increase a student's academic and social integration into the institution. Conversely, negative experiences will reduce the student's academic and social integration. As described by Benda (1991), students who have negative social experiences, such as less than positive faculty interactions, will experience a decrease in integration, a weakening of goals and institutional commitments and will, over the course of time, make a departure decision. Institutional experiences can take many forms. However, the present study examines

class size, course delivery methods, student's interaction with minority faculty, interaction with minority staff and participation in on-campus extracurricular activities.

The use of large lecture classes is not an unfamiliar concept for universities and, according to Erickson and Strommer (1991), these environments are educationally flawed. Lindsay & Paton-Saltzberg (1987) found a strong relationship between class enrollment and student performance across a large number of courses. Their study revealed that students enrolled in social science classes with less than 10 students had twice the chance of earning an A or a B+ and one half the chance of earning a C, as compared with students in classes with enrollment greater than 70. In Pascarella and Terenzini's (2005) book *How college affects students*, they discovered only ten studies from the 90s that examined the role of class size on academic learning. However, they concluded that if classroom learning is measured by course grade, then class size may have a negative impact on academic learning. It should be noted that additional studies have identified other positive effects of smaller classes including improved student retention (Lopus & Maxwell, 1995; Ashar & Skenes, 1993), instructor evaluations (Mateo & Fernandez) and institutional reputation (Ramaswamy, 1992). Using grades as an output and a large dataset with over 900,000 observations, Kokkelenberg, Dillon and Christy (2008) tested the effects of class size at a medium-sized public research university. They found via logistic regression that class size did have a statistically significant impact on grades ($p < 0.0001$).

Many colleges and universities are struggling to keep pace with the ever changing

technology landscape and students' desire for any time any place education. Nursing is no exception. Class sizes in nursing programs have increased tremendously over the years in an attempt to keep up with demand and due to changes in delivery methods. In a study by Gibbs, Lucas and Spouse (1997) examining the performance of 11,799 nursing students on 177 modules (classes), with varying enrollment, over 5 years, nursing students performed less well in large modules (classes). The study revealed that in large modules (classes) students adopted more superficial strategies for learning content, such as memorization, as compared to attempting to actually understand the content while in smaller modules (classes).

As nursing programs battle over scarce clinical resources, programs are looking at creative ways to provide students with the clinical skills they will require to practice as entry-level nurses. Programs incorporate the use of video conferencing, streaming video, Podcasting, YouTube, Second Life and course management systems such as Blackboard, WebCT and Moodle to deliver clinical and didactic content and to provide hands on experience for students at a time when traditional clinical sites are inundated with requests from colleges and universities for student placement opportunities. Inclusion of this variable in the present study seeks to determine if the use of these technologies, in lieu of, or in conjunction with, traditional lecture, impacts the retention of minority baccalaureate nursing students.

According to Allen (2006), use of online course delivery formats only tends to hamper students' ability to academically and socially integrate. Allen states that "One of

the primary ways that students gain information and readjust their expectations is by interacting with peers outside of the classroom,” (pg. 124). Moreover, Allen indicates that the use of online courses early in a students’ college experience significantly decreases his/her opportunity for academic and social integration. Therefore, timing of students’ experience with online learning may also be of interest in their retention (2005).

Summary

A review of the literature found that while research regarding minority student retention is abundant, the nursing literature is not as rich and quantitative studies are lacking. Additionally, there seems to be an imbalance in the nursing retention literature since a disproportionate number of studies were conducted at the community college level versus baccalaureate levels or higher. Given that community colleges currently produce 60% of the nursing workforce, this imbalance is not surprising. However, the current trend and Institute of Medicine’s recommendations are to increase the number of baccalaureate prepared nurses thereby shifting the ratio to 60% BSN:40% ADN. Another area of concern emerging from the literature, supported by (Nora, Cabrera, Hagedorn & Pascarella, 1996) is that much of retention literature is confined to single institution studies. This was particularly evident in the nursing literature. The current study, while aimed at one university system, gathered data across 11 university baccalaureate nursing programs and thus provides a rich source of data for future studies. Moreover, given that Tinto’s (1975, 1993) model of institutional departure has had limited use in professional programs, the current study also provides insight into how well the model works for this

particular population.

Chapter Three

Methods

The purpose of the current study is to examine the impact of non-cognitive **Pre-Entry Attributes** (age, race, gender); **Pre-Entry Goals/Commitments** (commitment to completing program of study and commitment to the university); **External Commitments** (employment status, residence, family obligations); **Institutional Experiences-Academic** (class size, course delivery methods); **Institutional Experiences—Social** (interaction with minority faculty, interaction with minority staff, participation in on campus extracurricular activities) variables on the intention of minority baccalaureate nursing students to complete their program of study.

It is the intent of this chapter to describe the research design and the methodology used to investigate the central purpose of this study. Included in this chapter is a description of the research design, population and sample, instrumentation, independent and dependent variables, data collection procedures and data analysis methods.

Research Design

An exploratory, quantitative (cross-sectional) survey research design was used to collect data related to the influence of select non-cognitive variables on the intention of minority baccalaureate nursing students. A cross-sectional research design allows for the collection of data at one point in time (Creswell, 2003). Dempsey and Dempsey (1996) defined survey research as a methodological technique that requires systematic

collection of data about present conditions directly from the study subjects through the use of interview and/or the self-administered questionnaire. Babbie (1983), states that “Surveys are frequently conducted for the purpose of making descriptive assertions about some population: discovering the distribution of certain traits or a attributes” (p. 58).

The key factor in defining the survey method is that the independent variable is a naturally occurring phenomenon rather than one that is manipulated by the researcher; thus, the researcher does not have control over its variation (Robson, 1993).

According to Babbie (1983), data are usually collected at one point in time. Babbie also indicates that the purpose of survey sampling is “to select a set of elements from a population in such as way that the descriptions of those elements (statistics) accurately describe the total population from which they are selected” (p. 83).

The exploratory survey (cross-sectional) research design was chosen for this study for several reasons: (1) it is relatively inexpensive, (2) the results will be known immediately, (3) the sample size will be larger, and (4) all subjects will respond at approximately the same time (Dillman, Smyth & Christian, 2009). Additionally, the researcher wished to simultaneously examine responses from both junior and senior baccalaureate nursing students in order to describe potential differences between the groups. It was assumed that students would have different experiences over time within their respective university settings which may impact their responses to survey questions. Therefore, gathering responses from both junior and senior nursing students

allowed the researcher to examine differences between the two groups.

Population and Sample

The target population for the present study consisted of all first-time, full-time, students enrolled in generic, pre-licensure baccalaureate nursing programs on 11 of the campuses within the University of North Carolina System. In order to target only students who met these qualifications, the study relied on student self-reporting and on evaluation of inclusion criteria by each program prior to the program releasing student contact information. Institutions with qualifying programs were identified through the University of North Carolina website (www.northcarolina.edu). Universities considered for inclusion in this study were: (a) Fayetteville State University, (b) North Carolina Central University, (c) Winston-Salem State University, (d) The University of North Carolina at Greensboro, (e) North Carolina A&T University, (f) Western Carolina University, (g) The University of North Carolina at Charlotte, (h) The University of North Carolina at Chapel Hill, (i) The University of North Carolina at Pembroke, (j) The University of North Carolina at Wilmington, and (k) East Carolina University.

Sampling Plan

The study sample was a purposive sample of all first-time, full-time pre-licensure baccalaureate nursing students, enrolled in the generic four-year nursing program at 11 of the universities included in the University of North Carolina System, during the fall semester 2009. According to Macnee and McCabe (2008) “a purposive sample consists of participants who are intentionally or purposefully selected because they have

certain characteristics related to the purpose of the research” (p. 121).

Fall semester serves as a point in time when students make the transition from junior to senior year; therefore, junior-level students would be afforded the opportunity to engage in all aspects of the nursing program prior to being surveyed, while senior-level students would have one year of experience within the program. The criteria for eligibility consists of being a first-time, full-time pre-licensure baccalaureate nursing student, actively enrolled in a junior or senior-level nursing course, and information on race is available. For the purposes of the present study, and in accordance with the University of North Carolina system definitions, a full-time student was defined as enrolled in at least 12 semester hours. A first-time pre-licensure student was defined as a student who has not been enrolled in any other nursing program and is not classified as a returning student in the program being studied. This information was collected via a survey instrument; therefore relying on self-reporting by students.

Given that the number of minorities in each minority group could not be fully known until the survey data was compiled, a census of all full-time, first-time pre-licensure students enrolled in a generic baccalaureate nursing program on each university campus was completed. According to Fowler (2005) a census involves surveying every member of the population. Therefore, no sampling is involved. Subjects were identified from a list of all first-time, full-time pre-licensure baccalaureate nursing students enrolled in a junior or senior-level clinical nursing course at any of the participating university

campuses. After survey data were compiled, the data related to students who identified themselves as belonging to one of the available minority categories was extrapolated and used to conduct statistical analyses. If the proposed study had used a sampling technique to obtain information related to minority students, the sample size would be calculated using the following formula from Cochran (1977):

$$n_o = \frac{(t)^2 * (p)(q)}{(d)^2}$$

As described by Bartlett, Kotrlik and Higgins (2001), t = the value for the selected alpha level, $(p)(q)$ = the estimate of variance and d = the acceptable margin of error for the proportion being measured. For the current study, it is proposed that an alpha level of 0.5 will be used. The t value for this selected alpha level is 1.96. According to Gravetter and Wallnau (2006) the primary concern regarding the selection of an alpha level is to minimize the risk of a Type I error. Type I error occurs when conclusions are made from sample data indicating that a research hypothesis is true when in reality it is untrue. Conversely, a Type II error may be explained as a failure to detect a relationship when one actually exists (O'Sullivan, Rassel & Berner, 2003). An alpha level of 0.5 indicates that there is a 5% chance of committing a Type I error. While it may seem ideal to lower the alpha level in order to reduce the chance of committing a Type I error, doing so may lead to committing a Type II error instead (Gravetter & Wallnau, 2006). The researcher therefore used an alpha of 0.5 as an appropriate level of significance realizing that while it is a less rigorous test, reduction of a Type II error for

the current study took priority over committing a Type I error.

Next in the Cochran (1977) formula is estimate of variance or $(p)(q)$. Variance is defined as “the amount of variability of a variable...how much the scores deviate from the mean” (Miles & Shevlin, 2007, p. 20). Estimating variances for the purpose of determining a sample size can be performed in several ways, including the use of pilot study results or conducting the sample in two steps to determine the number of additional responses that will be needed for an appropriate sample size by using data on variance from the first step or making estimates regarding the structure of the population through the use of logical mathematical formulas (Bartlett, Kotrlik & Higgins, 2001; Cochran, 1977).

Lastly, d^2 refers to an acceptable margin of error for the mean being estimated. In educational and social research, a 5% margin of error is acceptable for categorical data, while a 3% margin of error would be consider acceptable for continuous data (Bartlett, Kotrlik & Higgins, 2001; Krejcie & Morgan, 1970). Margin of error is defined by Cochran (1977) as the amount of risk the researcher is willing to take. According to Hunter (n.d.), how well a survey represents the population is measured by two statistics: the margin of error and the confidence interval. Confidence levels, typically expressed as confidence intervals, reflect the confidence that the researcher has that the sample is one which estimates the population to within an acceptable range (O’Sullivan, Rassel & Berner, 2003). Therefore, a 95% confidence interval reveals that the researcher is confident that in 95 out of a 100 times, using the same sampling methods, the population

parameter will fall within the range of the sample statistic (O'Sullivan, et al.)

For the purposes of the current study, a 95% CI and a 5% margin of error will be used.

Deans and Directors of the 11 university pre-licensure programs were contacted via email in order to provide an estimate of the number of minorities currently enrolled in their pre-licensure, baccalaureate nursing program. A response rate of 100% was achieved. As anticipated, the historically Black colleges and universities, Fayetteville State University, North Carolina A&T and North Carolina Central University, reported the highest percentage of minority enrollment, 80%, 95% and 90% respectively. The lowest pre-licensure minority population was estimated by Western Carolina University at only 2%. Next, Institutional Profiles, from 2007, for each university were reviewed to determine the percentage of minority students reported for the entire undergraduate population. Estimations from nursing departments, at the program level, were closely matched with the percentages found on the Institutional Profiles of each campus. In order to provide an approximation of the number of minority students which may be available for surveying, data from the North Carolina Board of Nursing (NCBON) website was accessed which identified how many students each nursing school was approved to admit. It should be noted that just because a school is approved for a certain number of students does not mean that they enroll the maximum number allowed. However, for the purposes of this estimation, the NCBON approved number was used. Taking the NCBON approved number of students and the percentage estimation by each nursing department, it was estimated that there were potentially 966 minority students who could respond to

the survey.

Using Cochran's (1977) formula, the following calculations reveal a minimum sample size of 384:

$$n_0 = \frac{(1.96)^2 * (0.5)(0.5)}{0.05^2} = 384$$

However, the estimated population for the current study is 2,605. Therefore, the above sample size exceeds 5% of the population and Cochran's (1977) correction formula will be used to calculate a more specific number (Bartlett, Kotrlik & Higgins, 2001).

$$n_1 = \frac{384}{(1 + 384/2605)} = 334$$

Using Cochran's (1977) correction formula reveals the need for a minimum sample of 334. Given the low return rates typically associated with surveys, it is recommended that oversampling be used to increase response rate. Salkind (1997) recommends oversampling through increasing the minimum sample size by 40-50%. Additionally, oversampling may also be used to achieve a sample that is large enough to make generalizations regarding data from small populations within the sample frame; for instance, minority students enrolled in baccalaureate nursing programs. Using the recommendations of Salkind (1997), the minimum sample size of 334 derived from Cochran's (1977) formula, will be increased by 40% to create a sample size of 468. After data were collected and analyzed, the aforementioned calculations were re-evaluated to see if estimations were accurate.

Measures/Instrumentation

In order to evaluate the impact of non-cognitive **Pre-Entry Attributes** (age, race, gender); **Pre-Entry Goals/Commitments** (commitment to completing program of study and commitment to the university); **External Commitments** (employment status, resident status, marital status); **Institutional Experiences-Academic** (class size, course delivery methods); **Institutional Experiences—Social** (interaction with minority faculty, interaction with minority staff, participation in on campus extracurricular activities), and Goal/Commitment variables on student intention, a survey instrument entitled the *Undergraduate Nursing Intention Survey* (UNIS), was designed using the Internet-based survey tool, Survey Monkey®. The survey instrument (Appendix A) consisted of the following factors which can be found in Tinto's (1993) model of institutional departure: **Pre-Entry Attributes, Pre-Entry Goals/Commitments, External Commitments, Institutional Experiences-Academic, Institutional Experiences –Social, and Goals/Commitments.**

Demographic data pertaining to **Pre-Entry Attributes** and **External Commitments** was collected by asking participants to provide their age, racial group and gender and to answer questions such as “How many children or family members are you responsible for?” “Are you employed on campus?” “On average, how many hours a week do you work?” For the purposes of the current study, the American Nurses' Association definition of a diverse nurse was used to create categories for racial identity. According to the ANA (1998) a diverse nurse is a non-White nurse from

one or more of the following classifications: Black, Asian/Pacific Islander, Hispanic, Native American or Alaskan Native. Survey respondents had the opportunity to select more than one category.

Information related to **Pre-Entry Goals/Commitments** as well as **Institutional Experiences (academic and social)** was obtained by embedding the 30-item Institutional Integration Scale (IIS) developed by Ernest Pascarella and Patrick Terenzini (1980) into the UNIS. This IIS consists of 30 Likert-type items which make up five subscales. Permission (Appendix B) to use the instrument was obtained from both authors (Pascarella, E., & Terenzini, P., personal communication, February 9, 2009). The original study conducted by Pascarella and Terenzini, which produced the 30-item, five scale instrument, was conducted in 1976 in an attempt to determine the predictive ability of academic and social integration based on elements of Tinto's conceptual model (Pascarella & Terenzini, 1980). Information regarding the number of items in each scale as well as the coefficient α for each scale follows: Scale 1: Peer Group Interactions (7) items, $\alpha = .84$, Scale 2: Interactions with Faculty (5) items, $\alpha = .83$, Scale III: Faculty Concern for Student Development and Teaching (5) items, $\alpha = .82$, Scale IV: Academic and Intellectual Development (7) items, $\alpha = .74$, Scale V: Institutional and Goal Commitments (6) items, $\alpha = .71$. Partial correlations of the scales with the dependent variable of freshman persistence were significant at $p < .01$ and intercorrelations between the five scales ranged from .01 to .33 (Pascarella & Terenzini, 1980). The 30-item instrument has been used in numerous research studies (Baker, Caison & Meade, 2007;

Bers & Smith, 1991; Mallette & Cabrera, 1991; Torres & Solberg, 2001) yielding similar validity and reliability results. Additional questions related to specific variables in the study were added to determine students' perception of class size, importance of course delivery methods, and importance of interactions with minority faculty and staff. Additionally, junior and senior level status were added as independent variables since the researcher was interested in when departure decisions may be made. As pointed out earlier, Tinto's model has been primarily used to study first year students. However, professional nursing programs typically accept students as juniors, therefore, the students' junior year is their first year in the nursing program. Factor analyses was conducted using the additional questions.

It was proposed that **Goals/Commitments** be measured twice within the UNIS by asking students to reflect on the questions as they pertain to program pre-entry and again, after having been in the program for 1-2 years, depending on junior or senior status. However, results of the factor analysis, discussed in Chapter 5, precluded measuring this construct twice. Through this use of the UNIS, students' intention to complete their program was assessed through measures of academic and social integration. According to Tinto (1993), academic and social integration continually impact a student's intentions and commitments. Through positive experiences, persistence is reinforced. Conversely, negative experiences only serve to weaken a student's intentions and commitments, particularly his or her commitment to the university. Therefore, negative academic and social experiences will increase the likelihood of leaving (Tinto, 1993).

While research using Tinto's model (1995) specifically for nursing programs is very limited, each category within the model is discussed below, along with previous research to support the inclusion of measures specific to each category. Discussion pertaining specifically to nursing is included when available.

Pre-Entry Attributes

The non-cognitive, pre-entry attributes associated with the present study are age, race and gender. The use of these variables in retention research is widespread (Arbona & Nora, 2007; Astin, 1993; Attinasi, 1989; Cabrera, Nora, Terenzini, Pascarella & Hagedorn, 1999; Grosset, 1991; Hu & St. John, 2001; Jefferys, 2007; Strauss & Volkwein, 2004) and may be categorized as *Background* or *Demographic variables*. In a study by Strauss and Volkwein (2004), seeking to uncover predictors of student commitment at two-year and four-year institutions, age was found to be a significant predictor of institutional commitment (significant at $p < 0.05$ level). The study, which consisted of first-year students at 28 two-year and 23 four-year institutions, also found that belonging to a minority group impacted institutional commitment (significant at $p < 0.01$), revealing that white students had higher levels of institutional commitment. According to Tinto (1975, 1993) and others (Allen & Nelson, 1989; Braxton & Mundy, 2002; Cabrera, Nora & Castañeda, 1993; Nora, & Cabrera, 1993) institutional commitment is a strong indicator of student retention.

The use of gender in studies related to student retention is also prevalent (Nora, Cabrera, Hagedorn, & Pascarella, 1996). According to Tinto (1993) "females generally

and certainly those from specific ethnic groups, are more likely than males to face external pressures that will impact their educational participation” (p. 77). In a study by Nora, Cabrera, Hagedorn and Pascarella (1996) entitled “*Differential impacts of academic and social experiences on college-related behavioral outcomes across different ethnic and gender groups at four-year institutions*” gender differences were found to play an important role in students’ institutional experiences, academic achievement and environmental pull factors, thereby influencing persistence. Results of the study revealed that “The importance of institutional related factors in predicting persistence for female students was reflected through the students' social integration (delta-p = .0446) and interactions with faculty (delta-p = .0333)” (p. 443). In other words, a positive delta-p for social integration and interactions with faculty reflects that these students were 4 percentage points and 3 percentage points respectively, more likely to persist. Prediction of persistence for male students was reflected through GPA (delta-p .1048); minority status (delta-p .1007), and social integration (delta-p .0610). Again, social integration revealed the highest delta-p for both genders. According to Cabrera (1994), the delta-p statistic indicates the change in the baseline probability of persistence attributable to a unit change in a given predictor.

Goals and Commitments

The study conducted by Strauss and Volkwein (2004) evaluated the role of pre-college characteristics (age, member of an underrepresented group and marriage); financial aid and attitudes; social integration and social growth as well as academic integration and academic growth, and their impact on institutional commitment. As defined in their study, institutional commitment refers to “the student’s overall impression of, sense of belonging to, satisfaction with, and choice to attend the institution again” (p. 209). The authors created a scale consisting of these four items to measure institutional commitment (DV) which resulted in an alpha of .86. The study found that classroom experiences, social activities and friendships are strong predictors of institutional commitment. A 1996 national study by Nora, Cabrera, Hagedorn, and Pascarella consisting of 3900 freshmen students contained one block of variables entitled “Background Characteristics.” According to the authors, these variables represented characteristics that the students brought with them upon entering the college or university, including students’ commitments to the institution and pre-college educational aspirations (goal commitment). Students’ commitment to the institution was measured through the use of a single item asking the importance of completing a college degree at their *current* institution using a Likert-type scale ranging from 1 (Not at All Important) to 4 (Very Important). Similarly, goal commitment was measured with a single item "How important is it for you to complete a college degree in your lifetime?" Again, a Likert-type scale was used with scores ranging from 1 (Not at all Important) to 5 (Very

Important). The model created by the authors was found to be a significant predictor of persistence (PCP 87.58% to 93.16%).

External Commitments

According to Tinto (1995), “participation in external communities does hinder persistence....because of the ways in which external obligations limit one’s ability to meet the demands of college,” (p. 63). Many researchers have validated the negative effects of the external environment posited in Tinto’s (1995) model. For example, Terenzini et al. (1993) (as cited in Braxton, 2000) found that “friends who did not attend college would complicate the transition by anchoring students to old networks of friends and patterns of behavior rather than allowing them to explore and learn about their new college environment” (p. 148). Additionally, according to Rendon, Jalomo and Nora (2000), female students who had to leave campus immediately after class, to care for family, were 83% more likely to withdraw.

While students may be faced with many external commitments, for the purposes of the present study, work, family obligations and resident status are included under the category of **External Commitments**. Resident status is included due to support found in the research which indicates that students who live at home or off campus may be impacted by external commitments more so than students who reside on campus (Tinto, 1995). Therefore, it was included to capture differences between those who reside on campus and those who do not.

Employment

The increased reliance on student employment to offset the costs of college, coupled with the increase in non-traditional students who have delayed their entrance to college, work full-time or part-time and may have dependents (Farrell, 2005; Ehrenburg & Sherman, 1987), supports the need to evaluate the effect of work obligations on retention. Using a 22 item Student Perception Appraisal-1 as a pre- and post-test instrument, Jefferys (2002) completed a prospective and retrospective nursing student survey. Variables within the survey instrument were based on the Bean and Metzner model of nontraditional student attrition and included environmental variables. Jefferys found that two-thirds of the nursing students were employed and that retrospectively, finances and family obligations were ranked as being highly restrictive in their ability to remain in the nursing program. Many nursing authors report that student employment responsibilities hinder successful academic outcomes (Merrill, 1998; Tucker-Allen & Long, 1999; Vecchione, 1995).

In 1984, Astin reported that students who worked many hours off-campus (more than 15) were less likely to persist. However, students who were employed on-campus (less than 15 hours), were more likely to be retained, concluding that the on-campus employment was associated with social integration, which resulted in the improved likelihood of retention. Kuh (1995) points out that working off campus may be beneficial in that it encourages students to budget and manage their time. This is supported through the research of Nora (1990) which reveals that working on-campus has

a differential positive effect over working off-campus. However, according to Horn and Berktold (1988), the more hours a student works the more likely they are to report problems with the number of courses they can take, scheduling issues, problems with library access and academic performance. Other researchers have also reported negative effects of employment including decreased academic persistence, less social and academic integration and longer time to complete degree (Pascarella & Terenzini, 2005; Choy, 2002; Bean & Metzner, 1985; Ehrenberg & Shreman, 1987). For minority students, the impact of employment may be more detrimental, as a 1996 study by Nora, Cabrera, Hagedorn, and Pascarella revealed that family and work obligations had the largest negative impact on persistence for minorities.

Family Obligations

The impact of family obligations on student persistence has been included in numerous research studies (Tucker-Allen & Long, 1999). According to Jefferys (2004), “it is presumed that family responsibilities are most applicable for commuter students as residential students do not have daily tasks and responsibilities within the family....residential students may be influenced adversely if their inability to participate in previously held responsibilities is perceived negatively” (p. 85). According to Levine and Cureton (1998), 83% of college students are part-time commuting adults struggling to incorporate academic commitments with their work and family obligations. Peter and Horne (2002) note that 27% of today’s college students are parents and that 13% are single parents.

Residential Status

According to Horn and Berktold (1998), more than 86% of today's college students are commuters. Jacoby (2000) defines a commuter student as "as all students who do not live in institution owned housing on campus" (p. 4), and she reveals that minorities make up the largest percentage of commuter students. Students status as a commuter or non-commuter student is important in terms of their ability to academically and socially integrate. According to Alford (1998) those students who do not reside on campus must make psychological shifts between their homes and their schools and, while they attempt to become involved in their campus community, family and work obligations often interfere (Jacoby, 2000).

Academic and social integration, hallmarks of Tinto's (1975, 1993) theory, rely on a student's ability to interact with the campus environment. Given the environmental pulls associated with today's ever-increasing nontraditional student body, academic and social integration may be difficult. However, in a 1997 article Tinto expresses the importance of the classroom for the academic and social integration of commuter students. He states "...for students who commute to college, especially those who have multiple obligations outside the college, the classroom may be the only place where students and faculty meet, where education in the formal sense is experienced. For those students, in particular, the classroom is the crossroads where the social and the academic meet" (p. 599). Braxton, Milem and Sullivan (2000) expanded on Tinto's theory and found that classroom experiences, in particular those that involve active learning, do

increase academic integration.

Institutional Experiences

According to Tinto (1993), positive institutional experiences will serve to increase a student's academic and social integration into the institution. Conversely, negative experiences will lessen the student's academic and social integration. As described by Benda (1991), students who have negative social experiences, such as less than positive faculty interactions, will experience a decrease in integration, a weakening of goals and institutional commitments and will, over the course of time, make a departure decision. Institutional experiences can take many forms. However, the present study examined class size, course delivery methods, student's interaction with minority faculty, interaction with minority staff and participation in on- campus extracurricular activities.

The use of large lecture classes is not an unfamiliar concept for universities, and according to Erickson and Strommer (1991) these environments are educationally flawed. In Pascarella and Terenzini's (2005) book *How college affects students*, they identify only ten studies from the 90s that examined the role of class size on academic learning. However, they conclude that if classroom learning is measured by course grade, then class size may have a negative impact on academic learning. It should be noted that additional studies have identified other positive effects of smaller classes including improved student retention (Ashar & Skenes, 1993; Lopus & Maxwell, 1995), instructor evaluations (Mateo & Fernandez, 1992) and institutional reputation (Ramaswamy, 1992). Using grades as an output and a large dataset with over 900,000 observations,

Kokkelenberg, Dillon and Christy (2008) tested the effects of class size at a medium-sized public research university. They found via logistic regression that class size did have a statistically significant impact on grades ($p < 0.0001$).

Many colleges and universities are struggling to keep pace with the ever changing technology landscape and students' desire for anytime/ anyplace education. Nursing is no exception. As nursing programs battle over scarce clinical resources, programs are looking at creative ways to provide students with the clinical skills they will require to practice as entry-level nurses. Programs incorporate the use of video conferencing, streaming video, Podcasting, YouTube, Second Life, and course delivery platforms such as Blackboard, Moodle and WebCT to deliver clinical and didactic content and to provide hands on experience to students at a time when traditional clinical sites are inundated with requests from colleges and universities for student placement opportunities. Use of this variable in the present study sought to identify whether the use of these technologies, in lieu of, or in conjunction with, traditional lecture, impacts the retention of minority baccalaureate nursing students.

According to Allen (2005), use of online course delivery formats only tends to hamper students' ability to academically and socially integrate. Allen states that "One of the primary ways that students gain information and readjust their expectations is by interacting with peers outside of the classroom" (p. 124). Moreover, Allen indicates that the use of online courses early in a students' college experience significantly decreases his/her opportunity for academic and social integration. Therefore, timing of

students' experience with online learning may also be of interest in their retention (2005).

Validity

In order to establish operational validity of the survey instrument, the study employed the use of exploratory factor analysis (EFA). EFA is a type of factor analysis used to explore relationships between observed variables. According to O'Sullivan, Rassel and Berner (2003) "factor analysis can be used to condense a large number of items into a smaller number of indices. The composite should have greater reliability and operational validity than the items taken separately" (p. 304). There are a few assumptions associated with the use of exploratory factor analysis: (1) all analyzed variables should be assessed on an interval or ordinal level, (2) respondents should contribute only one score on each observed variable and these sets of scores should represent a random sample, (3) the relationship between all observed variables should be linear, (4) each observed variable should be normally distributed, and (5) each pair of observed variables should display a bivariate normal distribution (SAS, 1994). In order to assess the appropriateness of the variables presented in the current study several statistical methods were used. Sampling adequacy was measured using the Kaiser-Meyer-Olkin (KMO) procedure. Output for the KMO statistic produced a statistic for each study variable as well as an overall KMO statistic. To ensure linearity, an ANOVA table for linearity was originally proposed. However, due to the non-normality of data that was collected additional, nonparametric procedures were employed including nonparametric t-tests, ANOVA and correlations using Spearman's R and Kendall's τb . Normal

distribution was also explored through the use of descriptive statistics which included skewness and kurtosis. Normal distribution was assumed if kurtosis is between the $+2/-2$ range. Bivariate normal distribution was assessed through tests for normality within SAS®. Due to preliminary analyses which indicated potential non-normality of data, the more stringent Kolomogorov-Smirnov test was also conducted to formally test for normality, in lieu of the proposed Chi Square Goodness of Fit and p-p plots were produced to assess linearity.

In order to summarize the characteristics of the sample, the factor analysis was applied to a correlation matrix of the variables (an R factor analysis). According to Hair, Anderson, Tatham and Black (1992), use of the R-type factor analysis will provide a “factor pattern demonstrating the underlying relationships of the variables” (p. 229). Bartlett’s test of sphericity can be used to determine the overall significance of all correlations within the correlation matrix.

Factor solutions were obtained using the common factor model which can be used when the researcher desires to identify latent constructs from original variables and has limited knowledge of the amount of error variance (Hair, et al., 1992). The current study extracted factors using an oblique solution. According to Hair, Anderson, Tatham and Black (1992), use of an oblique factor solution, while more complex than an orthogonal solution, is computed so that extracted factors are correlated. This type of solution “assumes that the original variables or characteristics are correlated to some extent; therefore, the underlying factors must be similarly correlated” (p. 228). Use of the

latent root criterion was used to determine how many factors will be extracted, using the eigenvalue, which represents the amount of variance accounted for by a particular factor. Use of this criterion suggests that any individual factor which accounts for the variance of a single factor should be extracted for interpretation. Use of the eigenvalue is most reliable when the number of variables is between 20-50 (Hair, et al., 1992).

Content validity, was established through the use of a panel of experts in nursing education who were used to determine if the survey tool measured the construct (non-cognitive variables) effectively. The use of a panel of experts to make this determination is supported through research (Lynn, 1986; Schilling, et al., 2007, Grant & Davis, 1997) and according to Rubio (2005) criteria for the selection of a panel of experts should be developed and may consider the amount of experience the expert has in the construct being measured as well as the number and quality of publications. It is also suggested (Grant & Davis, 1997) that the panel should consist not only of content experts but members of the target population. For the purposes of the current study, panel selection criteria for content experts consisted of the following: (1) a minimum of five years experience in nursing education at or above the baccalaureate level, (2) evidence of publications and (3) employment within the University of North Carolina System. Criteria for member of the target population consisted of a minimum of one year in a nursing education program at or above the baccalaureate level within the University of North Carolina System. Opinions vary regarding the size of the panel, with suggestions ranging from 2-20 (Grant & Davis, 1997). However, a minimum number of

six, three content experts and 3 lay experts, is considered acceptable (Rubio, 2005) and was used for the present study. Expert members and members of the target population were solicited via email addresses provided from each University and School of Nursing. Criteria for selection, expectations and time commitment were clearly defined within the email. Panel members were then chosen from a list of qualifying respondents.

Once assembled, the panel of experts used an assessment tool to indicate their perception of the representativeness and clarity of each item and the overall tool. This input was later quantified by calculating content validity indices (CVIs) for each item and for the overall assessment tool (Lynn, 1986; Waltz, Strickland, & Lenz, 2005). The content validity assessment tool was reflective of the recommendations made in Lynn's 1986 article in which she described an instrument using a 4-point ordinal rating scale, where 1 connotes an irrelevant item and 4 an extremely relevant item. Calculation of the CVI is derived from the proportion of items that receive a 3 or 4 by the panel (Waltz & Bausell, 1981). While the calculation of a CVI is a function of the number of panel members, according to Lynn (1986) an acceptable CVI should not fall below 0.78. Polit and Beck (2006) agree that when using 3 to 5 panel experts, a CVI of 0.78 is acceptable.

Lastly, a small pilot study was conducted as a final analysis the usability of the survey tool. According to O'Sullivan, Rassel and Berner (2003) "the pilot study involves conducting the entire study as planned on a small sample representing the

target population” (pg. 236). The pilot study was conducted using a small sample of baccalaureate nursing students (N=50) at a local university. Students enrolled in NUR 3030, Foundations of Professional Practice or NUR 3010, Introduction to Professional Nursing were asked to participate in the pilot study. Again, was estimated that approximately 50 students would be enrolled in the program and therefore available for contact during the summer of 2009. Students that agreed to participate were sent an email link to the survey tool and asked to complete the survey within ten days. Reminders were sent after five days to those who had not yet completed the survey. Students were provided a brief questionnaire to ascertain how long it took them to complete the survey, if they encountered any questions or language that they did not understand and if any of the concepts being measured were unclear to them. The use of lottery incentives were also be employed to improve response rates. Those students who responded were entered to win a gift certificate from a large local retail chain. While providing incentives for participation has demonstrated a modest increase in response rates, results are improved when these incentives are prepaid and sent via postal mail instead of email (Dillman, Smyth & Christian, 2009). Response rates may further be improved through the personalization of email contact with students. In a 2005 study by Heerwegh (as cited in Dillman, Smyth & Christian, 2009), the personalization of invitations to participate in a survey resulted in an 8 percentage point increase in response rates over unpersonalized invitations.

Reliability

In constructing a survey tool, reliability issues can arise from poorly defined or ambiguous terms as well as directions that are unclear. In order to ensure the reliability of the survey tool, an estimate of internal consistency (Cronbach's alpha) was performed to determine if items on the Undergraduate Nurse Intention Survey are interrelated. According to Gregory (2004), coefficient alpha is "an index of the internal consistency of the items...[and] their tendency to correlate positively with one another" (p. 86). Alpha coefficients were obtained on all subfactors from the exploratory factor analysis as well. Once complete, the closer alpha is to 1.0, the more reliable the measure. Negative alphas, according to Garson (nd) would be indicative of inconsistent coding or a mixture of items which measure different constructs. According to Nunnally and Bernstein (1994), while coefficients vary between 0.00 and 1.00, reliability coefficients of 0.70 are sufficient to support internal consistency.

Independent and Dependent Variables

The interval-level dependent variable for the current study is the intention of full-time, first-time, minority baccalaureate nursing students to complete their program of study. Independent variables will be classified as "Nominal," "Ordinal," "Ratio," or "Interval" and are presented in Table 1.

Data Collection Procedures

The researcher received permission from individual universities to conduct this study. Additionally, to comply with North Carolina State University policy and the

policies of the Institutional Review Board of North Carolina State University, an IRB package was submitted prior to engaging in any research activities. This package included a cover sheet, a preliminary questions sheet, a proposal narrative, and an informed consent form.

With IRB approval, Deans and Department Chairs of each nursing program included in this study were contacted and asked to provide the email addresses and race of all first time, full time pre-licensure students currently enrolled in a junior or senior level course in the nursing program. During the Fall 2009 semester, students were then sent a pre-contact letter (Appendix A) providing them with a general description of the study and requesting their participation. Approximately three days after the pre-contact letter is sent, participants were sent a link to the survey tool and asked to complete the survey. All data was collected electronically through a secure website using Survey Monkey[®]. Respondents were given three-weeks to complete the survey.

Response rates for online, web-based surveys may vary. According to Porter and Whitcomb (2003) the decline in survey response rates has led to the common practice of using survey data in which the response rate is less than 50%. While there are those researchers who suggest that better response rates are achieved with college students through the use of paper and pencil surveys (Handwerk, Carson & Blackwell, 2000; Matz, 1999; Underwood, Kim & Matier, 2000), others disagree (Antons, Dilla & Fultz, 1997). Clearly, there are advantages to using online surveys ranging from its low cost to its convenience. Given the potential size of the present study--11 schools of nursing,

with a combined North Carolina Board of Nursing student enrollment approval of 2,605 slots—it was anticipated that the response rate will be sufficient. While there is little agreement on what is an acceptable response rate (Hartman, Fuqua & Jenkins, 1985), in order to prevent non-response bias every effort should be made to achieve a minimum of an 80% response rate (O’Neill, 1995). Again, to improve response rates for the current study, including the pilot study, lottery incentives, personalization of invitations and email reminders were employed.

While the use of web-based survey instruments has many benefits, non-response bias, as with any type of survey, can be a problem. Rogelberg and Loung (1998) share that nonresponse bias occurs when “individuals responding to a survey differ from nonrespondents on variables relevant to the survey topic” (p. 61). The authors go on to report that reasons for nonresponse fall into one of four categories: inaccessibility, inability, carelessness and noncompliance. Additionally, the authors state that studies attempting to identify characteristics of nonresponders have found that attitudinal, personality and socioeconomic differences between responders and nonresponders do exist. Of the sociodemographic characteristics studies, educational level was found to be the biggest difference between responders and nonresponders. Nonresponders were identified as having lower educational levels (Vincent, 1964).

For the purposes of the current study, in order to reduce nonresponse bias, a number of techniques supported by research (Barriball & While, 1999; Dillman, Smyth & Christian, 2009; Miller & Smith, 1983; Porter & Whitcomb, 2003; Rogelberg & Loung,

1998) were employed: (1) individuals were notified via email before the survey was deployed that they will be receiving a survey; (2) incentives were offered for those completing and submitting their survey on time; (3) questions included on the UNIS were ordered so that questions of interest to the respondents will be first and demographic data requests were placed last on the UNIS; (4) the UNIS included an electronic cover page which informed participants of the importance of the survey and how they may benefit from study results; (5) the cover page indicated that the UNIS was being conducted by a student who is also a faculty member within the University of North Carolina system in the hope that this would project an official, if not respected image; and (6) automatic reminders to complete the survey were sent on days 7, 14 and 21 of the survey window. It is important to note that even when employing every effort to eliminate nonresponse bias, some nonresponse bias is inevitable (Rogelberg & Loung, 1998). For the purposes of the current study, a “double-dip” technique proposed by Miller and Smith (1983) was proposed which involved taking a random sample (10%-20%) of nonresponders and using telephone or personal interviews to evaluate data from the sample. However, due to IRB constraints, this technique was replaced by another proposed by Miller and Smith (1983) whereby survey responders are compared to the population, Miller and Smith (1983) indicate that sample data may then be compared and if similar, then results can be added and generalized to the sample and population.

To ensure confidentiality of survey respondents, each email message contained a brief confidentiality statement, and informed consent was implied through each

student's active, voluntary participation in the survey. Moreover, each page of the survey provided students the opportunity to withdraw from the survey. Through the interface of the Internet-based survey tool, each respondent was only be allowed to take the survey once and their responses were sent to a secure, unique email address.

Data Analysis Methods

At the end of the survey period all completed survey instruments were processed using the statistical software packages SPSS[®] or SAS[®], which allowed for statistical manipulation. The software allowed for the development of descriptive and inferential statistics as well as the examination of variables using more complex statistical procedures. Data analysis will be discussed as it relates to the following research questions:

Research Questions:

The purpose of research question 1 was to provide descriptive statistics for each minority group (Black, Asian/Pacific Islander, Hispanic, Native American, Alaskan Native) in order to determine differences in their levels of academic and social integration. Scores from each minority group are presented in table format so that comparisons between descriptive statistics (mean, median, and standard deviations) can be easily interpreted. Inferences among students based on age, race, gender and social and academic integration levels are drawn.

Research question 2 sought to identify significant mean differences in social and academic integration levels for different minority groups. This was accomplished

through the use of MANOVA (Multivariate Analysis of Variance). The MANOVA is designed to test the significance of group differences and is used when the researcher desires to include several dependent variables (Mertler & Vannatta, 2001). A summary is reported to reveal results from each multivariate test by indicating the test statistic used and its value. Additionally, the F ratio, degrees of freedom, p value and effect size for the main effect on each independent variable are reported, as well as main effect for interaction between independent variables.

Research question 3 was designed to explore the impact of minority status, academic and social integration, pre-entry attributes, and external commitments on a nursing students intention to complete their program of study. Results of the factor analysis, discussed in Chapter 4, led to the renaming of some categories of interest thereby slightly altering question 3 to read as follows “What impact do minority status, academic development, peer interaction, faculty interaction and age have on the intention of a nursing student to complete their program of study.” These category changes are discussed at length in Chapter 4. According to Macnee and McCabe (2008), when two variables are in some way connected, they are said to covary. That is, changes in one variable are linked to consistent changes in the other. To determine if minority status, academic and social integration, pre-entry goals/commitments and external commitments impact students’ intention decision, a correlation statistic or correlation coefficient was calculated. Since these variables were measured using a Likert-type scale, they were considered interval-level variables and therefore, a Pearson’s Product

Moment (Pearson's r) was calculated to reveal any relationships. However, due to the nonnormality of the data the nonparametric tests Kendall τ and Spearman R were actually employed to answer this question. Again due to nonnormality of data, the Pearson's Chi-square, originally proposed to calculate the significance of association between the independent variables and intention, was replaced with the nonparametric Mann-Whitney.

The purpose of Research Question 4 was to determine if significant variances exist in intention between nursing students based on minority status. Similarly, Research Question 5 sought to determine if significant variances exist in intention between nursing students based on junior or senior level. These two research questions were originally to be answered only through the use of multiple stepwise regression, however, data for the current research violated the assumptions for normality needed for the multiple regression originally proposed. Therefore, the study employed the use of a Zero-Inflated Poisson (ZIP) regression retaining the plan to continue with forward stepwise regression using the log-likelihood as a measure. Additionally, since R^2 does not exist for the ZIP regression, a pseudo R^2 was calculated based on the log-likelihood, therefore, maximizing the likelihood is equivalent to maximizing the pseudo R^2 . The (ZIP) regression and methods used to improve the models overall fit are further explained in Chapter 4.

Mertler and Vannatta (2001) share that step-wise regression is sometimes referred to as statistical multiple regression and is often used in exploratory studies. According to Hair, Anderson, Tatham and Black (1992) the step-wise method of regression allows the

researcher to enter independent variables into the discriminant function one at a time. Miles and Shevlin (2007) share that the goal of step-wise regression is to find the most parsimonious model. The authors state that “a parsimonious model is one that explains the most variance in the dependent variable containing the fewest number of independent variables” (p. 38). Step-wise regression is conducted in stages. In stage one, the independent variable that is best correlated with the dependent variable is included in the equation. Stage two involves adding the next most highly correlated variable, controlling for the first variable, into the equation and repeating these steps until the addition of an independent variable does not provide a statistically significant increase in R^2 or until the researcher has included all independent variables. Similarly, in the current study, order of variable inclusion was determined by which variable increased the log-likelihood the most. It is possible to conduct backwards stepwise regression which allows the researcher to start with all independent variables and remove them one at a time until a significant change in R^2 occurs (Garson, n.d.). Results will be presented through the use of a pseudo R^2 value (McFaddens R^2). The summary of the regression shows that no independent variables were transformed nor deleted. However, transformation of the dependent variable is discussed in Chapter 4. The overall regression results will be summarized in narrative form by reporting each step (log-likelihood, pseudo R^2 , level of significance for change). B weights, beta weights, bivariate correlation coefficients and partial correlation coefficients of the independent variables with the dependent variable will also be presented in table format.

To avoid issues with multicollinearity, a close examination of a correlation matrix for independent variables was conducted. According to Hair, Anderson, Tatham and Black (1992), the presence of highly correlated variables, typically .90 or greater, indicates significant collinearity. There are many techniques for preventing or adjusting for the presence of multicollinearity; for example, the sample size may be increased or the highly correlated variables may be combined into one (Garson, n.d.). Garson states that the presence of multicollinearity can lead to Type II errors, inflated R^2 and large standard errors. According to O'Sullivan, Rassel and Berner (2003), large standard errors indicate that sample estimates may be different and will not be close to the population parameter. Additionally, the authors describe a Type II error as failing to reject a false null hypothesis or accepting the null when it should be rejected.

The purpose of Research Question 6 was to determine the predictive value of pre-entry attributes (age, race, gender), pre-entry goals and commitments (commitment to complete and commitment to the university), and external commitments on the intention of minority baccalaureate nursing students to complete their program. Factor analysis resulted in new variable groupings and the elimination of questions originally designed to measure External Commitments, although external commitments were analyzed using descriptive statistics. Therefore, research question six was changed to read “ What is the predictive value of pre-entry attributes (age, race, gender), academic development, faculty interaction, peer interaction, hours worked and faculty concern, on the intention of minority baccalaureate nursing students to complete their program?” In order to

determine the predictive value of these variables on the interval-level variable of intention, the present study will employed the use of forward step-wise logistic regression, as explained above.

Chapter Four

Results

The purpose of this study was to examine the influence of select non-cognitive variables on the intention of minority baccalaureate nursing students, within the North Carolina University System, to complete a baccalaureate nursing program.

While this study was to include eleven university programs, prior to beginning the research process one nursing program was closed by the North Carolina Board of Nursing (NCBON). While attempting to obtain study approval from the ten remaining institutions, two of the universities, Winston-Salem State University and The University of North Carolina at Greensboro, declined to participate and are therefore not included in the study. The universities (N=8) in the study include East Carolina University, North Carolina A&T University, North Carolina Central University, the University of North Carolina at Chapel Hill, the University of North Carolina at Charlotte, the University of North Carolina at Pembroke, the University of North Carolina at Wilmington and Western Carolina University.

Due to data abnormalities which could not be predicted prior to data collection, minor changes in category labels and therefore research questions were needed. While these changes are discussed in Chapter 4, they are summarized in this paragraph to ensure ease of understanding. First, results of an exploratory factor analysis revealed the presence of 15 factors instead of the five which were hypothesized. After analyzing the factor analysis and the subsequent alpha values for each factor, questions originally designed to measure

External Commitment were eliminated from the factor analysis although they are analyzed in the study. Questions with extremely high or low cross loadings were eliminated. These changes resulted in a new 22-item scale and a second EFA was conducted revealing five factors. The results of the second EFA required that the categories be renamed so they were more reflective of the construct actually being measured. Therefore, Institutional Experiences (Academic) was deleted and replaced by two categories entitled Academic Development and Faculty Concern. Institutional Experiences-Social was also replaced by two categories; Peer Group Interaction and Faculty Interaction and the original category of Pre-Entry Goals and Commitments was found to be a better measure of intention therefore, this category was collapsed and questions included in the newly named category of Intention to Complete. Research questions were altered to reflect these changes.

Data for this study was gathered through the use of an online survey entitled the Undergraduate Nursing Intention Survey (UNIS). A copy of the original UNIS can be found in Appendix A. The UNIS was specifically designed for this research study and includes a 30-item Institutional Integration Scale (IIS) developed by Ernest Pascarella and Patrick Terenzini (1980). Permission to use the IIS was obtained by both authors (Appendix B). Approval to conduct this study was received from Institutional Review Boards at North Carolina State University (Appendix C). The process by which approval was gained from individual universities varied widely but included (1) completing the entire IRB process, (2) gaining approval from the Dean or Director of the individual nursing program (3) successful completion of a social/behavioral online research course or (4) a

combination of these processes. Correspondence between universities and IRB approvals may be found in Appendices D1-D9.

This chapter presents the results of descriptive and inferential analyses of multivariate data which was accomplished through the use of Predictive Analytics Software (PASW 17.0 for Windows (SPSS, 2009) and Statistical Analysis Software 9.2 (SAS) for Windows (SAS, 2008). Results of the content and construct validity analyses and pilot study for survey usability are discussed first, followed by data collection procedures, factor analysis, exploration of normality and study results.

Content Validity

Content validity was established through the use of a panel of experts. On May 14, 2009, an email (Appendix E) was sent to the Deans and Directors of the 10 universities initially included in this study requesting faculty volunteers to participate as members of a panel of experts to evaluate the UNIS. Qualifications for faculty participation were outlined as (1) a minimum of five years experience in nursing education at or above the baccalaureate level, (2) evidence of publications, and (3) employment within the University of North Carolina System. Use of these qualifications is supported by social work research (Lynn, 1986; McGartland, Rubio, Weger, Tebb, Lee & Rauch, 2003) on the determination and quantification of content validity. Additionally, Rubio (2005) also suggested the use of a “lay expert.” According to Rubio, lay experts are those for whom the measure is being developed. In selecting a lay expert panel member, Rubio suggests considering how long the individual has been a member of the population of interest as a selection criterion. For the

current study, a one-year membership criterion was established in order to ensure that the lay expert (student) would have sufficient time to have interacted with all facets of the university, the nursing program and faculty. Interested parties were asked to submit a current curriculum vitae. Six responses were received however, only five respondents submitted the requisite curriculum vitas. Each panel member (N=6) was sent a copy of the UNIS and a Content Validity Index instrument (Appendix F) derived from the works of Rubio (2005) and Lynn (1986).

Participants were asked to rate each survey item, using a Likert-type scale (1-4), on representativeness, clarity, simplicity, ambiguity, and comprehensiveness. Items were coded 4= Item is representative to 1 = item is not representative. While content validity is only measured using representativeness, the additional categories were included to provide feedback to the researcher on how well each survey item represented the provided operational/theoretical definition, how clear each item was worded, the presence of an ambiguous language and how comprehensive the entire measure was. Members were also asked to evaluate the entire survey for the presence of language which could be deemed offensive to subjects or data collectors. Space was provided for members to make additional comments if necessary. Panel members were provided a stamped, self-addressed envelope to return the Content Validity Index by July 15, 2009. Only five indices were returned.

Calculation of CVI was carried out using the method suggested by Rubio, et al., (2003) who suggested that when calculating the CVI, the number of experts who rated the item as either a three (needs minor revision) or four (representative) were counted and

divided by the total number of experts. To calculate the CVI for the entire instrument, an average for all items was computed. Items were revised, based on panel member feedback, if the CVI fell below 0.75 (N=1). The CVI for the remaining items ranged from 0.80 – 1.00 and the CVI for the entire instrument was 94.61. Results of the CVI may be found in Appendices G1-G2.

Results of Pilot Study

A pilot study was conducted for the current research in order to determine the usability of the UNIS. Navigational modifications were made to the UNIS for the purpose of the pilot study through placement of a link, at the end of the UNIS, which would direct students to the Instrument Usability Study and a separate link was placed at the end of the Instrument Usability Study which allowed students to provide their email address only if they wanted to be included in the drawing for a gift certificate. This separate email link was established to maintain student confidentiality by not linking student email addresses with survey responses.

The overall purpose of the pilot study was to determine the usability of the UNIS from the perspective of participants similar to those who would participate in the primary study. Given that the UNIS was to be administered in an online environment, a 13-question Instrument Usability survey was designed which included questions regarding the instruments online performance, aesthetics and usability. The term usability refers to an assurance that the online interaction has been built in accordance with the ways that individual users typically process information (Holzinger, 2005; Rosson & Carroll, 2002).

The Instrument Usability survey consisted of 13 Likert-type items coded as 5=strongly agree to 1=strongly disagree. Additionally, 2 open-ended questions were included to illicit additional feedback. A copy of the Instrument Usability survey may be found in Appendix H.

A convenience sample of 46 junior-level nursing students enrolled in their first semester of the generic prelicensure baccalaureate program at UNCP was used for the pilot study. On July 22, 2009, a copy of the precontact letter (Appendix I), as well as the consent for online survey, was sent to all 46 students via the email addresses provided by UNCP. The UNIS and the instrument usability survey were sent, via email, to the students on July 25, 2009 using SurveyMonkey®.

The Instrument Usability survey yielded a response rate of 56% (N=26). Two follow-up emails were sent to non-responders but yielded no additional responses. Results revealed that 100% of students responding found the instructions for the Undergraduate Nursing Intention Survey were clear and easily understood. Respondents were confident that their results would remain confidential, found the web-based survey easy to navigate, logically organized and free from any offensive language or terms. On average, time to complete the survey was calculated to be 11.92 minutes and 96.2% of respondents felt that this was a reasonable amount of time to spend completing the survey. Time to complete a survey has been identified as a factor which limits response rate (Dillman, 1978), therefore, it was important to be able to provide an estimated time for survey completion. Additional studies (Marcus, Bosnjak, Linder, Pilischenko & Schutz, 2007) have found that response rates are increased when time to complete the survey was between 10-20 minutes yielded

higher response rates (30.3%) than those surveys in which more time 30-60 minutes (18.6%) response rate.

Data Collection Procedures

The Undergraduate Nursing Intention survey was launched via SurveyMonkey on September 19, 2009. The survey was sent to 1519 student email accounts provided by the eight participating universities. Email reminders were sent on September 25th, October 2nd and again on October 8th, 2009. The survey yielded a 26.8% response rate (N=407) which, although low, is similar to response rates found in other surveys of nurses and nursing students (Bullock, 2002; Sechrist, 1999; Keimig & Brown, 2003; Riegel & Moser, 2009; Scherer, Jezewski, Graves, Wu, & Bu, 2006). To improve response rates, survey reminders incorporated techniques recommended by Dillman, Smyth and Christian (2009) such as (1) advising participants as to how survey results would be used to benefit them, (2) asking participants for their help, (3) providing tangible rewards, (4) providing social validation, (5) supporting group values and (6) informing students that their opportunity to respond was limited. A copy of all correspondence related to the initial launch of the UNIS may be found in Appendices J1-J5.

Prior to survey launch, consideration was given to surveying in a web-based environment. The Undergraduate Nursing Intention Survey did not contain any advanced programming options which could create transmission issues. A welcome screen was included prior to the actual survey. Visual layout and design was tested during the pilot study, as were clarity of directions and functionality of navigational buttons. Additionally,

participants were contacted in advance making them aware that a survey would be forthcoming (Dillman, Smyth & Christian, 2009).

To address the potential for non-response bias, a “double dip” technique was initially proposed which would have allowed the researcher to contact non-responders via telephone or mail. However, limitations imposed by Institutional Review Boards allowed only for the provision of student email address and institution. Therefore, using the proposed “double dip” technique was not possible. Instead, an alternative strategy, also suggested by Miller and Smith (1983) was employed to address non-response bias. According to the authors, comparing respondents to the population is an acceptable technique to determine if the respondents are typical of the population. If found to be similar, results of the current study could be generalized from respondents to the sample. However, if there are differences, results must be limited to the respondents. Using program and university specific data from the North Carolina University System, from the 2008 academic year, a Chi-Square test was conducted to see if the distribution of the sample respondents, (in terms of age, gender and ethnicity) matched the observed distribution from the eight universities from the 2008 data. For age (n=365) results ($p < 0.0001$) revealed that responders to the UNIS were different from the population. Similarly, for ethnicity (n=397), results ($p < 0.0001$) for show that survey respondents were also different from the population in terms of ethnicity. However, results for gender (n=377) results ($p > 0.05$) indicate that the survey respondents were similar to the population. Therefore, results of the current study may only be generalized in terms of gender. Additionally, on November 23, 2009, a six-question survey was sent to all non-

responders (N=1111), asking them to share their reason(s) for not participating in the Undergraduate Nursing Intention survey. The survey consisted of five “yes” or “no” questions and one open-ended question allow students to elaborate on their reasons for not participating. A copy of the survey and student comments may be found in Appendices K1-K2. Reminder surveys were sent on December 11th and 18th, 2009. A response rate of 10.9% (N=122) was obtained. Respondents could select more than one reason. Results revealed that the biggest factor for those not responding was a lack of time (90.1%). Not having an interest in the research topic was also cited (22.2%), as was feeling that the research did not apply to them because they were non-minority students (28.1%). Finally, 68% reported that they typically did not participate in online surveys. Given that institutional affiliation could be determined, a list of response rates by university, is provided in Table 4.1 which identifies the lowest response rates from the only two historically black colleges participating in the study and the university with the reported lowest number of minority nursing students.

Table 4.1
Response Rate by Institution

Institution	Frequency	Percent
East Carolina University	127	31.2%
North Carolina A&T University	15	3.7%
North Carolina Central University	25	6.1%
UNC Chapel Hill	87	21.4%
UNC Charlotte	35	8.6%
UNC Pembroke	53	13%
UNC Wilmington	46	11.3%
Western Carolina University	19	4.7%
	N=407	100%

Table 4.1 provides response rates by those institutions involved in the current study. East Carolina University provided the largest response rate (31%) for the current study, followed by UNC Chapel Hill and UNC Pembroke. The two historically black universities participating in the study had very poor response rates, 3.7% and 6.1% respectively. Western Carolina University, with the lowest estimated minority population of all participating universities, had a response rate of 4.7%.

Analysis of sample demographics (Table 4.2) revealed that there were 347 (92.04 %) females and 30 (7.96%) males. The American Association of Colleges of Nursing (2008) estimates that males accounted for only 9.7% of pre-licensure baccalaureate nursing students in the United States in the years 2006-2007. Thus, the number of male students in this sample is only slightly less than the national average (ME=2.99%)

Racial representation in the current sample was predominantly Caucasian (n=277,

70.48%). The largest minority group was African American (n=52, 13.23%), followed by Asian (n=25, 6.36%), Hispanic (n=22, 5.60%) and Native American (n=17, 4.33%).

The age of the survey respondents ranged from 19 to 50 years of age. The average age of respondents was 25.22 years (SD = 6.64) and the median age was 22. Age was missing for 30 respondents since the survey provided students to opt out of providing a response to this open-ended question.

Table 4.2
Description of the Sample (N=407)

	Frequency	Percent
Gender (N=377)		
Female	347	92.04
Male	30	7.96
Race (N=393)		
Caucasian	277	70.48
African American	52	13.23
Asian	25	6.36
Hispanic	22	5.60
Native American	17	4.33
Age (N=367)		
19-22	205	55.86
23-26	54	14.71
27-30	41	11.17
30+	67	18.26

Factor Analysis

Responses to the Undergraduate Nursing Intention Survey were subjected to an exploratory factor analysis to determine the presence of underlying structures for measures within the following five categories: (1) Pre-entry goals and commitments, (2) external

commitments, (3) institutional experiences-academic, (4) institutional experiences-social, and (5) intention to complete. Prior to conducting the factor analysis, sampling adequacy was measured using the Kaiser-Meyer-Olkin (KMO) Output for the KMO statistic produces a statistic for each variable as well as an overall KMO statistic. Overall KMO should be .60 or higher to proceed with factor analysis. Using data from the UNIS, the KMO statistic was .79 indicating sampling adequacy and indicating that continuing with the factor analysis was appropriate.

Principal components analysis was conducted using a Promax rotation, assuming that the identified factors would be correlated with one another. The analysis revealed the presence of 15 factors with eigenvalues greater than one, which explained 70.4% of the variation in the data. These 15 factors appeared to represent subfactors of the five initial factors that were hypothesized. In order to estimate the reliability of the UNIS, Cronbach's alpha reliability coefficients were calculated for the entire tool and for questions comprising each of the five categories under which the tool was designed. While the Cronbach alpha for the overall tool was high (.86), the initial groupings of questions resulted in low values for Cronbach's alpha, indicating that initial groupings of questions were not reliable measures of the five previously hypothesized factors. Results for the reliability of the original groupings are presented in Table 4.3.

Table 4.3

Cronbach's alpha for Initial Grouping

	Overall Instrument	Pre-Entry Goals and Commitments	External Commitments	Institutional Experiences-Academic	Institutional Experiences-Social	Intention
Cronbach's alpha	.860	.259	.422	.235	.555	.235

Based on these findings, new variable groupings were created using the results of the factor analysis. Survey questions with low factor loadings and high cross loadings were eliminated in order to improve the interpretation of the factor analysis and to increase the validity of the subsequent analysis. Questions, originally designed to measure External Commitment (6-13), were eliminated from the factor analysis since the questions were not scaled and therefore created inconsistencies in measurement. However, these questions are included in the research results as individual variables and are evaluated using descriptive statistics, along with other demographic questions. The resulting scale contained a total of 22 questions. The new grouping of survey questions that was created is more consistent with the data but still addressed the original research questions. A second factor analysis was conducted using the 22-item scale. This subsequent analysis revealed five factors with eigenvalues greater than 1 which explained 70.3% of the variation in the data. Additionally, applying the 5% criteria for proportion of variance, five factors were retained. Factor one had a proportion of variance of 31.6%. The second had a proportion of variance of 11.7%, the third 10.8%, the fourth 9.9% and the fifth 6.1%. Based on results of the factor analysis, a five factor structure was retained and categories were renamed to better reflect the

underlying constructs being measured.

The new category of **Academic Development**, originally Institutional Experiences-Academic, contained five Likert-type questions which grouped high together in the factor analysis. These questions focus on student satisfaction with their intellectual growth and development while attending their particular university and nursing program. **Faculty Concern**, once a part of Institutional Experiences-Academic, loaded high on their own factor and were subsequently removed from their original grouping and placed in an independent category.

Next, factor analysis results revealed that the original grouping of questions within Institutional Experiences-Social actually represented two social factors (1) **Peer Group Interaction** and (2) **Faculty Interaction**. This finding is supported by research which reveals that social integration is in fact a function of the quality of students' interactions with peer groups and faculty members (Tinto, 1975). Therefore, these two new groupings were created replacing Institutional Experiences-Social. Negative factor loadings only occurred within the category of Peer Group Interaction. Based on factor analysis results, the category of Pre-Entry Goals and Commitments was felt to be a better measure of intention to complete. This finding is not surprising given that research supports that students' institutional and goal commitment are contributing factors in their persistence or dropout behavior (Pascarella & Terrenzini, 1980). Additionally, Allen and Nora (1995) found that goal commitment was a multidimensional construct and a valid predictor of a student's intent to persist. Subsequently, this category was collapsed and questions from this

category were included in a newly named category of **Intention to Complete** which remains the dependent variable in this research study. Based on the results of the factor analysis and subsequent renaming of categories, the original research questions have changed slightly. These changes will be reflected in this chapter. Cronbach's alpha values were calculated to determine the reliability of these new groupings in terms of measuring the hypothesized factors and reliability was greatly improved (Table 4.4). Factor loadings and alpha reliabilities may be found in Table 4.5.

Table 4.4

Cronbach's alpha New Grouping

	Overall Instrument	Academic Development	Faculty Concern	Peer Interaction	Faculty Interaction	Intention to Complete
Cronbach's alpha	.883	.808	.908	.908	.862	.704

Table 4.5

Item Factor Loadings and Alpha Reliabilities

Item	Item Factor Loadings	Scale alpha
Category 1-Academic Development		0.808
I am satisfied with the extent of my intellectual development since enrolling in this nursing program.	.801	
My academic experience has had a positive influence on my intellectual growth and my overall interest in ideas.	.770	
I am satisfied with my academic experience at this university.	.751	
My interest in ideas and intellectual matters has increased since coming to this nursing program.	.685	
I have performed academically as well as I anticipated I would.	.563	
Category 2-Faculty Concern		.908
Few of the nursing faculty members I have had contact with are generally interested in students.	.907	
Few of the nursing faculty members I have had contact with are generally outstanding or superior teachers.	.920	
Few of the nursing faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.	.911	
Category 3- Peer Interaction		.908
Since enrolling in this nursing program, I have developed close friendships with other students.	-.861	
The student friendships I have developed in this nursing program have been personally satisfying.	-.910	
My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes and values.	-.914	
My interpersonal relationships with other students have had a positive influence on my intellectual growth and my overall interest in ideas.	-.869	
It has been difficult for me to meet and make friends with other students.	-.696	
Category 4-Faculty Interaction		.862
My nonclassroom interactions with nursing faculty have had a positive influence on my personal growth, values and attitudes.	.888	
My nonclassroom interactions with nursing faculty have had a positive influence on my intellectual growth and my overall interest in ideas.	.927	
My nonclassroom interactions with nursing faculty have had a positive influence on my career goals and aspirations.	.903	
Since enrolling in this nursing program, I have developed a close personal relationship with at least one nursing faculty member.	.711	
I am satisfied with the opportunities to meet and interact informally with faculty members.	.610	

Table 4.5 (continued)

Item	Item Factor Loadings	Scale alpha
Category 5-Intention to Complete		.704
I intend to obtain my baccalaureate degree in nursing (BSN)	.911	
Now that you are enrolled in the nursing program, how important is it to you to obtain your baccalaureate degree in nursing.	.885	
It is important for me to graduate from this nursing program.	.626	
Now that you are a nursing student at this university, how important is it that you complete your degree at this particular institution.	.574	

Exploration for Normality

Prior to conducting any of the proposed statistical analyses, data were explored for normality, as normality was a requirement for many of the analyses initially proposed for use in the current study. Intention, the dependent variable in the current study, is measured through a sum of scores on questions grouped to measure intention. This total intention score was explored for normality (Figure 4.1). The test statistic for skewness (-3.499) and kurtosis (15.295) indicate that the data is not normally distributed. To formally test for normality, in lieu of a Chi-Square Goodness of Fit tests, the more stringent Kolmogorov-Smirnov test was used to examine the hypothesis that the independent variable of intention follows a normal distribution. The Kolmogorov-Smirnov tests whether the observed distribution is not significantly different from the hypothesized distribution, taking into account the most deviant values of the criterion variable. For the current study, the resulting p-value of <math><0.0001</math> led to the rejection of the null hypothesis, that the data are normally distributed, in favor of the alternative hypothesis, the normality assumption is violated. Normalizing transformation of the intention variable was attempted using log transformation, square root transformation, and an inverse transformation, without success.

While the intention variable was not normally distributed, progression with a regression analysis was still possible since regression only assumes normality of residuals. However, after regressing the dependent variable of intention on the explanatory variables, a P-P plot of regression standardized residual confirmed that residuals were also not normally distributed (Figure 4.2). With assumptions of normality not met, nonparametric statistical analyses were conducted where appropriate.

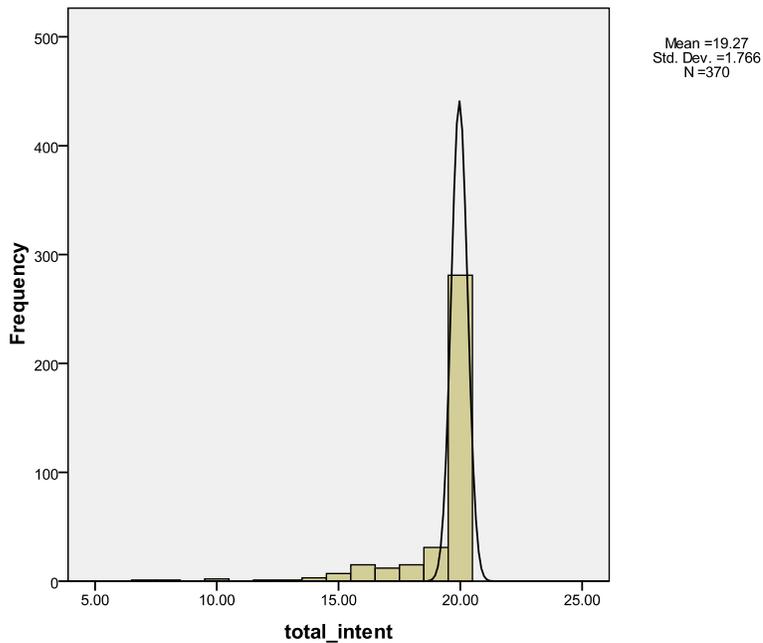


Figure 4.1 *Histogram of intention variable prior to transformation*

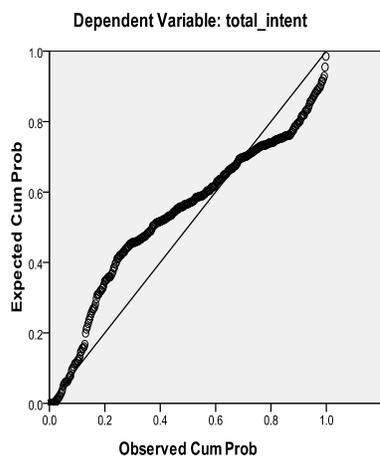


Figure 4.2 *P-P Plot of Regression Standardized Residuals*

Research Question 1:

Do descriptive statistics for each minority group (Black, Asian/Pacific Islander, Hispanic, Native American, American Indian) reveal significant differences in the levels of peer interaction, faculty interaction and academic development?

Using pairwise deletion, the sum of scores for each minority group for peer interaction ($total_peer_int$), faculty interaction ($total_fac_int$), and academic development ($total_ad$) were used to calculate a mean, median and standard deviation score for each scale. Pairwise deletion omits cases which do not have data on a variable used in the current calculation only. Table 4.6 shows descriptive statistics by group for each response variable. It would appear that Hispanic respondents ($N=20$) have the lowest average score (18.65) on academic development, followed by Asian respondents ($N=24$), while white respondents ($N=265$) have the highest (20.40) in this category. These same results are evident for Hispanic and Asian respondents in the peer interaction and faculty interaction categories.

Asian respondents have the lowest average scores (18.04, 26.54) on peer interaction and faculty interaction, respectively, followed by Hispanic respondents (19.29; 26.95). Average scores for peer interaction were highest for native American students (20.94), while faculty interaction scores were highest for white respondents (27.34). Standard deviations were high across the board indicating the presence of high variability in the data. A MANOVA was conducted to determine if these differences were indeed significant. Results of Box's M ($p > 0.05$) reveal that there is equality of variances across groups. When considered simultaneously, the mean scores for academic development, peer interaction, and faculty interaction are not significantly different between the different minority groups ($p = 0.353$). However, note that the total sample size ($n = 100$) is low, due to the low number of minority respondents. Lastly, when each dependent variable is considered individually, Levine's test reveals that variances are equal ($p > 0.05$) and test for between subject effects identifies that when each dependent variable is viewed individually, mean scores are not significantly different for academic development, peer interaction, or faculty interaction ($p = 0.320$; $p = 0.06$; $p = 0.732$). Therefore the researcher concludes that there is no significant difference in the levels of peer interaction, faculty interaction or academic development for each minority group.

Table 4.6
Descriptive Statistics by group for response variables

	Academic Development				Peer Interaction				Faculty Interaction			
	Mean	Med	SD	N	Mean	Med	SD	N	Mean	Med	SD	N
NA	19.75	20	2.96	16	20.94	20	3.30	16	27.06	27	2.43	16
Black	19.35	20	2.94	49	19.59	20	3.54	46	27.14	28	2.42	49
Asian	18.88	19	3.55	24	18.04	18	4.41	25	26.54	27.5	3.16	24
Hispanic	18.65	18	3.18	20	19.29	20	4.31	21	26.95	28	2.96	21
White	20.40	20	3.04	265	20.86	21	3.61	266	27.34	28	2.92	268
Minority	19.20	20	3.15	95	19.45	20	3.96	94	27.05	28	2.74	96

Research Question 2:

Do significant mean differences exist in academic development, peer group interaction and faculty interaction for different minority groups?

Prior to conducting the proposed MANOVA, normality assumptions were initially tested through the use of histograms for the categories of academic development, peer group interaction and faculty interaction. The resulting distributions were only slightly skewed. The MANOVA was conducted and residual diagnostics performed using scatter plots of residuals versus predictive values, which revealed a normal distribution. Due to low response rates from minority nursing students, determining mean differences for each minority group was not feasible. Therefore, minority respondents were combined into one group (White=0,1) and a comparison was completed for all minorities.

Interpretation of MANOVA results began with the evaluation of the Box's Test. Results of the Box's Test (Table 4.7) revealed that equal variances can be assumed

$F(6,181197)=1.203$, $p=.301$; therefore, Wilks' Lambda was used as the test statistic.

MANOVA results (Table 4.8) revealed that significant differences exist among minority students on the dependent variables (academic development, peer interaction and faculty interaction). Wilks' $\Lambda = .937$, $F(3, 354)=7.897$, $p<.001$). Additionally, the variation observed in minority status explains a significant proportion of the variation in all three dependent variables. Specifically, minority status explains 4% of the variation in academic development ($R^2 = .040$), 4.2% of the variation in peer group interaction ($R^2 .042$) and 1.3% of the variation in faculty interaction ($R^2 .013$). Therefore, the researcher concludes that significant mean differences do exist in academic development, peer group interaction and faculty interaction for minority students combined.

Table 4.7
Box's Test Results

Box's M	7.312
F	1.203
df1	6
df2	181197.638
Sig.	.301

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + White

Table 4.8
Multivariate Analysis of Variance Table

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	total_ad	160.684 ^a	1	160.684	15.736	.000
	total_peer_int	223.599 ^b	1	223.599	16.525	.000
	total_fac_int	49.878 ^c	1	49.878	5.550	.019
Intercept	total_ad	104497.131	1	104497.131	10233.753	.000
	total_peer_int	109514.236	1	109514.236	8093.484	.000
	total_fac_int	198575.911	1	198575.911	22095.972	.000
White	total_ad	160.684	1	160.684	15.736	.000
	total_peer_int	223.599	1	223.599	16.525	.000
	total_fac_int	49.878	1	49.878	5.550	.019
Error	total_ad	3635.126	356	10.211		
	total_peer_int	4817.093	356	13.531		
	total_fac_int	3199.363	356	8.987		
Total	total_ad	145878.000	358			
	total_peer_int	154794.000	358			
	total_fac_int	267264.000	358			
Corrected Total	total_ad	3795.810	357			
	total_peer_int	5040.693	357			
	total_fac_int	3249.240	357			

a. R Squared = .042 (Adjusted R Squared = .040)

b. R Squared = .044 (Adjusted R Squared = .042)

c. R Squared = .015 (Adjusted R Squared = .013)

Research Question 3:

What impact do minority status, academic development, peer interaction, faculty interaction and age have on the intention of a nursing student to complete their program of study?

Research question 3 was initially to be answered using Pearson's correlations coefficients. Assumptions for the Pearson's correlation are linearity, normality and homoscedasticity. Therefore, to determine if this test was appropriate for the current data set, scatterplots were created to display the relationship between the total intention score (*total_int*) and each quantitative independent variable. Results revealed the absence of a linear relationship between intention and any of the quantitative variables. In the absence of this linear relationship, other assumptions for Pearson's correlations were not tested and the nonparametric tests, Kendall *tau* and Spearman R, were employed to answer this question.

Kendall *tau* and Spearman R are nonparametric methods used to test relationships between variables. Kendall *tau*, while equivalent to Spearman R with regards to underlying assumptions, is different in underlying logic, computational formulas and interpretations (Hill & Lewicki, 2006).

Results of the Kendall's *tau-b* reveal that academic development ($r=.313$) peer group interaction ($r=.173$), faculty interaction ($r=.109$), faculty concern ($r=.128$), are significantly positively correlated with intention. Age, while negatively correlated was not statistically significant ($r=-.084$). Similarly, Spearman's *rho* also shows a significant positive correlation between intention and academic development ($rho=.376$), peer group interaction ($rho=.212$), faculty interaction ($rho=.131$) and faculty concern

($\rho=.155$) with slightly higher magnitude correlations. And, again, age ($\rho=-.102$, was found to be negatively correlated with intention, but the results were not significant. Results of the nonparametric correlations may be found in Tables 4.9 and 4.10. Based on the results of the Kendall's tau and Spearman's rho, it is concluded that academic development, peer interaction, faculty interaction and faculty concern do have an impact on students' intention to complete their program of study. To further elaborate, using Davis' (1971) descriptors, academic development demonstrates a moderate (.30-.49) degree of relationship with intention to complete, while peer interaction, faculty interaction and faculty concern have a low (.10-.29), but significant relationship with the dependent variable.

Table 4.9

Correlation matrix for intention and interval level and quantitative variables using Kendall's tau_b

	Total_intent	Total-ad	Total_peer_int	Total_fac_int	Total_fc	Age
Total_intent	1					
Total-ad	.313**	1				
Total_peer_int	.173**	.358**	1			
Total_fac_int	.109*	.338**	.270**	1		
Total_fc	.128**	.275**	.223**	.166**	1	
Age	-.084	-	-.173**	-.076	-.212**	1
		.177**				

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

Table 4.10

Correlation matrix for intention and interval level and quantitative variables using Spearman's R

	Total_intent	Total-ad	Total_peer_int	Total_fac_int	Total_fc	Age
Total_intent	1					
Total-ad	.376**	1				
Total_peer_int	.212**	.460**	1			
Total_fac_int	.131*	.429**	.345**	1		
Total_fc	.155**	.366**	.302**	.217**	1	
Age	-.102	-	-.234**	-.101	-.163**	1
		.239**				

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

Associations with Intention for Categorical Variables

The originally proposed Pearson's Chi-square was determined to be inappropriate for variables. Therefore, to test associations with intention for all categorical variables, a Mann-Whitney test was performed. The Mann-Whitney test is a nonparametric t-test for two categories which assumes that the variable under consideration is measured on at least an ordinal scale (Hill & Lewicki, 2006).

The Mann-Whitney test was carried out to test the association with intention on all categorical variables (gender, minority status, semester hours in which students were enrolled (<15 or >15), commuters and non-commuters, on campus and off campus residency, junior and senior status and employment on and off campus). The only significant association found was between intention and junior and senior status. When conducting the Mann-Whitney test between these two categorical variables, seniors were found to have a higher mean rank (195.96) on total intention than juniors (174.34) which was statistically significant ($z=-2.594$, $n_1=n_2=370$, $p<0.05$).

Next, a nonparametric ANOVA (Kruskal-Wallis) was conducted for questions with three or more unpaired samples. According to Hill and Lewicki (2006), the Kruskal-Wallis "tests the null hypothesis that the different samples in the comparison were drawn from the same distribution or from distributions with the same median" (p. 640).

Interpretation of results is similar to that of the one-way ANOVA with the exception that the Kruskal-Wallis is based on ranks instead of means and makes no assumptions regarding normality of data.

Students were asked to provide an estimation of the number of miles they commute, one way to attend nursing classes. The Kruskal-Wallis test was conducted to determine whether total intention scores varied as a function of the number of miles in which a student had to commute to attend classes. Results indicated that while students who lived farther away from campus had a higher mean rank (157.89) than students who lived closer to campus (148.42), the results were not statistically significant (χ^2 with 1 df=1.020, p=0.757). Students were also asked to provide information on how many children they provided care for. Options were collapsed to provide ranges and coded as 4= “no children,” 3 = “1-2 children,” 2 = “3-4 children,” 1= “5 or more children” and 0 = “prefer not to answer.” Results of the Kruskal-Wallis test indicated that individuals with more children had a higher mean rank (229) than those with fewer children. However, results were not statistically significant (χ^2 with 2 df=4.548, p>0.103). Similarly, students were asked how many parents, grandparents or other family members they provided care for. Options were collapsed and coded as above. Results revealed that students responsible for the care of five or more family members (N=2) had a higher mean rank but the difference was not statistically significant (χ^2 with 3 df=2.442, p>0.486). Lastly, students were asked to provide an estimate of the number of hours worked per week whether on or off campus. Again, options were collapsed and ranges provided with 1= “15 or more hours,” 2= “less than 15 hours,” and 3= “none.” While those who worked less than 15 hours a week or not at all, had higher mean ranks (176.71; 171.38) than those who worked over 15 hours a week (158.14), the results were not statistically significant

(χ^2 with 2 df=3.208, $p>0.201$).

Based on the results of the Mann-Whitney and Kruskal Wallis tests the researcher concludes that the only categorical variable significantly associated with intention is a student's status as a junior or senior ($z=-2.594$, $n_1=n_2=370$, $p<0.009$) with seniors demonstrating a higher mean rank and therefore higher intention score than junior students.

Research Question 4:

Does significant variance exist in intention between nursing students based on minority status?

Research Question 5:

Does significant variance exist in intention between nursing students based on junior or senior level?

Research Question 6:

What is the predictive value of pre-entry attributes (age, race, gender), academic development, faculty interaction, peer interaction, hours worked, and faculty concern on the intention of minority baccalaureate nursing students to complete their program?

Research questions four through six were answered using a Zero Inflated Poisson (ZIP) regression. Data for the current research violated the assumptions for normality needed for the multiple regression originally proposed. After the discovery of non-normality, a non-parametric approach in the form of a median regression, which relies on the use of Median Absolute Deviation (MAD), was considered. However, the variable of total intention (tot_int) was measured on a Likert-type scale labeled 1-5. Review of the data revealed that the majority of respondents had a total score of 20 for intention (tot_int) answering "5" for the four questions that constitute the total intention variable.

Given that the measure of variation for median regression is the median absolute deviation and because so many respondents had intention scores of 20, this measure would be zero, which was unacceptable for the use of median regression. Therefore, another alternative, in the form of a Zero-Inflated Poisson regression was explored.

Poisson regression provides a standard model for the analysis of count data. Yet, in real-life, count data are, at times, more variable than specified by the Poisson model and are considered to be over dispersed (Jansakul & Hinde, 2001). A Zero-Inflated Poisson (ZIP) regression, originally proposed by Diane Lambert (1992), is a regression model that accommodates real-life data characterized by over dispersion and excess zeros. The ZIP distribution may be described as a mixture of a Poisson distribution and a degenerate component with a point mass at zero (Carrivick, Lee, & Yau, 2002; Jansakul & Hinde, 2001; Lambert, 1992). While the current study had an excess of scores of 20, a simple transformation ($\text{new} = 20 - \text{intention}$) allows for a newly transformed lack of intention score by taking the maximum value of 20 and subtracting the original intention score. Consequently, all respondents who had an original intention score of 20 now have a newly transformed lack of intention score equal to zero which will indicate a perfect intention score. A histogram of the new variable (Figure 4.3) reveals that the new data is skewed to the right with data piled up around zero. The new intention data can be viewed as a Poisson random variable, since intention scores are counts that can range from 0-20, only having integer values.

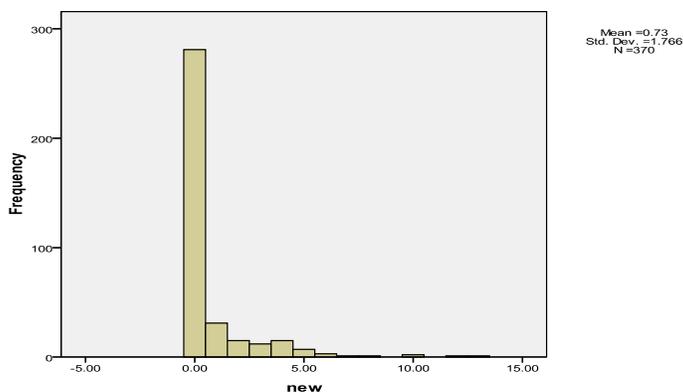


Figure 4.3 *Histogram of transformed intention score of zero*

According to Simkiss, Ebrahim and Waterston (2005), assumptions for the Poisson (θ) distribution include:

- Logarithm of lack of intention score changes linearly with equal increment increases in the explanatory variables or changes in lack of intention score from combined effects of all explanatory variables are multiplicative.
- Log odds of obtaining an intention score of zero changes linearly with equal increment increases in the explanatory variables, or equivalently, changes in odds of obtaining a zero intention score from combined effects of all explanatory variables are multiplicative.
- At each level of the covariates the number of cases has variance equal to the mean.
- Observations are independent.

Diagnostics were performed on the data to ensure that assumptions were met.

Diagnostics for the residuals revealed that skewness (2.38) and kurtosis (11.7) were still present, however, much improved from the original diagnostics. A p-p plot revealed that residuals were relatively normal and that the linearity assumption was satisfied. Finally, a histogram of residuals (Figure 4.4) revealed a distribution much closer to a normal distribution than originally obtained prior to data transformation.

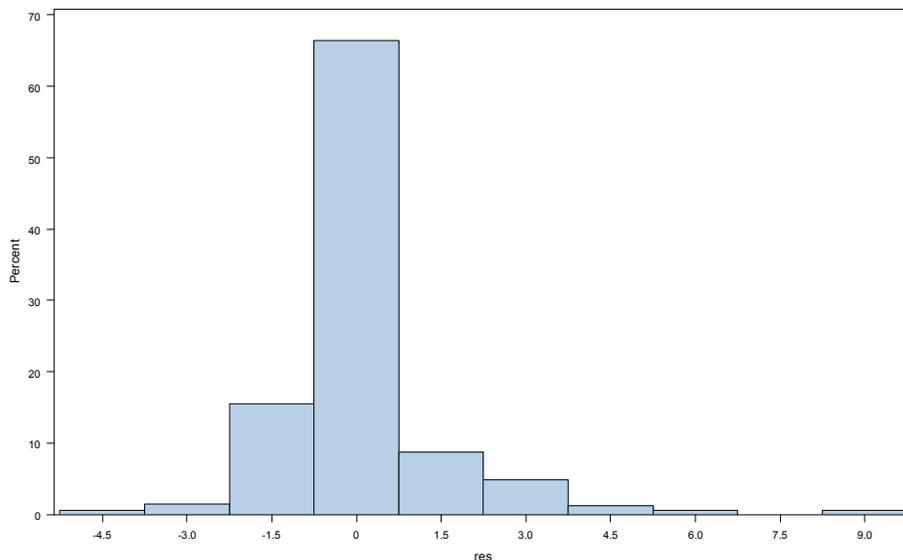


Figure 4.4 *Histogram of Residuals*

In order to predict the “new” intention score for this mixed distribution, a weighted average of the two models was taken. For the Poisson (θ) model (model 1) the expected value of the “new” intention score is defined as $Y_1 = \exp(XB)$. The “new” intention score for model 2 is derived from $Y_2 = 0$ modeling the probability of obtaining a zero score (p). Therefore, to combine these two models, an individual’s “new” lack of intention score is calculated as :

$$Y = \begin{cases} 0 & \text{with probability } p \\ \exp(XB) & \text{with probability } 1-p \end{cases}$$

In order to use the two models to predict an individuals’ “new” lack of intention score, again, a weighted average of the two models is taken where X =the matrix of predictor variables, B =the vector of the coefficient for the Poisson model, Z =the matrix

of predictor variables for the zero-inflated portion of the model and G =the vector of the coefficients for the zero-inflated portion of the model. Therefore:

$$XB = B_0 + B_1 * \text{Total_ad} + B_2 * \text{Total_peer_int} + B_3 * \text{total_fac_int} + B_4 * \text{total_fc} + B_5 * \text{White} + B_6 * \text{Female} + B_7 * \text{lessthan15} + B_8 * \text{senior} + B_9 * \text{Age}$$

and

$$ZG = G_0 + G_1 * \text{Total_ad} + G_2 * \text{Total_peer_int} + G_3 * \text{total_fac_int} + G_4 * \text{total_fc} + G_5 * \text{White} + G_6 * \text{Female} + G_7 * \text{lessthan15} + G_8 * \text{senior} + G_9 * \text{Age}$$

Prior to conducting step-wise regression, the full model, containing all variables, was evaluated to identify significant variables for inclusion in the final regression. Parameter estimates for each model were estimated for each independent variable in both models. For model 1, the parameter estimates for each independent variable is a reflection of the effect the independent variable has on the intention score, in general. If the parameter estimate was significantly different from zero ($p < 0.05$), then the variable was identified as having a significant association with intention. For model two, the parameter estimates were an indication of the independent variables effect on whether or not an individual was more likely to score zero. If the parameter was significantly different from zero ($p < 0.05$) then the variable was identified as having a significant association with an intention score of zero. Parameter estimates for both models (B and G) are shown in Table 4.11.

Table 4.11

Initial Parameter Estimates for Model 1(B) and 2(G)

	Parameter	DF	Estimate	Standard Error	t Value	Approx Pr > t
(B0)	Intecept	1	2.850900	0.864185	3.30	0.0010
(B1)	Total_ad	1	-0.095784	0.031213	-3.07	*0.0021
(B2)	Total_peer_int	1	-0.064403	0.019003	-3.39	*0.0007
(B3)	Total_fac_int	1	-0.013282	0.033482	-0.40	0.6916
(B4)	Total_fc	1	-0.089420	0.035876	-2.49	*0.0127
(B5)	White	1	0.817206	0.228145	3.58	*0.0003
(B6)	Female	1	0.695145	0.321220	2.16	**0.0305
(B7)	Lessthan15	1	-0.325931	0.163731	-1.99	**0.0465
(B8)	Senior	1	-0.178032	0.158242	-1.13	0.2606
(B9)	Age	1	0.041442	0.011486	3.61	*0.0003
(G0)	lnf-Intercept	1	-4.543349	2.017245	-2.25	0.0243
(G1)	lnf-total_ad	1	0.265880	0.066923	3.97	*<.0001
(G2)	lnf_total_peer_int	1	0.046689	0.046134	1.01	0.3115
(G3)	lnf_total_fac_int	1	-0.071342	0.066240	-1.08	0.2815
(G4)	lnf_total_fc	1	-0.036663	0.058894	-0.62	0.5336
(G5)	lnf_white	1	-0.184339	0.445492	-0.41	0.6790
(G6)	lnf_female	1	0.727865	0.710572	1.02	0.3057
(G7)	lnf_lessthan15	1	-0.400210	0.345390	-1.16	0.2466
(G8)	lnf_senior	1	0.420433	0.333129	1.26	0.2069
(G9)	lnf_age	1	0.040567	0.025709	1.58	0.1146

*p<0.01 **p<0.05

Parameter estimates for Model 1 correspond to the change in intention score on the log scale. In short, the estimate corresponds to how much the log(lack of intention score) will change for a unit increase in the independent variable. A positive estimate will increase the log(lack of intention score) where a negative estimate decreases the log(lack of intention score) when all other variables are held constant.

Results for Model 1 reveal that academic development ($\beta=-0.095$; $p<0.05$), peer interaction ($\beta=-0.064$; $p<0.001$), faculty concern ($\beta=-0.089$; $p<0.05$) and working less than 15 hours a week ($\beta=-0.325$; $p<0.05$) are significantly associated with a decrease in the “new” intention score which corresponds to an increase in the original intention score. Simply stated, these variables had a significant association with increased intention to complete. Initial parameter estimates for “senior” status ($\beta=-0.178$; $p>0.05$) indicate that

this variable was not strongly associated with a change in the “new” intention score.

Parameter estimates for Model 2 correspond with the change in log odds of obtaining an intention score of zero. A negative estimate will decrease the log odds while a positive estimate increases the log odds when all other variables are held constant. Log odds are defined as the log of $p/(1-p)$, where $p/(1-p)$ is referred to as the odds of scoring zero.

Results reveal that academic development ($p < 0.0001$) is strongly associated with an increase in log odds of receiving a “new” intention score of zero or a decrease in the log odds of scoring 20 on the original scale. Therefore, academic development is strongly associated with students’ intention to complete.

Additionally, a Goodness of Fit with Likelihood Ratio Test (LRT) was conducted which compares the null model (intercept only and no predictors) with the full model. The null hypothesis (H_0) is that the model with all predictors will fit just as well as the model with the intercept only. Results of the test ($LRT = 228.4; p < 0.05$) dictate rejecting the null (H_0) suggesting that the full model is significantly better than a model with no predictors. Parameter estimates (Table 4.12) for the model excluding senior status again reveal that academic development ($\beta = -0.097; p < 0.05$), peer interaction ($\beta = -0.067; p < 0.001$), faculty concern ($\beta = -0.092; p < 0.05$), and working less than 15 hours per week ($\beta = -0.353; p < 0.05$) are significantly associated with a decrease in the “new” intention score which corresponds to an increase in the original intention score.

Table 4.12

*Final Parameter Estimates Model 1 (B) and 2(G)
Without Senior Status*

	Parameter	DF	Estimate	Standard Error	t Value	Approx Pr > t
(B0)	Intecept	1	2.774019	0.858830	3.23	0.0012
(B1)	Total_ad	1	-0.097203	0.030933	-3.14	*0.0017
(B2)	Total_peer_int	1	-0.067105	0.019125	-3.51	*0.0005
(B3)	Total_fac_int	1	-0.008882	0.033143	-0.27	0.7887
(B4)	Total_fc	1	-0.092706	0.035292	-2.63	*0.0086
(B5)	White	1	0.830820	0.226742	3.66	*0.0002
(B6)	Female	1	0.724972	0.317369	2.28	**0.0224
(B7)	Lessthan15	1	-0.353093	0.163053	-2.17	**0.0303
(B9)	Age	1	0.040287	0.011346	3.55	*0.0004
(G0)	Inf-Intercept	1	-4.493072	2.022078	-2.22	**0.0263
(G1)	Inf-total_ad	1	0.272389	0.067017	4.06	*<.0001
(G2)	Inf_total_peer_int	1	0.050456	0.045504	1.11	0.2675
(G3)	Inf_total fac_int	1	-0.072354	0.066533	-1.09	0.2768
(G4)	Inf_total_fc	1	-0.046730	0.058904	-0.79	0.4276
(G5)	Inf_white	1	-0.117724	0.445204	-0.26	0.7915
(G6)	Inf_female	1	0.660203	0.706021	0.94	0.3497
(G7)	Inf_lessthan15	1	-0.336579	0.339373	-0.99	0.3213
(G9)	Inf_age	1	0.042525	0.025642	1.66	0.0972

Results for step-wise regression

Step-wise regression was then conducted moving forward with no predictors using the log-likelihood as a measure. Order of variable inclusion was determine by which variable increased the log-likelihood the most. While R^2 does not exist for the ZIP, a pseudo- R^2 value (McFadden's R^2) may be calculated based on the log-likelihood, therefore, maximizing the likelihood is equivalent to maximizing the pseudo R^2 . The final model (Table 4.13) includes all predictors except "senior" status (B8 and G8) since the p-value for "senior" status ($p=0.26$) was not significant. McFadden's R^2 for the final model ($R^2 = 0.290$) indicated that the model explained 29% of the variation in intention scores.

Table 4.13

Final Model using Forward Stepwise Logistic Regression

Step	Variable	Log likelihood	McFadden's R2	Increase in R2	P-value
0	intercept	-394.396			
1	ad	-348.168	0.117	0.117	0
2	age	-321.833	0.184	0.067	3.92e-13
3	Fac int	-311.235	0.211	0.027	4.18e-6
4	Lessthan15	-301.631	0.235	0.024	1.18e-5
5	fc	-295.134	0.252	0.017	0.000311
6	Peer int	-289.422	0.266	0.014	0.000727
7	White	-283.330	0.282	0.016	0.000483
8	Female	-280.196	0.290	0.008	0.0123

Research Question 4

Does significant variance exist in intention between nursing students based on minority status?

Results reveal that there are significant variances in intention between nursing students based on minority status. Non-minority (White) nursing students were significantly ($\beta = 0.83$; $p=0.0002$) more likely to have a higher “new” lack of intention score which corresponds with a lower original intention score than respondents who identified themselves as minority. To determine if these findings held true for students from predominantly white colleges, the regression model was refit with an additional term for university (“univ”) where $univ=0$ implies a historically white school and $univ=1$ implies a historically black school. An interaction term between type of university and minority status (“int”) was also added which tested whether the effect of minority status on (lack of) intention to complete was the same for the two types of universities.

Parameter estimates for this model can be seen in Table 4.14. The parameter estimates (-

0.083) for historically black schools ($univ=1$) indicate that while those attending historically black universities have higher intention, there is not an overall significant difference in intention scores from the two types of universities ($p=0.86$). From the interaction term (“int”) it is clear that white students from historically black universities have a log lack of intention score that is 0.964 higher than white students at historically white universities although the differences is not statistically significant ($p=0.10$). Therefore, the relationship between minority status and intention is the same for both historically black and historically white universities. However, the parameter estimate for whites at historically white universities ($univ=0$) is 0.76 indicating, again, that whites have a higher lack of intention (lower intention) than minorities at historically white universities. And the parameter estimates for whites at historically black universities ($univ=1$) is $0.769 + 0.964$ indicating again that whites have higher lack of intention (lower intention) than minorities at historically black schools.

Table 4.14

*Parameter Estimates Model 1 (B) and 2(G)
Regression Model Refit HBCU and PWI*

	Parameter	DF	Estimate	Standard Error	t Value	Approx Pr > t
(B0)	Intecept	1	2.938125	0.873198	3.36	0.0008
(B1)	Total_ad	1	-0.081130	0.032806	-2.47	**0.0134
(B2)	Total_peer_int	1	-0.073372	0.021544	-3.41	*0.0007
(B3)	Total_fac_int	1	-0.018287	0.034431	-0.53	0.5953
(B4)	Total_fc	1	-0.089999	0.036086	-2.49	**0.0126
(B5)	White	1	0.769131	0.249409	3.06	*0.0020
(B6)	Female	1	0.654966	0.321668	2.04	**0.0417
(B7)	Lessthan15	1	-0.385777	0.191744	-2.01	**0.0442
(B8)	Senior	1	-0.119940	0.162040	-0.74	0.4592
(B9)	Age	1	0.042194	0.011954	3.53	*0.0004
(B10)	Univ	1	-0.083499	0.491269	-0.17	0.8650
(B11)	Int	1	0.964291	0.595295	1.62	0.1053
(G0)	Inf-Intercept	1	-4.509542	2.034918	-2.22	**0.0267
(G1)	Inf-total_ad	1	0.286087	0.070439	4.06	*<.0001
(G2)	Inf_total_peer_int	1	0.039184	0.048090	0.81	0.4152
(G3)	Inf_total_fac_int	1	-0.078789	0.687823	-1.16	0.2454
(G4)	Inf_total_fc	1	-0.038445	0.059809	-0.64	0.5204
(G5)	Inf_white	1	-0.238696	0.509627	-0.47	0.6395
(G6)	Inf_female	1	0.667903	0.709313	0.94	0.3464
(G7)	Inf_lessthan15	1	-0.476545	0.370099	-1.29	0.1979
(G8)	Inf_senior	1	0.432884	0.339897	1.27	0.2028
(G9)	Inf_age	1	0.042180	0.026026	1.62	0.1051
(G10)	Inf_univ	1	0.007771	0.845630	0.01	0.9927
(G11)	Inf_int	1	1.378991	1.523642	0.91	0.3654

Research Question 5

Does significant variance exist in intention between nursing students based on junior or senior level?

Based on initial parameter estimates, after controlling for other independent variables, junior or senior status was not significantly associated with the intention score ($p=.26$). Additionally, junior or senior status was not found to be a significant contributor to the regression model and was not included in the final model. The original association that was seen for junior or senior status alone, without controlling for any of the other independent variables, was most likely a spurious association.

Research Question 6

What is the predictive value of pre-entry attributes (age, race, gender), academic development, faculty interaction, peer interaction, hours worked, and faculty concern on the intention of minority baccalaureate nursing students to complete their program?

Forward stepwise logistic regression was conducted using a log likelihood measure to determine which independent variables (age, race, gender, academic development, faculty interaction, peer interaction, hours worked and faculty concern) contributed significantly to the overall regression model. Logistic regression does not assume linearity of relationships between the independent and dependent variables. Furthermore, it does not require normally distributed variables nor does it assume homoscedasticity. However, it does require that observations be independent and that the independent variables be linearly related to the logit of the dependent variable. A goodness-of-fit test, such as the likelihood ratio test used in the current study, serves as indicators of model appropriateness. As described in Chapter 3, use of forward stepwise regression only enters independent variables that significantly contribute to the model. Variables are entered one at a time until the addition of further variables creates no significant amount of variance (Mertler & Vannatta, 2005). Order of variable insertion was determined by which variable increased the log likelihood the most. Use of a log likelihood measure, similar to the sum of squares values used in multiple regression, allows one to measure how well the model fits through the use of a likelihood value similar to the R^2 value for multiple regression. Model estimation fit is measured with the value of -2 times the log of the likelihood value, referred to as -2LL. A value of -2LL = 0

would correspond to a perfect fit. Therefore, the lower the -2LL value, the better the fit of the model (Hair, Anderson, Tatham & Black, 1987; Hair, Black, Babin & Anderson, 2010).

Linear regression also produces parameter estimates (regression coefficients) which represent the amount of change in the dependent variable (total_int), when y, the corresponding independent variable changed one unit. For the current study, final parameter estimates ($\beta=0.724$) for gender (Female) reveal for every one unit increase corresponds to the log of lack- of- intention score when we move from male to female indicating that a female has a log of lack-of-intention score that is 0.724 greater than a male. However, the log intention score for females is 0.724 lower than for males, holding all other independent variables constant ($p<0.05$). Final parameter estimates ($\beta=0.83$) indicate that for every one unit increase in race (going from minority to white) a 0.83 increase in the log of lack- of-intention will occur, holding all other independent variables constant ($p<0.001$). Indicating that the log intention score for non-minorities is 0.83 lower than for minorities. Lastly, parameter estimates ($\beta=0.04$) for age indicate that for every one unit increase in age, the log of lack- of -intention will increase by 0.04, holding all other independent variables constant ($p<0.0001$). Therefore, age, race and gender are predictors of an increase in the “new” lack of intention score which corresponds to a decrease in the original intention score, indicating that being an older, white, female corresponds to a decrease in intention.

Final negative parameter estimates for academic development ($\beta=-0.097$;

$p=0.001$), peer interaction ($\beta=-0.067;p<0.001$), faculty concern ($\beta=-0.092;p<0.05$) and hours worked ($\beta=-0.353;p<0.05$) are associated with a decrease in the “new” intention score, which corresponds with an increase in the original intention score thereby indicating that these factors have a positive impact on students intention to complete.

Through using students’ responses to the UNIS and calculating total scores for academic development, peer interaction, faculty interaction, faculty concern, as well as identifying student’s gender, race, age and hours worked, estimates may be used to predict an individual’s lack of intention score. An example of a study respondent is provided below. Converting the new lack of intention score to the original intention score is achieved by subtracting the “new” lack of intention score from 20, as shown below. Results in this example indicate that this student had a total intention (total_int) score of 16.56 out of 20.

$$XB = 2.85 + -.10 * 15 + -.06 * 16 + -.01 * 24 + -.09 * 7 + .82 * 1 + .70 * 1 + -.33 * 1 + -.18 * 0 + .04 * 25 = 1.71$$

$$ZG = -4.54 + .27 * 15 + .05 * 16 + -.07 * 24 + -.04 * 7 + -.18 * 1 + .73 * 1 - .40 * 1 + .42 * 0 + .04 * 25 = -.5$$

$$\text{“new” intention score} = (1-p) * Y_1 + p * Y_2$$

$$Y_1 = \exp(XB) = 5.529$$

$$P = \frac{\exp(ZG)}{1+\exp(ZG)} = \frac{.6065}{1+.6065} = .378$$

$$\text{“new”} = (1-.378) * 5.529 + .378 * 0 = 3.439$$

$$\text{Intention} = 20 - \text{new} = 16.56$$

In summary, results were analyzed using descriptive statistics as well as both parametric and non-parametric measures including multivariate analysis of variance, Spearman's Rho, Kendall's tau, one way analysis of variance, Mann-Whitney U tests and nonparametric Zero Inflated Poisson regression. With approval from the study Chair and Methodologist, nonparametric tests were conducted since data did not meet the assumption for normality required of most parametric tests. Chapter 5 will provide a summary of study results, a review of the findings from the statistical analysis of data, as well as conclusion and implications for future research.

Chapter Five

Conclusions and Recommendations

This section will provide a summary of the study, a review of the findings from the statistical analysis of data, and study conclusions. By providing a full overview of the study, implications for future research and practice may be drawn.

Summary

To draw conclusions from the present study, it is important to first revisit the initial problem, the research questions associated with this study, the literature review and the methods used to draw conclusions.

Nationally, the profession of nursing has long struggled with a lack of racial and ethnic diversity. The present study is significant because research shows that while 31% of the U.S. population describes itself as racially and ethnically diverse, 81.8% of registered nurses in the population are reported as Caucasian (US Department of Health and Human Services, 2004). And, despite an ongoing struggle to increase diversity in nursing education programs and within the nursing profession itself, the gap between minority and non-minority nursing presence remains. The lack of a racially and ethnically diverse nursing workforce is also significant given that minority populations are overrepresented when it comes to health-related issues (Gilchrist & Rector, 2007).

Research has identified a number of reasons why minority students may not choose nursing as a profession or why these students may be unsuccessful in their

endeavor to complete a nursing program. Recall that some of the reasons identified were racially hostile climates (Smith, 1986), inadequate student preparation for college (Mulder, 1991; Shom, 1991), lack of institutional commitment to diversity (Harris, 1990), lack of minority faculty (Wilson, Andrews & Leners, 2006), and an overreliance on GPA as an indicator of student potential (Jay & D'Augelli, 1991; Torres & Solberg, 2001).

The purpose of the current study was to identify non-cognitive factors related to the intention of minority baccalaureate nursing students to complete their program of study through survey of all first-time, full-time pre-licensure baccalaureate nursing students in the North Carolina University System.

Vincent Tinto's (1993) model of Institutional Departure provided the conceptual framework of the study. While not widely used in professional university programs (Coll & Stewart, 2008), the model has been used exhaustively to study student attrition. Other models with significant impact on this study included the Model of Undergraduate Dropout Process (Spady, 1971); Model of Work turnover to Student Retention (Bean, 1980, 1983); the General Causal Model (Pascarella , 1985) and the Psychological Model of Student Retention (Bean & Eaton, 2000). Fishbein and Ajzen's Theory of Reasoned Action (1975, 1980) and Ajzen's Theory of Planned Behavior (1988, 1991) provided theoretical support for the use of intention in the current study and aided in the development of the Undergraduate Nursing Intention Survey (UNIS) used in the study.

The UNIS consisted of questions derived from researching potential non-

cognitive factors association with student attrition. Additionally, the survey included the widely studied (Baker, Caison & Meade, 2007; Bers & Smith, 1991; Mallette & Cabrera, 1991; Torres & Solberg, 2001) 30-item Institutional Integration Scale (IIS) developed by Ernest Pascarella and Patrick Terenzini (1980) which is argued by some (Mulligan & Hennessey, 1990) to be a measure of intention. Review of the literature revealed that while the use of intention as a measure of student attrition is not new to the social sciences (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980; Ajzen, 1985; Bean, 1990; Tinto (1975, 1993) it is not widely used to study attrition in nursing programs. In fact, it was determined through the literature review that the majority of studies conducted on attrition in nursing programs focused on cognitive variables and was conducted in the community college setting. . Therefore, the present also seeks to find support for the use of select non-cognitive variables and intention in future endeavors to ameliorate minority retention efforts in nursing programs. It also serves to provide evidence that Tinto's (1993) model of Institutional Departure is suitable for use in professional programs within the university setting. Therefore, the specific aims of the study were to answer the following six questions:

1. Do descriptive statistics for each minority group (Black, Asian/Pacific Islander, Hispanic, Native American, American Indian) reveal significant differences in the levels of peer interaction, faculty interaction and academic development?
2. Do significant mean differences exist in academic development, peer group interaction and faculty interaction for different minority groups?
3. What impact do minority status, academic development, peer interaction, faculty interaction and age have on the intention of a nursing student to remain in their program of study?

4. Does significant variance exist in intention to complete between nursing students based on minority status?
5. Does significant variance exist in intention to complete between nursing students based on junior or senior level?
6. What is the predictive value of pre-entry attributes (age, race, gender), academic development, faculty interaction, peer interaction, hours worked, and faculty concern, on the intention of minority baccalaureate nursing students to complete their program?

Additional analyses were conducted to test associations with intention for a variety of categorical variables. Results of descriptive and inferential analyses of multivariate data will be presented in the following section.

Findings

Findings of the current study revealed interesting results. First, results of the factor analysis revealed the presence of 15 factors instead of the original five factors hypothesized. Although the alpha results for the entire UNIS were high, the initial groupings of questions had low alpha results which indicated that they were not reliable measures of the five hypothesized factors. Therefore, new variable groupings had to be constructed resulting in the elimination of several survey questions. A second factor analysis on the resulting 22-item scale yielded a 5-factor solution and categories were renamed to better reflect the constructs being measured.

Based on factor loadings it was evident that several questions within the original categories of Current Goals and Commitments and Pre-Entry Goals and Commitments were a better measure of the dependent variable, “intention to complete.”

The category “Intention to Complete,” originally composed of only two questions, ultimately contained four questions, three of which were similar in construction to those on Scale V: Institutional and Goal Commitments, on the Institutional Integration Scale (Pascarella & Terrenzini, 1980). Results of this grouping are not surprising. Tinto (1993) and others (Braxton, Hirschy, & McClendon, 2004; Braxton & Lee, 2005; Cabrera, Nora & Castandea, 1993; Pascarella & Terenzini, 1980) posit that students enter college with certain levels of commitment to both the university and to completing their degree and that these commitments directly impact the student’s intention to stay. Moreover, Bean (1980, 1982) through the use of regression analysis found that commitment was the most important intervening construct in determining persistence.

Descriptive statistics for the study revealed low minority participation. This may be accounted for, in part, by the limited participation of the historically black universities in the North Carolina University System. However, even those historically black institutions that did participate (NC A&T and NCCU) produced only 40 responses making up only 9.9% of the sample. Original estimations of minority enrollment, provided by the Deans and Directors of participating programs revealed a potential minority pool in excess of 900. The largest minority group responding to the survey was African Americans, followed by Asians, Hispanics and Native Americans. Total minority representation in the entire sample was extremely low at 29.52%, however, these findings support reports by AACN (2008) which reveal that minority students accounted for over 25% of enrollment in generic pre-licensure baccalaureate programs

in the United States in 2006-2007. The percentages of each subsequent minority group is also similar to data reported by AACN (2008) which details that African American students were the majority minority. Reasons for lack of minority participation are myriad. According to Jones (2005) differences in race, ethnicity and income have been linked with poor survey response rates. A study by Sharers, Lynch and Burmeister (2002) found that African Americans and whites differed in their willingness to participate in medical surveys primarily due to a lack of trust of the medical system by African Americans. Satia, Galanko and Rimer (2005) cite cognitive, socio-cultural and historical barriers to African American participation in research studies in addition to lack of cultural/ethnic identification with the investigator and again, a history of mistrust. While little information is available on other minority groups regarding survey response rates, mistrust has been cited as reasons for low minority participation in a number of health-related surveys and focus groups (Michigan State University, 2009; Blendon, et. al, 2007; Thom & Campbell, 1997). Moreover, the predominantly white campuses of UNC-Chapel Hill and East Carolina students were the largest contributors to the survey. Additionally, given that the UNIS was conducted within professional nursing programs within the North Carolina University system, one must also consider the amount of emphasis low responding programs place on the responsibility of professional nurses to engage in the research process and evidence based practice. According to the AACNs *Essentials of Baccalaureate Education* (2008), baccalaureate nursing education is charged with the responsibility of providing students a basic understanding of how

evidence is developed, including the research process and how to advocate for social justice. This would include a commitment to improving the health of vulnerable populations and the elimination of health disparities.

The average age of survey respondents (25.22 years) does not reflect the age of the current RN workforce. In its 2001 Report to the Chairman, Subcommittee on Health, Committee on Ways and Means, House of Representatives, the US General Accounting Office (GAO) reported that for the past two decades, the average age of the nursing workforce has steadily increased. In fact, in 1980, over one half of all RNs in the US were reported to be under the age of 40. Yet in the year 2000, less than one in three RNs were younger than 40. In support of the GAO report, Buerhaus, Straiger and Auerbach (2007) found that RNs over the age of 50 comprised the fastest growing segment of the RN population. These findings also support findings of several studies (Buerhaus, 1998; Buchan, 1999; Steinbrook, 2002) that found fewer and fewer young people entering the profession of nursing. According to the AACN whitepaper (2005) entitled *Faculty shortages in baccalaureate and graduate nursing programs: Scope of the problem and strategies for expanding the supply*, the average age of graduates from all nursing programs has been 30.9 years since 1995 and that students considered to be nontraditional, by virtue of their age, typically attend community colleges. The age difference could be accounted for by the absence of community college data in the current study. However, while the average age of respondents for the current study is slightly less than the 30.9 year average reported by the AACN, it is still not reflective of

the actual RN workforce. This could readily be explained by the high turnover of nurses, current economic times forcing RNs of retirement age to return to work and a large Baby-Boomer population of nurses. An equally plausible cause could be burn out of new nursing graduates, and overall dissatisfaction with nursing as a career which leads to a workforce whose age does not reflect that of those intending to complete or completing a nursing degree. In fact, research (Nelson, Godfrey & Purdy, 2004) has shown that 33% of new graduate nurses under the age of 30 plan to leave their position within the first year. Moreover, studies (Kells & Koerner, 2000; Beecroft, Kunzman & Kroceh, 2001) show that between 35-69% of new graduate nurses leave within their first year of employment.

Analysis of sample demographics also revealed that 347 (92.04%) females and 30 (7.96%) males responded to the UNIS. The American Association of Colleges of Nursing (2008) estimates that males accounted for only 9.7% of pre-licensure baccalaureate nursing students in the United States in 2006-2007. Thus, the number of male students in the current sample is only slightly less than the national average.

In the first research question, the sum of scores for each minority group was calculated for peer interaction, faculty interaction and academic development and used to calculate a mean score. Findings show that Hispanic and Asian respondents had the lowest mean scores on academic development, peer interaction and faculty interaction while Caucasian respondents had the highest mean scores on academic development and faculty interaction. Native American students had the highest average on peer interaction.

These findings should be interpreted cautiously due to the small sample sizes of each minority group. However, review of the literature revealed that minority students traditionally come to college under prepared for the science, reading and math requirements of college and of nursing programs, and that these students typically come from lower socioeconomic backgrounds which required that they work while attending school. Additionally, in support of a study by Altbach and Lomotey (1991), the prevailing view of minority students on predominantly white campuses is one of poor race relations, low social integration and self-segregation of students from different minority and ethnic groups. Couple this with the lack of minority faculty or minority mentors and the scores for each minority group are not surprising, but supportive of the literature.

Findings for question 2 were obtained through the use of MANOVA after verifying that data met the assumptions required for the test. Due to low response rates from minorities, mean differences for each minority could not be calculated. Instead, a comparison was completed for all minorities. Findings revealed that significant mean differences do exist in academic development, peer group interaction and faculty interaction for minority students. Specifically, minority status accounted for the largest variation in peer group interaction, followed by academic development. . These findings are supported by the literature which finds that positive institutional experiences, both academic and social, increase students' academic and social integration. These two constructs are inextricably tied together. So while minority status explained the largest

variation in academic development and peer group interaction, faculty interaction and other social constructs are correlated with academic development and peer group interaction and ultimately intention to stay. As described by Benda (1991), and others (Lundberg, 2007; Pascarella & Terenzini, 2005; Gardner, 2005; Watson, Terrell & Wright, 2002; Chung & Sedlacek, 1999; Cabrera, Nora & Castaneda, 1993; Hurtado, 1992; Fleming, 1984; Bean 1980, 1982; Tinto, 1975, 1993) students who have negative social experiences such as less than positive faculty interaction and poor campus climate will experience a decrease in integration, a weakening of goals and institutional commitments and over time will make a departure decision.

To answer question three regarding the impact of minority status, academic development, peer interaction, faculty interaction and age on student intention to complete their program of study, Kendall's tau *b* and Spearman's R were calculated. Results of Kendall's tau *b* indicated that while academic development, peer interaction, faculty interaction and faculty concern were all significantly, positively correlated with intention, age was negatively correlated with intention although results for age were not significant. Results were similar for Spearman's R although the magnitude of the correlations were higher. And, while not significant, the negative correlation found with age both contradicts and supports previous studies related to age and student completion. For example researchers (Campbell & Dickson, 1996; Pryjmachuk, Easton & Littlewood, 2009), found that older students were more likely to complete their does university nursing program and that age was a positive predictor of institutional commitment

(Strauss & Volkwein, 2004) which is linked to intention. However, according to others, age is a negative predictor of retention (Jacobs & King, 2002; Murtaugh, Burns & Schuster, 1999; Allen, Higgs & Holloway, 1988) who reveal that the older student typically attends part-time and may have competing external demands which lead to attrition.

Statistical analyses of categorical variables, which originally made up the construct of External Commitments, were conducted to identify their association with the dependent variable “intention.” A Mann-Whitney test was carried out on categorical variables with two categories. Variables included in the analyses included: gender (male or female), minority status (minority or white), junior or senior status, number of semester hours enrolled (<15 SHC or >15SHC), residency (on campus or off campus), commuters and non-commuters, employment (on-campus employment or off campus). Findings revealed that the only statistically significant association with intention was between junior and senior status, with seniors having a higher intention score than juniors.

Additional questions were analyzed using ANOVA (Kruskal-Wallis) to determine their association with the dependent variable “intention.” Questions included the number of miles a student had to commute, one-way to attend nursing classes, how many children students were expected to care for, how many parents, grandparents or other family members the student was responsible for caring for, and the number of hours worked per week, on or off campus. No significant association

was discovered among these variables.

The remaining research questions were answered through the use of a Zero Inflated Poisson (ZIP) regression which was chosen to accommodate the non-normality of the data set after transformation of variables failed to produce favorable results. Forward stepwise regression was conducted producing a final model which explained 29% of the variation in intention scores. Findings for question for indicate that there are significant variances in nursing students based on minority status. However, surprisingly, non-minority students were found to have significantly lower intention to complete than minority students. While this study was not designed to determine if, in fact, those with higher intention did complete their program, the question remains that if minority students have a higher intention to complete, why is minority attrition such an issue and why are minority nurses woefully underrepresented in the profession? Research exists which may provide some insight. Recall that Bean (1992) argued that student's intention to leave was the most powerful predictor of attrition. Research on family support networks could provide insight into why minority intention levels were higher than those of their nonminority counterparts. According to Walker (2002) while increased stress, decreased persistence and low self-esteem are prevalent among minorities attending PWI, those minority students with high levels of parental support were less likely to leave. Other authors (Pearson, 2001; Cosby, 1971; Harris, 1970) share that high aspirations and high achievement are the result of strong black families. Others (Kenney & Stryker, 1996) reveal that family support and

interaction are strongly correlated with social adjustment and institutional attachment, regardless of race. Additional research (Fox, 1986; Getzlaf, Sedlaceck, Kearney, & Blackwell, 1984; Tinto, 1975) reveals that academic achievement has a stronger impact on the commitment of minority students, demonstrating that for minority students, academic success was associated with high levels of university commitment.

Additionally, it should be noted that each university involved in this study may employ a variety of screening methods which could eliminate applicants at high risk for being unsuccessful.

The findings associated with question five actually negated earlier results regarding the impact of junior/senior status on intention. When studying junior/senior status without controlling for any other independent variables, a significant association was found indicating that seniors had higher intention to complete than did juniors. However, when the variables were studied, controlling for other independent variables, junior/senior status was not found to be a significantly associated with intention. However, while not significant in this particular study, it is noted that most studies on nursing student retention focus on aggregated data across semesters or after several years of a particular courses, failing to recognize that students reasons for leaving may vary across time (Mashaba, et al., 1995). Therefore, a shift in the approach to studying attrition through measuring intention longitudinally, may be of future benefit.

Forward, stepwise logistic regression, used to answer question six revealed that only age, race, gender, academic development, faculty interaction, peer interaction, hours

worked and faculty concern were significant predictors to the final model. This method also produced parameter estimates which represented the amount of change in the dependent variable (total_intention), when y, the corresponding independent variable changed one unit. Results revealed that holding all other independent variables constant, females had lower intention scores than their male counterparts, that minority students had higher intention than non-minorities, and that an increase in age was associated with a decrease in overall intention. Conversely, academic development, peer interaction, faculty concern and hours worked (less than 15 per week) had a positive impact on students intention to complete.

Results for findings related to gender and work hours are supported by findings from the retention literature. Specifically, that males have higher levels of institutional commitment and fewer external pressures that impact their educational preparation than females, specifically minority females (Tinto, 1993). Moreover, numerous studies support the negative effects of work hours on retention (Farrell, 2005; Ehrenburg & Sherman, 1987; Astin, 1984). Specifically, according to Astin (1984) students who were employed on campus less than 15 hours per week were more likely to be retained, particularly if they worked on campus, which enhanced social integration. While researchers argue the benefits of working either on or off campus, they do agree that students who work have less time for social integration and take longer to complete their program of study.

Finally, using total scores for academic development, peer interaction, faculty

interaction, faculty concern, while also identifying students' gender, race, age and hours worked, the study produced a formula to calculate student's intention scores which is explained in detail in Chapter 4. While being able to calculate a student's current intention score does not provide a definitive measure of retention, further research which includes resurveying study respondents to determine if they did in fact complete their program of study could make the development of a more definitive calculation possible.

Implications

The objectives of this study were to determine the impact of non-cognitive variables on the intention of minority baccalaureate nursing students to complete their program of study and to determine the predictive value of select non-cognitive variables on student intention. It was discovered that differences in intention do exist for minorities based on several of the non-cognitive study variables. The most surprising result was that minority respondents had higher levels of intention to complete than their non-minority counterparts. Additionally, the relationship between minority status and intention remained the same for both historically white and historically black universities. These findings are important in that they spark the need for additional inquiry. While intention and retention are not synonymous terms, researchers (Bean, 1982; Vorhees, 1987; Mulligan & Hennessey, 1990) suggest that a student's intention to leave is the most powerful predictor of attrition. Given that the current study found that minorities had higher levels of intention to complete their program, this implies that their rates of program completion would be high and that ultimately, there would be a rise in

the number of minority nursing graduates and therefore an increased presence of minority nurses in the profession, both of which are not the reality. Clearly, other factors are confounding the minority retention issue.

As uncovered by the current study, minorities demonstrated significant mean differences in academic development, peer group interaction and faculty interaction. These same variables, with the addition of faculty concern, were demonstrated to have a significant impact on students' intention to remain in their program of study, implying that university nursing programs should focus retention efforts in these areas.

Recommendations for retention efforts are presented below.

Recommendations

Recommendations for nursing programs are presented in the following order (1) Implement departmental-level programs for both pre-nursing and pre-licensure students which focus on strengthening skills needed to be successful in the nursing program, (2) Be proactive in the creation of financial aid opportunities such as grants and scholarships which will serve to decrease the need for minority students to work while enrolled, (3) Actively recruit minority faculty and staff to serve as mentors/role models and to create a diverse and welcoming climate for minority nursing students, (4) Allow for ample opportunity for students to interact with faculty outside of the classroom, (5) Encourage student's active participation in the group process and the development of close interpersonal relationships with peer group members, (6) Reevaluate admission criteria to determine if they place minority students at a disadvantage.

Recommendation one: *Implement departmental-level programs for both pre-nursing and pre-licensure students which focus on strengthening skills needed to be successful in the nursing program.*

At any given time, for any nursing program, the demand for program entry far outweighs the programs available slots. As students wait for the opportunity for admission to the program, valuable time is lost both for the student and for the program that is in need of qualified students with high potential to succeed. Students enter nursing programs woefully unprepared for its rigor, the amount of time required for studying, and the sacrifice that will be required to complete. Through the development of summer bridge programs or learning enhancement centers, faculty could spend time working with pre-nursing students (those who have not yet been admitted to the program) on essential skills such as time management, financial planning, basic math, and study skills, to name a few, preparing students for the rigor of the program and thereby increasing their chances for success. Student involvement in these programs serves dual purposes. First, the student gains much needed insight into the skills required to be successful but they also enhance their academic and social integration to both the program and the university at large. The students interact early with peers and faculty members and faculty members have an opportunity to evaluate the student's readiness for the program and even help the student to determine if he or she has made the right choice in major. As research has shown, most students drop out the first semester and indicate that they "made the wrong choice." Having knowledge of program, course and faculty expectations in advance of entering the program may improve retention rates once the student is enrolled.

Recommendation two: *Be proactive in the creation of financial aid opportunities such as grants and scholarships which will serve to decrease the need for minority students to work while enrolled.*

As revealed in the current study and supported by research, students who work in excess of 15 hours per week are more likely to be lost to attrition. This is particularly true in programs, such as nursing, when students are in clinical 2-3 days a week, 12 hours each day and then also attend classes for long stretches of time. This typically leaves only the weekend for those students who need to work. Unfortunately, the weekend is also prime time for studying and preparing for the following week. Research shows that the availability of financial aid is directly linked to persistence (Perna, 1998; St. John, Cabrera, Nora & Asker, 2002; Gansemer-Topf & Schuh, 2006; Glenn, 2007). Therefore, the availability of funds for those students who need to work, could lessen their burden, decrease stress, and increase their ability to use “free” time to study thereby improving academic performance. While all universities have financial aid departments, traditionally, the chair of the nursing department is much more knowledgeable regarding grant or scholarship opportunities specific for nursing students. Yet typically, student’s interaction at this level is limited, often intermittent and typically does not occur with any frequency until the student is actively enrolled. Communication between nursing programs, financial aid offices and potential nursing students needs to be enhanced so that students are keenly aware of these financial opportunities and provided with ample time to apply before they enter the program, thereby giving students time to create a financial plan for themselves and their families.

Recommendation three: *Actively recruit minority faculty and staff to serve as mentors/role models and to create a diverse and welcoming climate for minority nursing students.*

Perhaps one of the more lofty recommendations, recruitment of quality, minority faculty is clearly an imperative for nursing programs. According to Cabrera (1999), student's exposure to climates of prejudice and discrimination in the classroom and on campus had been cited as a major contributor to minority student withdrawal. Clearly, on predominantly white campuses the opportunity to interact with diverse peers is limited and contributes loneliness and social isolation and ultimately to the students inability to socially integrate. However, at a time when there is an overall shortage of nursing faculty, the number of minority nursing faculty is even more dismal and some would argue that the shortage of minority nursing faculty is due, in large part to a shortage of minority nursing students in the pipeline. Therefore, in order to adequately address the minority faculty shortage, the minority nursing shortage must first be addressed. Nursing programs with limited minority faculty are encouraged to develop partnerships with surrounding health care agencies in an effort to increase the availability of potential minority nursing mentors. Additionally, encouraging nursing in general to enter the teaching profession is difficult given that most registered nurses make more money working in a clinical setting than in education. However, in order for this to change, nurses must initiate a grassroots movement to elevate the importance of nursing education by qualified faculty. Otherwise, there will be no educators to educate future nurses and the overall nursing shortage will worsen, as is predicted.

Recommendation four: *Allow for ample opportunity for students to interact with faculty outside of the classroom.*

As this study highlighted, students value faculty interaction outside of the classroom and correlate this interaction with faculty concern. This supports the findings of Terenzini and Pascarella (1980) who found that students' informal contact with faculty was related to persistence. Reducing the reliance on adjunct faculty, increasing the amount of time that full-time faculty spend on campus and are thereby available for student interaction, planning end-of-semester activities for celebration and faculty/student interaction, brown-bag lunches, including at least one nurse-led course each semester for freshmen students, assigning freshmen students with an interest in nursing to a nursing faculty member as their primary advisor to enhance student exposure to nursing faculty, are all potential measures to increase informal student/faculty interaction.

Recommendation five: *Encourage student's active participation in the group process and the development of close interpersonal relationships with peer group members.*

The construct of peer interaction in the current study was measured through the use of five questions relating to interpersonal relationships with peers and the impact of those relationships on personal growth, attitudes and values. From the results of the current study it is clear to see that peer interaction has a very significant positive association with intention to complete and this is also supported by additional research on academic and social integration. Nursing programs are unique in that interaction with students outside of the nursing program is very limited due to the time constraints of the program. Being able to establish close personal relationships with peers provides a

measure of social integration and support that is often paramount in student success. Development of these relationships may be fostered through the development of student nursing associations, encouraging the formation of study groups, car pooling, new student orientations, family nights or myriad other opportunities for social interaction with peers which may be unique to each university nursing program.

Recommendation six: Reevaluate admission criteria to determine if they place minority students at a disadvantage.

The current study has highlighted the association between non-cognitive variables and students intention to complete. Other studies have linked non-cognitive variables, such as those in this study to retention. However, nursing programs continue to rely heavily on cognitive factors, such as GPA, for admissions decisions which place minority applicants at a disadvantage (Jay & D'Augelli 1991; Torres & Solberg, 2001). While potentially more time consuming than crunching numbers, it is recommend that nursing programs identify non-cognitive variables which could be equally reliable, if not more so reliable, indicators of a students potential success in a baccalaureate nursing program. Research clearly demonstrates that inadequate preparation for college (Mulder, 1991; Schom, 1991) and over reliance on standardized tests for admissions decisions (Sullivan Commission Report, 2004). Moreover, the admissions process varies from program to program with little if any evaluation of its effectiveness. The push for the use of non-cognitive predictors of student success is supported in the literature (Boyd, 1989; Wilds & Wilson, 1998) and though not specific to nursing, the Sullivan Commission

Report (2004) indicated that a combination of cognitive and non-cognitive predictors may be more advantageous for minority students.

Implications for Research and Practice

This study has addressed many of the criticisms of retention research found in the literature. First, as a multi-institutional study, this research has expanded our knowledge of retention which has predominantly been conducted on single institutions. Second, the researcher validated the use of Tinto's model in a professional university program. Next, the study provided a unique look into retention by focusing not just on minorities but on minority nursing students at the university level. A perspective that was lacking in the literature. Lastly, the study underscored the potential usefulness in using intention as a dependent variable for future research. Unfortunately, the study was not as broad as originally anticipated due to lack of minority participation however, some general ideas regarding individual minority groups did emerge but additional research is needed for more generalizable conclusions. The ability to study this same cohort of students after graduation may not be feasible. However, a retrospective, mixed methods study which would allow for interviewing those students who had high intention to complete but failed to complete their program of study could provide much insight and may uncover many additional program-level and external variables not included in this study. Moreover, being able to administer the UNIS to prelicensure students on their first day of class and the resurveying the students at set times throughout their program of study could also be beneficial in determining at what point in the program, their intention to complete changes.

This would again address the point made earlier that most retention studies are retrospective and also fail to address that students drop out of programs at various points in time and for a variety of reasons. Continuing this research longitudinally would provide an opportunity to determine a meaningful intention score which could be used at the program level as an early warning system allowing those making admissions decisions to intervene with students early in the admissions process or during the program of study. Students who are found to have low intention scores may be counseled to determine what could be done to improve their intention to complete. Moreover, faculty could measure the intention scores of students already enrolled to identify if changes in intention are noted and when changes in student intention are seen, programs could then evaluate the nursing program to see if correlations exist between fluctuations in student intention scores and possible changes which have taken place at the program level. Other possible research options include correlation of students' intention score with NCLEX-RN® pass-rates, employment rates, employer satisfaction, or even work turnover.

Nursing faces many obstacles. Shortages of qualified clinical nurses, nursing faculty shortages, an ever-increasingly complex health care environment, lack of minority representation, just to name a few. Clearly, these problems will not be solved overnight. However, the results of this study can provide a springboard for future research into the issues surrounding retention of minority baccalaureate nursing students. While, this study has answered several questions it has left one major question unanswered. If minority baccalaureate nursing students have higher intention to complete their program, why are

they so underrepresented in the nursing profession. It is the hope of this researcher that the UNIS and the resulting equation for determining student intention scores can be expanded further to create a more meaningful equation that will predict intention. The recommendations contained within this study, while meaningful, are admittedly lofty for some institutions, particularly given the current economic climate. However, even small modifications in the way nursing programs approach minority admission decisions and employ methods for ensuring student success could create significant differences in minority representation in our profession.

Table 4.15
Operationalization of variables

Construct	Variable	Scale Type	Scale	Sample Questions	Operationalization
Dependent variable	Intention to complete	Interval	Likert-type 5 points, 1 = strongly disagree, 5=strongly agree.	"I frequently think about dropping out of college."	Sum of scores indicates strength of intention to stay in program.
				"I intend to obtain my BSN."	
Independent variables	Pre-entry attributes	Interval		What is your age?	
		Categorical		With which racial group are you most strongly affiliated?	1=Caucasian, 0 = minority
		Categorical		Are you male or female?	0= Male 1 =Female
	Pre-entry goals and commitments	Interval	Likert-type 5 points, 1 = strongly disagree, 5=strongly agree.	How important is it to you to obtain a degree in nursing?	Sum of scores indicates importance.
		Interval		How important is it to you that you complete your degree at this particular institution?	
	External Communities	Interval		How many children are you responsible for? How many parents do you provide care for?	Sum of scores indicates number of dependents.
		Nominal		Are you employed on campus?	0 = No 1 = Yes
		Nominal		Are you employed off campus?	0 = No 1 = Yes
		Categorical	Multiple Choice	How many hours a week are you employed?	<15 hours per week >15 hours per week
		Nominal		Are you a commuter student?	0 = No 1 = Yes
	Institutional Experiences (academic)	Categorical	Multiple Choice	In your experience, how large are your nursing classes at this institution?	<20 students per class 21-40 students per class 41-60 students per class >60 students per class
		Interval	Multiple Choice	How many nursing courses have you taken online?	0 = None 1 = 1 2 = 2 3 = 3.....
	Institutional Experiences (social)	Interval	Likert-type 5 points, 1 = strongly disagree, 5=strongly agree.	"I am satisfied with my academic experience at this university."	Sum of scores indicates strength of satisfaction.
		Interval		"I am satisfied with the opportunities to interact with minority faculty on this campus."	Sum of scores equals satisfaction.
Interval		"I am more likely to attend a cultural event now than I was before coming to this university."		Sum of scores equals satisfaction.	

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APPENDIX

APPENDIX A

Undergraduate Nursing Intention Survey (UNIS)

Survey designed for current the current study and sent to potential respondents

Dear future nurses:

Thank you for taking this opportunity to complete the Undergraduate Nursing Intention Survey. After approval from your institution's Institutional Review Board, your email address was provided by your university and no other identifying information was released. Completion of the survey is entirely voluntary and at any time you may choose to exit the survey using the "Exit Survey" link located in the top right-hand corner of each survey page. Please be assured that your responses are entirely confidential and that any results to be reported will be aggregated to ensure confidentiality. The survey should take no more than 30-minutes to complete. At the end of the survey, to submit your responses, you must click the button labeled "done." Otherwise, your responses will be lost. Upon completion of this survey, you will be asked to provide your email address ONLY if you want to be entered into a random drawing to win a gift certificate at a local retail chain. To continue to ensure your confidentiality, the winner will be notified via email and the gift certificate will be sent via email.

1. Which university do you currently attend?
 - East Carolina University
 - North Carolina A&T University
 - North Carolina Central University
 - The University of North Carolina at Chapel Hill
 - The University of North Carolina at Charlotte

- The University of North Carolina at Pembroke
 - The University of North Carolina at Wilmington
 - Western Carolina University
2. Which statement best describes your current status in the nursing program?
 - I have completed less than 50% of my nursing program
 - I have completed more than 50% of my nursing program
 3. Please indicate how many semester hours of credit you are currently taking.
 - I am taking less than 15 semester hours credit
 - I am taking more than 15 semester hours credit
 4. When initially making your decision to apply to a nursing program, how important was it that you get accepted into the nursing program at this particular institution?
 - Extremely important
 - Very important
 - Important
 - Somewhat important
 - Not important
 - Don't know
 5. Prior to enrolling in this university, how important was it to you to obtain a baccalaureate degree in nursing?
 - Extremely important
 - Very important
 - Important
 - Somewhat important
 - Not important
 - Don't know
 6. Do you live on campus?
 - Yes
 - No
 - Would prefer not to answer
 7. Are you a commuter student? (A commuter student is defined as a student off campus and not residing in any type of university housing).
 - Yes
 - No

- Would prefer not to answer
8. If you are a commuter student, approximately how many miles (one way) do you commute to attend classes in this nursing program?
- 1-20 miles one way
 - 21-30 miles one way
 - 31-40 miles one way
 - More than 40 miles one way
 - Don't know
9. How many children do you care for?
- None
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6 or more
 - Would prefer not to answer
10. How many parents, grandparents, or other family members do you provide care for?
- None
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6 or more
 - Would prefer not to answer
11. Are you employed on campus?
- Yes
 - No
 - Would prefer not to answer
12. Are you employed off campus?
- Yes
 - No
 - Would prefer not to answer

13. If you are employed on campus, how many hours a week do you work?
- Less than 15 hours a week
 - More than 15 hours a week
 - I do not work
 - Would prefer not to answer
14. In your experience, how large are your nursing classes at this university?
- Less than 20 students per class
 - 21-40 students per class
 - 41-60 students per class
 - More than 60 students per class
 - Don't know
15. In this nursing program, how many nursing courses have you taken that were offered entirely online?
- None
 - 1
 - 2
 - 3
 - 4
 - 5 or more
 - Don't know
16. In this nursing program, how many courses have you taken that consisted of a combination of online and face-to-face meetings?
- None
 - 1
 - 2
 - 3
 - 4
 - 5 or more
 - Don't know
17. Since enrolling in this nursing program, I have developed class friendships with other students:
- Strongly agree
 - Agree
 - Neutral

- Disagree
- Strongly Disagree
- Would prefer not to answer

18. The student friendships I have developed in this nursing program have been personally satisfying:

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

19. My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes and values:

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

20. My interpersonal relationships with other students have had a positive influence on my intellectual growth and my overall interest in ideas.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

21. It has been difficult for me to meet and make friends with other students.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

22. Few of the students I know would be willing to listen to me and help me if I had a personal problem.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
23. Most students in this nursing program have values and attitudes different from my own.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
24. My non-classroom interactions with nursing faculty have had a positive influence on my personal growth, values and attitudes:
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
25. My non-classroom interactions with nursing faculty have had a positive influence on my intellectual growth and my overall interest in ideas.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
26. My non-classroom interactions with nursing faculty have had a positive influence on my career goals and aspirations.
- Strongly agree
 - Agree

- Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
27. Since enrolling in this nursing program, I have developed a close, personal relationship with at least one nursing faculty member.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
28. Since enrolling in this nursing program, I have developed a close, personal relationship with at least one faculty member, preceptor or mentor of my own race.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
29. I am satisfied with the opportunities to meet and interact informally with faculty members.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
30. Few of the nursing faculty members I have had contact with are generally interested in students.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer

31. Few of the nursing faculty members I have had contact with are generally outstanding or superior teachers.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
32. Few of the nursing faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
33. Most of the nursing faculty I have had contact with are interested in helping students grow in just more than academic areas.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
34. Most of the nursing faculty I have had contact with are genuinely interested in teaching.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
35. I am satisfied with the extent of my intellectual development since enrolling in this nursing program.
- Strongly agree
 - Agree

- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

36. My academic experience has had a positive influence on my intellectual growth and my overall interest in ideas.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

37. I am satisfied with my academic experiences at this university.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

38. Few of my nursing courses this year have been intellectually stimulating.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

39. My interest in ideas and intellectual matters has increased since coming to this nursing program.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

40. I participate in on campus activities such as clubs, athletics, theater, choir, fraternities, and/or sororities.
- Frequently
 - Sometimes
 - Never
 - Would prefer not to answer
41. I am more likely to attend a professional development event now than I was before coming to this nursing program.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
42. I have performed academically as well as I anticipated I would.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
43. It is important for me to graduate from this nursing program.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
44. I am confident that I made the right decision in choosing to attend this nursing program.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer

45. It is likely that I will register for classes at this university nursing program next year.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
46. Getting good grades is not important to me.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
47. Now that you are a nursing student at this particular university, how important is it to you that you complete your degree at this particular institution.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
48. Now that you are enrolled in the nursing program, how important is it to you to obtain your baccalaureate degree in nursing.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
 - Would prefer not to answer
49. I intend to obtain my baccalaureate degree in nursing (BSN).
- Strongly agree
 - Agree
 - Neutral

- Disagree
- Strongly Disagree
- Would prefer not to answer

50. I frequently think of dropping out of this nursing program.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Would prefer not to answer

51. What is your age?

52. What is your racial background (You may select more than one)

- Alaskan Native
- American Indian
- Asian/Pacific Islander
- Black
- Hispanic
- Native American
- White
- Would prefer not to answer

53. What is your gender?

- Male
- Female

APPENDIX B

Email Correspondence Ernest T. Pascarella and Patrick T. Terenzini

Thanks, Ern'.

And Dena: Feel free to use the scales. Our only request is that you acknowledge their source in anything you write.

Good luck with your dissertation, and thanks for your interest in our work.

Pat Terenzini

At 11:39 AM 2/9/2009, Pascarella, Ernest T wrote:

Dena: Pat may send you something more formal, but as far as I'm concerned feel free to use the scales in your work. Cordially, ernie

From: Dena A Evans [<mailto:dena.evans@uncp.edu>]
Sent: Monday, February 09, 2009 6:54 AM
To: Pascarella, Ernest T; terenzini@psu.edu
Subject: Requesting Permission to use scale
Importance: High

Good Morning:

I am a doctoral student at North Carolina State University in Raleigh, North Carolina studying student retention. I came across a 1980 paper entitled "Predicting freshman persistence and voluntary dropout decisions from a theoretical model," and would very much like to use the 30 item scale that you developed to operationalize the concepts of social and academic integration. Would you please allow me to do so? Thank you in advance for your consideration.

Dena Evans, MPH, BSN, RN, CNE
 Assistant Professor
 Department of Nursing
 The University of North Carolina at Pembroke

Patrick T. Terenzini

Distinguished Professor and Senior Scientist

Center for the Study of Higher Education
Pennsylvania State University
400 Rackley Building
University Park, PA 16802-3203
Voice: (814) 865-9755 Fax: (814) 865-3638

APPENDIX C

North Carolina State University Institutional Review Board Approval

From: Debra Paxton, IRB Administrator

North Carolina State University

Institutional Review Board

Date: June 17, 2009

Project Title: An Examination of the Influence of Select non-Cognitive Variables on the Intention of Minority Baccalaureate Nursing Students to Complete a Baccalaureate Nursing Program

IRB#: 967-09-6

Dear Ms. Evans:

The project listed above has been reviewed the NC State Institutional Review Board for the Use of Human Subjects in Research, and is approved for one year. **This protocol expires on June 8, 2010, and will need continuing review before that date.**

NOTE:

1. This board complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU the Assurance Number is: FWA00003429.
2. Any changes must be submitted and approved by the IRB prior to implementation.
3. If any unanticipated problems occur, they must be reported to the IRB office within 5 business days.
4. Your approval for this study lasts for one year from the review date. If your study extends beyond that time, including data analysis, you must obtain continuing review from the IRB.

Please forward a copy of this letter to your faculty sponsor. Thank you.

Sincerely,

Deb Paxton

APPENDIX D1

Correspondence Related to Approval to Conduct Study

North Carolina A&T

TO: Dena Evans**FROM:** Behavioral IRB**DATE:** 7/08/2009**RE: Study #:** 09-0098

Study Title: An examination of the influence of select non-cognitive variables on the intention of minority baccalaureate nursing students to complete a baccalaureate nursing program. You are approved to begin recruiting participants for the above named study. NC A&T is not considered to be engaged in research through this project. This means that NC A&T faculty, staff, and students may not recruit, consent participants, or be involved in any procedures related to this project. Please contact Dr. Patricia Chamings, Interim Dean, School of Nursing to gain approval and information for contacting nursing participants. Should you modify your protocol in any way, you must obtain your institution's IRB approval and submit the modified protocol, supporting documents, and IRB approval of the changes to NC A&T IRB. Thank you
Donna Eaton, Compliance Officer

IRB Informational Message—please do not use email REPLY to this address

APPENDIX D2

Correspondence Related to Approval to Conduct Study

Winston Salem State University

From: Allen, Brenda A. [allenba@wssu.edu]
Sent: Wednesday, July 22, 2009 3:14 PM
To: Dena A Evans
Cc: Berry,Carolynn; Mickle, London
Subject: RE: Followup to North Carolina State University Data Request

Dear Ms. Evans,

Sorry for the delay in responding. I was trying to ascertain what it would require for the University to give you the access that you are seeking. In the end, it seems that your request is out of line with University policies on public information. As such, I cannot support your request to survey our students.

Brenda Allen
Provost WSSU

APPENDIX D3

Correspondence Related to Approval to Conduct Study

The University of North Carolina at Chapel Hill

Dena,
BEC has approved your request to sample our students for your study. We would appreciate a copy of the revised survey before you begin data collection. Good luck!
Kathy Alden
alden@gmail.unc.edu

APPENDIX D4

Correspondence Related to Approval to Conduct Study

The University of North Carolina at Greensboro

Ms. Evans,

I have received several reviews thus far and have discussed with the dean. The recommendation is that we not allow this project at this time due to many circumstances. Those include, but are not limited to, the inability for us to provide email addresses to you, concerns/clarifications in the consent and IRB procedures, and the burden for students at the beginning of a new school year.

I wish you well in your endeavors.

Thank you,

Debra C. Wallace, PhD RN
Associate Dean for Research
Director of the Center for the Health of Vulnerable Populations
Daphne Doster Mastroianni Distinguished Professor
School of Nursing
UNC Greensboro
210 Moore Nursing Bldg, N. Extension Drive
Greensboro, NC 27403
O 336-256-0572
Fax 336-334-3628

APPENDIX D5

Correspondence Related to Approval to Conduct Study

The University of North Carolina at Wilmington

Hi Dena,

Just wanted to touch base with you and let you know that I heard from Institutional Research and they said normally they could provide this info but since they have been hit with two position cuts they are too short staffed at this time. I have a call in to the School of Nursing to ask them for this info for you. I'll get back to you ASAP!!

Thx,
Lee

Leanne Prete

Regulatory Compliance Officer
pretel@uncw.edu
910-962-7774

From: Prete, Leanne [pretel@uncw.edu]
Sent: Tuesday, June 23, 2009 2:01 PM
To: Dena A Evans
Subject: RE: IRB Request

Hi Dena,

The IRB chair was fine with this. When I get the paperwork back from her I will scan it and email it to you. At the same time I will give you the contact info for the email addresses.

Best,
Lee

Leanne Prete

Regulatory Compliance Officer
pretel@uncw.edu
910-962-7774

From: Dena A Evans [mailto:dena.evans@uncp.edu]
Sent: Tuesday, June 23, 2009 9:05 AM
To: Prete, Leanne
Subject: RE: IRB Request

Hi Lee:

I am attaching the survey questions. There are 2 surveys. The first one, the UNIS (Undergraduate Nursing Intention Survey) and then an email survey. Once the students submit the UNIS they are redirected to the email survey and asked to provide an email address ONLY if they want to be entered into the drawing for the gift card. I have emailed Dr. Paxton at NCSU regarding the SPARCS question because she has not mailed me that original form, only the approval letter so I will have to wait and see what she checked but I believe it was exempt. Thank you so much for your help.

Dena Evans, MPH, BSN, RN, CNE
Assistant Professor
Department of Nursing
The University of North Carolina at Pembroke

APPENDIX D6

Correspondence Related to Approval to Conduct Study

The University of North Carolina at Pembroke

Professor Evans,

The IRB has completed review of your protocol titled " An Examination of the Influence of Select non-Cognitive Variables on the Intention of Minority Baccalaureate Nursing Students to Complete a Baccalaureate Nursing Program" and it is APPROVED. You will, upon request, receive a signed copy of this email on campus letterhead for your records. This protocol is exempt from further review under 45 CFR 46.101(b)(2), since it involves only the use of standard survey procedures and no identifiers are being collected and maintained.

Please note that if significant changes are made to the protocol, you must submit these changes to the IRB prior to their implementation in your study, as they may change the status of your review. Also, if any unanticipated or adverse events occur during this research, please notify me immediately.

Also, note that your protocol # is 09-06-002. Please include this on your final consent forms and in future correspondence regarding this protocol.

If you have any further questions, please do not hesitate to contact me.

Sincerely,

Timothy C. Hayes, Ph.D.

Chair – Institutional Review Board

Assistant Professor

Department of Sociology and Criminal Justice

University of North Carolina at Pembroke

P.O. Box 1510

Pembroke, NC 28372

APPENDIX D7

Correspondence Related to Approval to Conduct Study

The University of North Carolina at Charlotte

Hello Dena. Here is the file you requested. Let me know if there is anything else.

LaShawnta Barker | Technology Support Analyst
UNC Charlotte | Office of Registrar
9201 University City Blvd. | Charlotte, NC 28223
Phone: 704-687-5491 | Fax: 704-687-3340
lbarke11@uncc.edu | <http://www.uncc.edu>

From: Dena A Evans [mailto:dena.evans@uncc.edu]

Sent: Tuesday, June 30, 2009 1:36 PM

To: Barker, LaShawnta

Subject: NCSU Email Request--Maria

Hi Ms. Barker:

Maria indicated that you would be assisting me with my request for the email addresses (no names) of first time, full time, junior and senior prelicensure nursing students. Can you tell me if you have all of the information that you need from me and when you may have a chance to send that data to me?

Dena Evans, MPH, BSN, RN, CNE

Assistant Professor

Department of Nursing

The University of North Carolina at Pembroke

APPENDIX D8

Correspondence Related to Approval to Conduct Study

East Carolina University

Hi Dena,

Kristy Merritt will be the best person to contact for this information. Her e-mail is merritk@ecu.edu. Please let me know if there is anything else I can assist with. Thanks for your patience.

Natalie

Natalie Blackwelder Smith

Assistant to the Acting Dean

College of Nursing

East Carolina University

(252) 744-6372 - office

(252) 744-6388 - fax

blackweldern@ecu.edu

From: Dena A Evans [mailto:dena.evans@uncp.edu]

Sent: Wednesday, June 24, 2009 8:51 AM

To: Smith, Natalie

Subject: RE: NCSU Data Request

Hi Natalie:

Based on my approved IRB proposal, this method would not work. I am required to send out the approved pre-contact letter (explaining the study), the online consent and the survey link. Also, the IRB approval specifies who will have access to the data and there are no university faculty approved with the exception of my chair and methodologist. Additionally, I have to track non-responders which would not be possible if I did not have access to the emails.

As I mentioned, there is no identifying data associated with the email (name, address, etc) only the email itself. If I have to complete the entire IRB process at ECU in order to include them in the study, I will just have to do it. Other universities have considered email as public information and simply provided it, others have accepted the NCSU approval since it is a sister institution and still others are having me complete a short form, attach the NCSU approval and then providing the email addresses. Thanks for emailing me and I look forward to hearing from you.

Dena, I shared your IRB work and consent with Dr. Hall today and he saw no problem with us participating by giving you the emails for students. We have several students who have repeated nursing classes so I will gather the emails of the students who would qualify for your study and get them to you. When do you need to send the emails to students? Lorene

Lorene Todd Putnam, EdD, RN, CNE

Junior-Level Coordinator

School of Nursing

Western Carolina University

APPENDIX D9

Correspondence Related to Approval to Conduct Study

North Carolina Central University

Wednesday, August 26, 2009

Dr. Li-An Yeh
Chairperson, Institutional Review Board
North Carolina Central University

Ms. Dena Evans
Principal Investigator

Dear Ms. Evans:

Thank you for submitting your protocol, entitled, "An Examination of the Influence of Select Non-Cognitive Variables on the Intention of Minority Baccalaureate Nursing Students to Complete a Baccalaureate Nursing Program." This letter confirms that your protocol is exempted from IRB review and cleared for implementation. Your IRB approval number is 1200893. If additional information is needed, please contact the IRB office at 919-530-6889. A hard copy of this letter will be held in the IRB office (2014 BRITE Building). We wish you the best in your endeavor.

Sincerely,

Li-An Yeh, Ph.D.
Chairperson

Cc: Dr. Kwesi Aggrey
Mr. Tyrone Eaton

APPENDIX E

Email sent to Deans and Directors to Solicit Participation as Member of Panel of Experts for Content Validity Analysis

From: Dena A Evans [mailto:dena.evans@uncp.edu]

Sent: Thursday, May 14, 2009 3:59 PM

To: Barbara Synowiez; brownsy@ecu.edu; hallv@wcu.edu; jboneese@uncc.edu; l_pearce@uncg.edu; lharris@ncsu.edu; lincron@email.unc.edu; pachamin@ncat.edu; pierces@uncw.edu; pmorgan@uncfsu.edu; reddickbk@wssu.edu

Subject: Panel of Experts Needed: NCSU Dissertation Dena Evans

Dear Deans and Directors:

First, thanks to each of you for providing me with the information I needed regarding the estimated percentage of minorities in your prelicensure programs. Just to remind you, my dissertation relates to non-cognitive variables impacting the intention of minority baccalaureate nursing students to complete their program of study. With your assistance, I have passed my proposal defense and I am beginning the process of ensuring the validity of my survey instrument. To do so, I will require a panel of experts to review the survey tool and provide me with feedback needed to calculate content validity indices.

As outlined in my proposal, qualifications for serving on this panel have been taken from research by Lynn (1986) and consist of (1) a minimum of five years experience in nursing education at or above the baccalaureate level, (2) evidence of publications, and (3) employment within the University of North Carolina System. If you or any of your faculty meet these qualifications and would be willing to evaluate a 53-item survey, would you please contact me at this email address. The three panel members will be selected from a list of qualified respondents.

Thank you for your continued support of this process.

Dena Evans, MPH, BSN, RN, CNE
Assistant Professor
Department of Nursing
The University of North Carolina at Pembroke

APPENDIX F

Undergraduate Nursing Intention Survey Content Validity Index

INSTRUCTIONS: This measure is designed to evaluate the content validity of the Undergraduate Nursing Intention Survey (UNIS). Operational definitions of the construct, as well as factors designed to measure the construct, are provided in your packet. A summary of the study is provided in your cover letter. Please rate each survey item as follows:

- Please rate the level of representativeness on a scale of 1-4, with 4 being the most representative. In other words, how well does the item represent the factor identified and ultimately, the construct of intention? Space is provided for you to comment on the item or to suggest revisions.
- Please indicate the level of clarity for each item, also on a four-point scale. Specifically, how clear do you think each item is? Again, please make comments in the space provided.
- Please indicate the simplicity of each item, also on a four-point scale. Again, please make comments in the space provided.
- Please rate the ambiguity of each item, also on a four-point scale determining if the respondent could interpret the question in more than one way. Please make comments in the space provided.
- Please evaluate the comprehensiveness of each item by indicating items that should be deleted or added.
- Lastly, evaluate the entire survey for the presence of language which may be offensive to subjects or data collectors. Thank you for participating in this process.

Item 1	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Demographic Data	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2

Which university do you currently attend?	Comments:				Comments:				Comments:				Comments:				Comments:			
Item 2	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness			
Demographic Data	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>			
In which year of the program are you currently enrolled?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2		
	Comments:				Comments:				Comments:				Comments:							
Item 3	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness			
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>			
Please indicate how many semester hours of credit you are currently taking.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2		
	Comments:				Comments:				Comments:				Comments:							

Item 4	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Pre-Entry Goals and Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
When initially making your decision to apply to a nursing program, how important was it that you get accepted in the nursing program at this particular institution?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 5	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Pre-Entry Goals and Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Prior to enrolling at this university, how important was it to you to obtain a baccalaureate degree in nursing?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 6	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Are you a commuter student?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	
Item 7	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
If you are a commuter student, approximately how many miles (one way) do you commute to attend classes in this nursing program?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	

Item 8	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Do you live on campus?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	
Item 9	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
How many children do you provide care for?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	

Item 10	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
How many parents, grandparents or other family members do you provide care for?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	
Item 11	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Are you employed on campus?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	

Item 12	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Are you employed off campus?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 13	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: External Commitments	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
If you are employed, how many hours a week do you work?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 14	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
In your experience, how large are the nursing classes at this university?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 15	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
In this nursing program, how many nursing courses have you taken that were offered entirely online?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 16	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
In this nursing program, how many courses have you taken that consisted of a combination of online and face-to-face meetings?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	
Item 17	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Since enrolling in this nursing program, I have developed close personal relationships with other students.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	

Item 18	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
The student friendships I have developed in this nursing program have been personally satisfying.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 19	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes and values.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 20	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 21	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
It has been difficult for me to meet and make friends with other students.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 22	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Few if the students I know would be willing to listen to me and help me if I had a personal problem.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 23	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Most students in this nursing program have values and attitudes different from my own.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 24	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
My non-classroom interactions with nursing faculty have had a positive influence on my personal growth, values and attitudes.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 25	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
My non-classroom interactions with nursing faculty have had a positive influence on my intellectual growth and interest in ideas.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 26	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
My non-classroom interactions with nursing faculty have had a positive influence on my career goals and aspirations.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 27	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Since enrolling in this nursing program, I have developed a close, personal relationship with at least one nursing faculty member.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 28	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Since enrolling in this nursing program, I have developed a close, personal relationship with at least one faculty member, preceptor or mentor of my own race.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 29	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I am satisfied with the opportunities to meet and interact informally with faculty members.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 30	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Few of the nursing faculty members I have had contact with are generally interested in students.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 31	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Few of the nursing faculty members I have had contact with are generally outstanding or superior teachers.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 32	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Few of the nursing faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 33	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Most of the nursing faculty I have had contact with are interested in helping students grow in more than	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

just academic areas.															
Item 34	Representativeness	Clarity	Simplicity	Ambiguity	Comprehensiveness										
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>	1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>	1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>	1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>	1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>										
Most of the nursing faculty I have had contact with are genuinely interested in teaching.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
	Comments:				Comments:				Comments:				Comments:		
Item 35	Representativeness	Clarity	Simplicity	Ambiguity	Comprehensiveness										
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>	1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>	1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>	1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>	1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>										
I am satisfied with the extent of my intellectual development since enrolling in this nursing program.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
	Comments:				Comments:				Comments:				Comments:		

Item 36	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
My academic experience has had a positive influence on my intellectual growth and interest in ideas.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 37	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I am satisfied with my academic experience at this university.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 38	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Few of my nursing courses this year have been intellectually stimulating.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 39	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
My interest in ideas and intellectual matters has increased since coming to this nursing program.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 40	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I participate in on campus activities such as clubs, fraternities and/or sororities.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 41	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Social)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I am more likely to attend a professional development event now than I was before coming to this nursing program.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 42	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Institutional Experiences (Academic)	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I have performed academically as well as I anticipated I would.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 43	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Current Goals/Commitment	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
It is important for me to graduate from <u>this</u> nursing program.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 44	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Current Goals/Commitment	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I am confident that I made the right decision in choosing to attend <u>this</u> nursing program.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	
Item 45	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Current Goals/Commitment	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
It is likely that I will register for classes in <u>this</u> university nursing program next semester.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	

Item 46	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Current Goals/Commitment	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Getting good grades is not important to me.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	
Item 47	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Current Goals/Commitment	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
Now that you are a nursing student at this university, how important is it to you that you complete your degree at <u>this</u> particular institution?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	

Item 48	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Intention	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I intend to obtain my baccalaureate degree in nursing (BSN).	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 49	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Intention	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3-Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
I frequently think of dropping out of this nursing program.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 50	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Pre-Entry Attributes	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
What is your age?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					
Item 51	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Pre-Entry Attributes	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
What is your racial background? (You may select more than one).	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:					

Item 52	Representativeness				Clarity				Simplicity				Ambiguity				Comprehensiveness	
Factor: Pre-Entry Attributes	1-Item is <u>not representative</u> 2-Item needs <u>major revisions</u> to be representative 3-Item needs <u>minor revisions</u> to be representative 4-Item is <u>representative</u>				1-Item is <u>not clear</u> 2-Item needs <u>major revisions</u> to be clear 3-Item needs <u>minor revisions</u> to be clear 4-Item is <u>clear</u>				1-Item is <u>not simple</u> 2-Item needs <u>major revisions</u> to be simple 3- Item needs <u>minor revisions</u> to be simple 4-Item is <u>simple</u>				1-Doubtful 2-Item needs <u>major revisions</u> 3-Item needs <u>minor revisions</u> 4-Item meaning is <u>clear</u>				1-Item should be <u>deleted</u> 2-Item should be <u>retained</u>	
What is your gender?	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	Comments:				Comments:				Comments:				Comments:				Comments:	
As a reviewer of this instrument, did you find any items which you felt may be offensive to subjects or data collectors? If yes, please list the item(s) in question and provide possible alternatives:																		

APPENDIX G

Items Rated by Experts for Content Validity

	Experts					CVI
	1	2	3	4	5	
Item 1	4	4	4	4	4	5/5=100
Item 2	4	4	4	4	4	5/5=100
Item 3	2	3	4	4	4	4/5=80
Item 4	3	4	4	4	4	5/5=100
Item 5	2	3	3	4	4	4/5=80
Item 6	2	3	4	4	4	4/5=80
Item 7	4	4	4	4	4	5/5=100
Item 8	4	4	4	4	4	5/5=100
Item 9	1	4	4	4	4	4/5=80
Item 10	3	4	4	4	4	5/5=100
Item 11	3	4	4	4	4	5/5=100
Item 12	3	4	4	4	4	5/5=100
Item 13	3	3	4	4	4	5/5=100
Item 14	4	4	4	4	4	5/5=100
Item 15	4	4	4	4	4	5/5=100
Item 16	4	4	4	4	4	5/5=100
Item 17	3	3	4	4	4	5/5=100
Item 18	4	4	4	4	4	5/5=100
Item 19	4	4	4	4	4	5/5=100
Item 20	4	4	4	4	4	5/5=100
Item 21	4	4	4	4	4	5/5=100
Item 22	1	3	4	4	4	4/5=80
Item 23	3	4	4	4	4	5/5=100
Item 24	3	3	4	4	4	5/5=100
Item 25	3	3	3	4	4	5/5=100
Item 26	3	3	4	4	4	5/5=100
Item 27	2	3	4	4	4	4/5=80
Item 28	3	3	4	4	4	5/5=100
Item 29	4	4	4	4	4	5/5=100
Item 30	3	3	4	4	4	5/5=100
Item 31	2	3	3	3	4	4/5=80
Item 32	4	4	4	4	4	5/5=100
Item 33	4	4	4	4	4	5/5=100
Item 34	1	4	4	4	4	4/5=80
Item 35	4	4	4	4	4	5/5=100
Item 36	1	3	4	4	4	4/5=80

Item 37	4	4	4	4	4	5/5=100
Item 38	3	4	4	4	4	5/5=100
Item 39	1	3	4	4	4	4/5=80
Item 40	3	4	4	4	4	5/5=100
Item 41	1	1	4	4	4	3/5=60
Item 42	4	4	4	4	4	5/5=100
Item 43	4	4	4	4	4	5/5=100
Item 44	2	4	4	4	4	4/5=80
Item 45	3	4	4	4	4	5/5=100
Item 46	2	3	4	4	4	4/5=80
Item 47	4	4	4	4	4	5/5=100
Item 48	4	4	4	4	4	5/5=100
Item 49	3	4	4	4	4	5/5=100
Item 50	3	4	4	4	4	5/5=100
Item 51	*	4	4	4	4	4/4=100
Item 52	4	4	4	4	4	5/4=100

CVI Scale = 94.61

APPENDIX H

Instrument Usability Survey for Pilot Study

1. The screen color had a negative impact on my willingness to participate.
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
2. The directions given at the beginning of the Undergraduate Nursing Intention Survey were clear and easy to understand.
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
3. Based on the information provided in the survey introduction, I feel comfortable that the information I provide in this survey will remain confidential.
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
4. It took me approximately _____ minutes to complete the Undergraduate Nursing Intention Survey.
5. The length of time it took me to take the Undergraduate Nursing Intention Survey was reasonable.
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

- 6 It was easy to navigate from question to question and page to page.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- 7 I found that it took a long time for the survey to appear once I clicked on the survey link.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- 8 Navigation buttons like “Next Page” and “Done” took me to the pages I expected.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- 9 The organization of information on each page was logical
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- 10 The Undergraduate Nursing Intention Survey contained language that I found offensive.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

- 11 It was clear to me that I could skip questions that I did not want to answer.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- 12 The appropriate way to record responses was clear to me.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- 13 Overall, this survey was easy to navigate.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- 14 Please feel free to add any comments or concerns that you feel may not have been addressed by the questions above.

Pilot Study Precontact Letter

Dena Adele Evans, MPH, BSN, RN, CNE

PO Box 1510 * The University of North Carolina at Pembroke * 910-521-6653(w) * dena.evans@uncp.edu

July 22, 2009

Greetings:

My name is Dena Evans and I'm currently a doctoral candidate at North Carolina State University majoring in Adult and Community College Education with an emphasis in Health Professions.

I am in the process of conducting a pilot study for my dissertation and I am requesting your participation. In a few of days, I will send you an email with a link to two online surveys that combined, should take no longer than 60 minutes to complete. Your email address was provided by the Department of Nursing after this study received approval from the Institutional Review Boards of North Carolina State University and the University of North Carolina at Pembroke.

The purpose the pilot study is to provide me with your impressions of a survey tool entitled the Undergraduate Nursing Intention Survey (UNIS). As a pilot study participant, you will be asked to take two surveys, One, the Undergraduate Nursing Intention Survey and next, the Usability Survey. The 13-question Usability Survey is designed to elicit your impressions of the survey layout, clarity of directions, ability to easily navigate the online survey instrument, and language. The data collected from the Undergraduate Nursing Intention Survey will not be used in the primary study. However, your responses to the 13-question usability survey will be included in the project as a means to help establish content validity.

Your responses are completely anonymous and participation is entirely voluntary. There are no foreseen risks or benefits to you associated with your participation in this survey. Aggregated results of the overall study will be shared with nursing Deans and Directors within the North Carolina University System, potentially benefiting other baccalaureate nursing student in that campuses could begin to develop admission procedures and retention programs which could ultimately impact student retention and the nursing shortage. As future professional nurses, your cooperation is greatly needed and appreciated. Thank you in advance.

Best regards,

Dena Evans, MPH, BSN, RN, CNE

Assistant Professor
Department of Nursing/UNCP

APPENDIX J1

Email Correspondence Related Launch of the UNIS

Dena Adele Evans, MPH, BSN, RN, CNE

PO Box 1510 * The University of North Carolina at Pembroke * 910-521-6653(w) * dena.evans@uncp.edu

Greetings:

My name is Dena Evans and I'm currently a doctoral candidate at North Carolina State University majoring in Adult and Community College Education with an emphasis in Health Professions.

I am in the process of conducting the primary study for my dissertation and I am requesting your participation. In a few of days, I will send you an email with a link to an online survey that should take no longer than 20 minutes for you to complete.

The primary focus of this study is to determine the impact of non-cognitive variables such as age, race, gender, class size, residence status, employment, on the intentions of minority baccalaureate nursing students to complete their BSN program. I have decided to study eleven universities within the UNC System with generic, pre-licensure programs. Your email addresses were provided by either a representative from your institution or retrieved from your institution's website. This study is intended for first-time, full-time pre-licensure students enrolled in a generic baccalaureate program. If you have attended another school of nursing or if you are repeating a course within your current program, you are not eligible for the study.

Your responses are completely anonymous and participation is entirely voluntary. There are no foreseen risks or benefits to you associated with your participation in this survey. Aggregated results of the study will be shared with nursing Deans and Directors within the North Carolina University System, potentially benefiting other baccalaureate nursing student in that campuses could begin to develop admission procedures and retention programs which could ultimately impact student retention and the nursing shortage. As future professional nurses, your cooperation is greatly needed and appreciated.

Thank you in advance.

Best regards,

Dena Evans, MPH, BSN, RN, CNE
Assistant Professor
Department of Nursing

APPENDIX J2

Initial E-mail Contact with Students

To: [Email]

From: dena.evans@uncp.edu

Subject: North Carolina State University Undergraduate Nursing Intention Survey

Body: Thank you for taking this opportunity to complete the Undergraduate Nursing Intention Survey. After approval from your institutions Institutional Review Board, your email address was provided by your university and no other identifying information was released. Completion of the survey is entirely voluntary and at any time, you may choose to exit the survey using the "Exit Survey" link located in the top right-hand corner of each survey page. Please be assured that your responses are entirely confidential and that any results to be reported will be aggregated to further ensure confidentiality. The survey should take no more than 20 minutes to complete. At the end of the survey, to submit your responses, you must click the button labeled "done." Otherwise, your responses will be lost. Upon completion of this survey you will be asked to provide your email address ONLY if you want to be entered into a random drawing to win a gift certificate to a local retail chain. To continue to ensure your anonymity, the winner will be notified via email and the gift certificate will be sent via email.

In light of our current nursing shortage, results of this study may be used to increase knowledge of program-level interventions which may greatly improve student retention and provide additional non-cognitive measures of academic readiness for admission and progression. Your willingness to participate in this research project demonstrates your understanding of the many roles of nurses. Let's begin.

Here is a link to the survey:
<https://www.surveymonkey.com/s.aspx>

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
<https://www.surveymonkey.com/optout.aspx>

First Follow-up Email for the UNIS

To: [Email]

From: dena.evans@uncp.edu

Subject: NCSU Nursing Intention Survey--East Carolina is in the LEAD!

Body: Ladies and Gentlemen:

Last week you were sent an email regarding my dissertation survey entitled the "Undergraduate Nursing Intention Survey." Just to remind you, eight of the University of North Carolina system prelicensure nursing programs are included in this study. Your response is paramount to determining non-cognitive factors that impact the retention of prelicensure nursing students and your confidentiality is ensured. Currently, nursing students from East Carolina University and the University of North Carolina at Pembroke are leading in their response to this survey! Go Pirates and Braves! As future professional nurses I ask that you please take a moment, complete the survey and take a step towards improving the nursing shortage in North Carolina.

Here is a link to the survey:

<https://www.surveymonkey.com/s.aspx>

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

<https://www.surveymonkey.com/optout.aspx>

Second Follow-up Email for the UNIS

To: [Email]

From: dena.evans@uncp.edu

Subject: North Carolina State University Nursing Survey-2nd Request Please Respond

Body: Did you know that research shows retaining minority nursing students is particularly important because it holds the key to the resolution of a long-standing absence of minority representation in the nursing profession, the nursing shortage and the elimination of health disparities among minority healthcare recipients (Davidhizar, Dowd, & Giger, 1998; Shi & Stevens, 2005)? Furthermore, the Sullivan Commission Report on Diversity in the Healthcare Workforce (2004) found that while African Americans, Hispanics and American Indians make up 25% of the population, they account for only 9% of the nation's nurses! Your participation in this survey may help to uncover modifiable factors across the UNC system nursing programs which may improve these dismal numbers! Please respond today--time is running out for you to participate in this important research. Thank you in advance for your participation.

Here is a link to the survey:
<https://www.surveymonkey.com/s.aspx>

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
<https://www.surveymonkey.com/optout.aspx>

APPENDIX J5

Final Email Reminder for the UNIS

B Ladies and Gentlemen:

o This is your last opportunity to complete the Undergraduate
d Nursing Intention Survey (UNIS)! A few weeks ago you were
y sent an online consent form, an overview of the study and a
: link to the
survey. To date, I have not heard from you. As future
professional nurses, please take a minute to share your
unique insight into the retention of nursing students. Why
are retention rates so low? What could nursing programs do
to improve YOUR experience? Again, your responses are
completely confidential! And just a reminder,
the nursing students that call themselves Pirates, Tarheels
and Braves are the top three responders to this survey!
Rounding out the bottom three are the Eagles, Catamounts
and Aggies. Your program and your experience while in your
nursing program are unique. Please take a moment and respond
so that we capture all perspectives.

Here is a link to the survey:

<https://www.surveymonkey.com/s.aspx>

This link is uniquely tied to this survey and your email
address. Please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails
from us, please click the link below, and you will be
automatically removed from our mailing list.

<https://www.surveymonkey.com/optout.aspx>

APPENDIX K1

Non-Responder Follow-Up Survey

Greetings. Over the last several months, you have received several requests to complete a survey entitled the Undergraduate Nursing Intention Survey (UNIS) which was designed to identify factors associated with minority attrition rates within nursing programs in the North Carolina University System. As a part of this research, I am following up with all non-responders to the UNIS in hopes that you will identify one or more reasons that you opted not to participate. As before, your responses are entirely confidential and are needed to complete the research process. Thank you in advance.

1. I opted not to participate because I was too busy
2. I opted not to participate because I was not interested in the research topic
3. I did not participate because I did not receive the survey
4. I am not a minority student so I felt that the survey did not apply to me
5. In general I do not participate in online surveys
6. Please feel free to describe any other reason(s) which may have affected your desire to participate in the survey.

APPENDIX K2

Student Open-Ended Responses to Non-Response Survey as Written by Students

1. "I am a single mother with three children and a full time job. At the time the survey was presented, I was knee deep in class and jumping through the hoops of life to respond. I feel that giving the survey mid-semester is not an opportune time."
2. "I would have been happy to participate, however, I rarely check my catamouth e-mail and got this survey close to finals so I spent most of my time studying."
3. "The timing was not good. I would have done it now but believe that it may be too late. I'm sorry."
4. "I intended to participate however I did not pay attention to the timeframe."
5. "My lack of participation was based strictly on time constraints. I do apologize that I was not able to actively assist you in your research."
6. "Because I freakin' didn't want to. Stop sending me stuff."
7. "I thought I read one of the letters syating if you are not born US citizen do not take the survey."
8. "With being first semester nursing student I just didn't have time sorry for the lateness."
9. "Just didn't have time, busy with school and did not feel like filling out a survey."
10. "It is odd that there is a similar "email-linked" request to find out why I (and others) chose not to participate in the survey when the fact is that because it is email based is why I did not chose to do it in the first place (ironic that I am responding to the "why didn't you respond the first time" link). There was no requirement from me and I had no idea how many people were requested to take the survey so I would think that one person not taking the survey would not matter."
11. "Honestly I must have deleted it by accident so it wasn't that I didn't care to."
12. "I only have limited time that I have internet availability, which needs to be devoted to school work."
13. "Many online surveys are long and repetitive. Sorry for putting this one in that category."
14. "Good luck!"
15. "I do not always open emails that are not from teachers, classmates, friends or family. So I probably did not see the survey or was too busy at the time."
16. "I have school, work, kids, house, husband, pets, etc. etc. and am involved in various aspects of my community, therefore, it is amazing that I am still alive!"
17. "I just honestly never got a chance to do it."
18. "I am too busy... sorry."
19. "I didn't know how long it would take so I just never ended up actually doing it. I don't stay on the computer for that long."
20. "I probably overlooked the request and do apologize."
21. "Though the research project focused on factors impacting the retention of minority baccalaureate nursing students as compared to non-minority students I did not participate

because the research was part of a doctoral dissertation at NCSU and I am not a student there. I am a nursing student at NCCU.”

22. “Being very busy with my classes.”
23. “I thought this was junk email.”
24. “I live more than 1 hour away from school and have children, so just not enough time to answer a survey and do school work with all the other things going on in my life.”
25. “I tried to do the survey one afternoon when I was not busy studying, and the link would not bring up a website. I am not sure if it was a wrong link but I copied and pasted it directly into my web browser.”
26. “In the first email it stated that if you were a returning student who had to repeat a course when you were ineligible to participate, thus, I did not participate.”
27. “I get so much junk mail through my student account that I never read the email because I didn’t recognize the sender.”