

ABSTRACT

Kelly Andrews Cleaton, FACTORS AFFECTING ATTRITION OF DUALY ENROLLED COLLEGE STUDENTS (Under the direction of Dr. David Siegel). Department of Educational Leadership, April, 2017.

The overall purpose of this quantitative study was to examine which factors, available during the screening and admission process, were related to successful completion of the first year of a dual enrollment program (baccalaureate and associate degree). This is a non-experimental, descriptive, correlational study based on retrospective data gathered on 3 cohorts of RIBN students. The principal research aim addressed in this research was: "Which factors contribute most to dually enrolled students' early success in college?"

Criteria for inclusion in this study were all students who were admitted to the Eastern North Carolina RIBN collaborative or the Western North Carolina RIBN collaborative between 2012-2015. This included 221 students across both programs. A variation on Schlossberg's transitions theory (1981) provided a broad conceptual model as an organizing framework for this study. Schlossberg's model utilizes situation, self, support, and strategies as a framework for understanding transitions. This study's adapted model used program characteristics, personal characteristics, and student success characteristics to predict attrition. With a better understanding of which factors available during the admission process were related to student success, better admission and program support decisions can be made. Students who are dually enrolled in high school courses and college courses simultaneously are commonplace (Nachazel & Dziuba, 2014). However, programs with dually enrolled community college and university students are relatively new entities. Given society's crucial need for baccalaureate prepared nurses as well as the economic environment of accountability and budgetary concerns in higher education, student success and retention in these programs is critically important (American

Association of Colleges of Nursing, 2014; Obama, 2009). This study found that SAT reading scores are statistically related to academic attrition in the first year of North Carolina's largest two RIBN programs. High school GPA was also related to first year success. The best predictor of non-academic attrition was age. Older students were more likely to drop out of the program due to non-academic reasons. Future research should focus on larger and more diverse samples of dually enrolled students. Long-term follow-up with exit interviews may also yield useful data on students who leave the dual enrollment programs.

FACTORS AFFECTING ATTRITION OF DUALY ENROLLED COLLEGE STUDENTS

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The Faculty of the Department of Educational Leadership

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by

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CHAPTER 1: INTRODUCTION

In the 2013 Digest of Education Statistics, the National Center for Education Statistics (NCES) shared that over 1.5 million first-time, full-time students began their postsecondary educational career in the fall of 2006 as an undergraduate at a U.S. four-year college or university. Only 40% of those students actually achieved a bachelor's degree in four years; 60% completed their degree within six years. Of all the students who enrolled in two-year colleges in the fall of 2007, only 26% completed degrees within six years (National Student Clearinghouse, 2013; NCES, 2013). Clearly, there is work to be done to facilitate successful completion of postsecondary educational programs.

The broad-based reform movement known as “the completion agenda,” led by state and federal policy makers, is designed to substantially increase the numbers of students graduating from the nation's colleges and universities. President Obama (2009) set the goal in his first State of the Union address that “by 2020, Americans will once again have the highest proportion of college graduates in the world.” Obama saw this as “no longer just a pathway to opportunity – it is a prerequisite” (Obama, 2009). Unfortunately, just as this initiative got underway, the United States experienced a huge economic downturn. Thus, access to higher education has become increasingly more difficult, especially for low income students. Many who do make it into the educational arena are underprepared educationally and often have to work while going to school. All of these factors add stress to students who are trying to get an advanced degree (Condon, Morgan, Miller, Mamier, Zimmerman, & Mazhar, 2013; Pascarella, 1982; Pascarella & Terenzini, 1995). As a result of these societal issues, educators are seeking new models for higher education along with additional supports to allow students the opportunity to be more successful. For example, dual enrollment, with additional support mechanisms, is one of the

newer models of interest (Fontaine, 2014; Goodman & Pascarella, 2006; Roberts & Styron, 2010).

Students who are dually enrolled in high school courses and college courses simultaneously are commonplace (Nachazel & Dziuba, 2014). However, programs with dually enrolled community college and university students are relatively new entities. In 2006, the first dual enrollment program in nursing began at the Oregon Health and Science University (Oregon Health and Science University, 2016). The University partnered with six community colleges to prepare a curriculum that would make it expeditious for nurses to complete their associate degree and their baccalaureate degree in a much quicker, less expensive, and more seamless curriculum. In 2008, the first North Carolina collaborative between a university and community colleges began in western North Carolina. It has since expanded to eight collaborative consortia across the state (Regionally Increasing Baccalaureate Nurses, 2016). Student success and retention in these programs is important for measuring program effectiveness given the crucial need for baccalaureate prepared nurses as well as the societal environment of accountability and budgetary concerns (American Association of Colleges of Nursing, 2014; Obama, 2009). It is important for these consortia to admit the students with the greatest likelihood of success. A lack of success affects not only the individual student, but also the university's "completion agenda." When a student fails to complete the program, there are negative consequences for the student, the educational program, and the state of North Carolina. This study examines factors at admission which can be used to predict success in the first year of the dual enrollment nursing programs. The findings may prove useful for other academic programs in the university as they strive to support students in completing their education.

Problem Statement

Dually enrolled community college and university student programs (collaboratives) are relatively new. The North Carolina Regionally Increasing Baccalaureate Nurses (RIBN) program is specifically designed to meet the needs of the growing nursing workforce shortage and the explicit need for baccalaureate prepared nurses. Students in this program complete a rigorous curriculum that takes them through a year of undergraduate general education coursework and three years of nursing courses. For the first three years these students are dually enrolled and taking both face-to-face and online coursework involving two institutions simultaneously (RIBN, 2016). Another unique piece to RIBN program is the Student Success Advocate. This individual is responsible for recruitment, advising, and planning activities to increase retention. The Student Success Advocate plays a vital role in maintaining the program and keeping communication between students and institutions operating smoothly.

Though the RIBN program was constructed using the cohort model in teacher education to increase the cohesiveness and support for the students, it is still challenging for an individual in a cohort to handle two separate educational institutions' policies, different online education platforms, and academic expectations. Because the RIBN program is highly competitive and has limited availability, it is important for collaboratives to be able to identify those students with the highest probability of success from information available during the screening and admission process. When a student fails to complete the program, there are negative consequences for the student, the educational program, and the state of North Carolina.

The overarching research aim of this study is to use data that are available during the admission process to determine which students will be most successful during the first year of the program. According to anecdotal data from individual collaboratives, the first year of the

program is the most difficult for students and seems to be when attrition is highest. Therefore, the analysis of data available at admission can provide an opportunity to identify those students that are at highest risk of dropping out or failing during the first year. This study will offer insight to the North Carolina RIBN collaboratives so that best practices can be implemented to insure the highest probability of success for students and the RIBN program.

Statement of the Purpose

The overall purpose of this study is to examine which factors available during the screening and admission process are related to successful completion of the first year of a dual enrollment program (baccalaureate and associate degree). The principal research aim that will be addressed in this research is: “Which factors (student characteristics, program characteristics or support characteristics) contribute most to dually enrolled students’ early success in college?”

Research Questions

The following are the research questions for this study:

1. Is there a difference in students’ characteristics (demographic, academic) when comparing the Eastern NC collaborative to the Western NC collaborative?
 - a. H_0 = There is no statistically significant difference in the student characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.
2. Is there a difference in program characteristics (size, number of partners, NCLEX pass rate) when comparing the Eastern NC collaborative and the Western NC collaborative?
 - a. H_0 = There is no statistically significant difference in the program characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.

3. Is there a difference in characteristics (community based or institutional based) of the Student Success Advocates (SSA) when comparing the Eastern NC collaborative and the Western NC collaborative?
 - a. H_0 = There is no statistically significant difference of the Student Success Advocates (SSA) characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.
4. Are there statistically significant differences between the Eastern NC collaborative and the Western NC collaborative with regards to student characteristics, program characteristics, and SSA characteristics?
 - a. H_0 = There is no statistically significant difference in the student characteristics of each cohort of students enrolled at the two collaboratives.
 - b. H_0 = There is no statistically significant difference in the program characteristics (retention rates, size, number of partners, NCLEX pass rate) of each collaborative.
 - c. H_0 = There is no statistically significant difference between attrition rates when the SSA is community based or institutional based.
5. Which factors (student, program, or SSA) best predict attrition due to academic performance among RIBN students in the first year of the program.
 - a. H_0 = There is no statistically significant difference between student characteristics and attrition due to academic performance.
 - b. H_0 = There is no statistically significant difference between program characteristics and attrition due to academic performance.

- c. H_0 = There is no statistically significant difference between SSA characteristics and attrition due to academic performance.
6. Which factors (student, program, or advocate) best predict attrition due to non-academic reasons.
- a. H_0 = There is no statistically significant difference between student characteristics and attrition due to non-academic reasons.
 - b. H_0 = There is no statistically significant difference between program characteristics and attrition due to non-academic reasons.
 - c. H_0 = There is no statistically significant difference between SSA characteristics and attrition due to non-academic reasons.

Significance

State and federal policy makers' agenda to increase the numbers of students graduating from colleges and universities requires that faculty in all programs seek innovative ways to support students' success in their endeavors. Academic success and retention of nursing students is also of primary importance as the United States is in the beginning stages of the most severe nursing shortage in its history (Buerhaus, Staiger, & Auerbach, 2008). The current shortage is predicted to reach crisis levels within the next ten years when a large number of nurses will be retiring from the profession. One recent report suggested that the demand for nurses is increasing at such a rapid rate that the nursing shortage could reach 500,000 by 2025 (Buerhaus et al., 2008; U.S. Labor Bureau, 2014). This critical issue raises both societal and institutional expectations of nursing programs to increase numbers of graduates who will join the workforce in a timely fashion. The *specific* need for greater numbers of baccalaureate prepared nurses is critical to the provision of high quality care. Health care leaders, concerned about the impact of

our changing demographics and complexity of patient conditions, recommended an increase in the number of registered nurses educated at the baccalaureate (BSN) level as compared to those educated at the associate degree level (ADN) (HRSA, 2013). The 2010 *Institute of Medicine, Future of Nursing: Leading Change, Advancing Health Report* called for the nationwide proportion of BSN educated nurses to be 80% by 2020. In 2013, only 55% of the national RN workforce held a baccalaureate or higher degree (HRSA, 2013). Concurrently BSN programs reported that they are at capacity and are unable to increase their enrollment significantly because of a lack of faculty and clinical experience for their traditional BSN programs (HRSA, 2013). The consequences and implications of nursing student attrition and delayed program completion affect not only individual students, but also extend to societal needs. Fewer nurses entering practice affects health care agencies, which are in desperate need of qualified staff. Ultimately these effects trickle down to the public, the recipients of nursing care (AACN, 2008).

In a response to these concerns, North Carolina began a new vision for higher education. It involves dually enrolling students at the community college level and the university. In approved curricula, these students have a seamless pathway to their baccalaureate degree. A savings of time and money, this type of program can also offer expeditious preparation of professionals in areas (such as nursing and education) where shortages are of grave concern. The Regionally Increasing Baccalaureate Nurses (RIBN) program was specifically designed to expeditiously prepare nurses to meet this critical need in a timely way. These dual enrollment programs must identify those students who are more likely to be successful so that valuable time and resources are used most effectively. The overall aim of this study is to identify similarities and differences between the Eastern North Carolina RIBN collaborative and the Western North Carolina RIBN collaborative and to examine which factors available during the screening and

admission process are related to successful completion of the first year of the RIBN program. Awareness and understanding of these factors may enable faculty to identify for admission those students who are most likely to be successful in the program. Other professional education programs can also benefit from the findings of this study. If dual enrollment programs can graduate students expeditiously, the model may be appropriate for use in other disciplines such as education. In order to be prudent with financial and educational resources, it is important to determine which students have the greatest likelihood of success with dual enrollment programs.

While the literature reflects an abundance of research about pre-admission criteria that correlate with student success or failure in educational programs, the majority of that research involves only traditional face to face baccalaureate or associate degree programs (Benda, 1991; Crombie, Brindley, Harris, Marks-Maran, & Thompson, 2013). Given the dearth of research on this type of dually enrolled students, this study will provide beginning evidence to see if the students are similar or different from other student groups who have been studied. Identification of the characteristics associated with retention will assist with planning strategies to promote future students' success in these and other future dual enrollment programs. From a theoretical perspective, this study will offer insight into admission criteria that can be used to determine student success early in their educational programs. This study will offer additional insight to the application of conceptual models, such as Schlossberg's (1981) to a different type of student population.

Theoretical Framework

In order to understand how to encourage students to persevere in education, we must understand why some students leave. To help decipher what is behind those decisions, the theoretical framework that will guide this study is based on Schlossberg's Transition Theory.

Schlossberg (1981) developed a model for analyzing human adaptation to transition. Her theory is based on the assumption that as people move through life they continually experience change and transition and that these changes will result in new networks of relationships, new behaviors, and new views of “self.” Schlossberg’s research shows that individuals differ in their ability to adapt to change and that personal characteristics as well as external factors can affect their ability to adapt. Studying the transition process requires the simultaneous analysis of individual characteristics as well as external occurrences and characteristics.

A variation on Schlossberg’s (1981) transitions theory provides a broad conceptual model as an organizing framework for this study. Schlossberg’s model utilizes situation, self, support, and strategies as a framework for understanding transitions. This study model is an adaptation of Schlossberg’s model using program characteristics (situation), personal characteristics (self), and student success characteristics (support) to predict attrition. With a better understanding of which factors available during the admission process are related to student success, better admission and program support decisions can be made (see Figure 1).

Overview of Methodology

This non-experimental, descriptive, correlational study based on retrospective data gathered on four cohorts of North Carolina RIBN students admitted from 2012-2015 will explore factors related to attrition at the end of the students’ first year of enrollment. Descriptive statistics of the students and programs will be analyzed. Chi-square and Analysis of Variance will be used to determine if there are significant differences between the identified NC RIBN collaboratives with regards to their student, program, and SSA characteristics. Descriptive statistics and bivariate analyses will be conducted prior to performing logistic regression analysis so that the number of variables is appropriate for the sample size. Logistic regression will

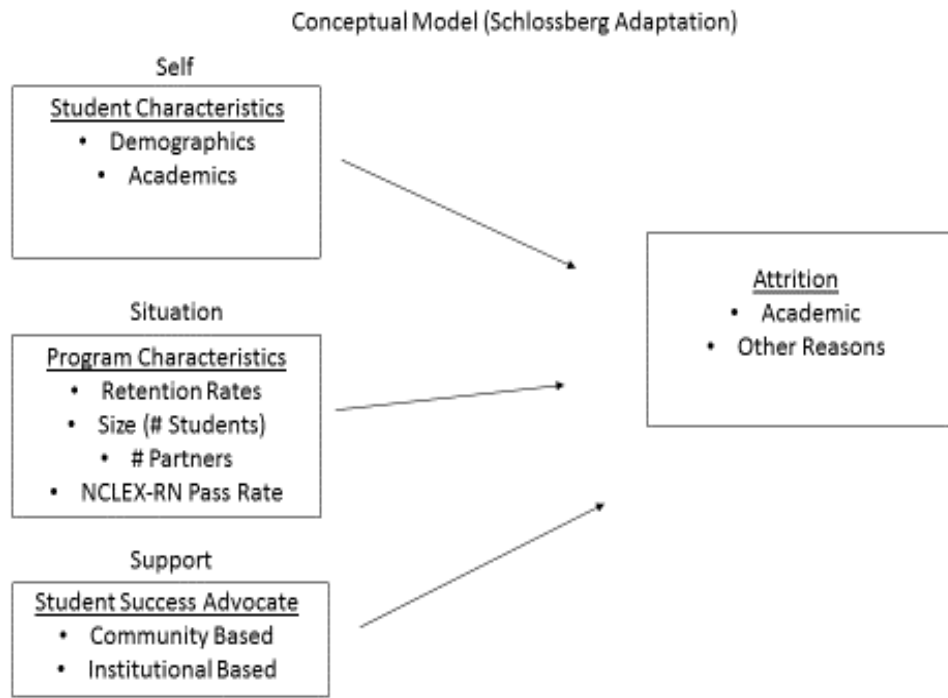


Figure 1. Conceptual model.

provide an indication of the relative importance of each predictive variable and will allow for calculation of the amount of variance of the total model. Individual independent variables will be examined to determine if they make a unique contribution. The odds ratio for each predictor will be calculated to determine the strength of each predictor. Statistical significance will be set at .05.

Definition of Terms (Operational Definitions)

RIBN Students - those students who enrolled in one of two North Carolina RIBN collaboratives in 2012, 2013, 2014, or 2015.

Student Characteristics (demographic and academic) *Demographic* – (1) Age- the age of the student when admitted to the program, (2) Gender- identified by student on application form (male or female), (3) Ethnicity- identified by student on application form (Caucasian, African-American, Hispanic, Asian); *Academic* – (1) SAT Scores—Reading and Math presented at admission OR ACT Scores—English and Math presented at admission, (2) High School GPA—Unweighted GPA with a range of 0-4.

Program Characteristics – (1) Number of collaborative partners - Number of community colleges in partnership, (2) Quality of collaborative partners (community colleges) - Measured by the first time pass rate on the NCLEX exam the year that the RIBN student was admitted. This information is available at the North Carolina Board of Nursing, (3) Attrition Rate - Number of students leaving prior to beginning second year divided by the number of students in the cohort.

Student Success Advocate Characteristics – (1) Community based – Student Success Advocate goes out into the community and works with students in their community colleges and familiar environment. The Student Success Advocate goes to the student. (2) Institutional Based

– Student Success Advocate is based at their institution and students come to them for meetings, etc. The student goes to the Student Success Advocate.

The dependent variable of attrition will be measured as follows:

Academic Attrition - Students are ineligible to return for the second year based on grades

Non-Academic Attrition - Students are eligible academically to return to school but do not continue in the program after the first year.

Data will be analyzed using the Statistical Package for Social Sciences (SPSS) version 22. The data was collected by the North Carolina RIBN central office. This researcher has been given permission to utilize the de-identified data set for this study.

Limitations and Assumptions

As in most studies, generalization will be the major limitation of this study. Findings cannot be generalized to other dual enrollment programs. Also, because the study will use data that has already been collected, it is not possible to measure the variables by other means. In addition, variables that might be useful to include in the model will not be available. Data from the two largest collaboratives will be analyzed.

The assumptions important to conducting this study are that the defining variables have been consistently used and reported by each collaborative. It is assumed this data is complete and accurate.

Summary

Attrition of college students is not a new phenomenon for study. However, attrition of students who are enrolled simultaneously, at a community college and a university, in a seamless curriculum leading to a baccalaureate degree are a new area for study. This study will use data that is available during the admission process to determine which students will be most

successful during the first year of the program. This data may provide assistance in choosing those students more likely to be successful in the programs. The remainder of this proposal is organized into a review of the literature and proposed methodology.

CHAPTER 2: REVIEW OF THE LITERATURE

The review of the literature for this study is focused on five primary areas. The first area for review is related to the overall transition of students from high school to college; the second section is a review of studies about retention and transition. Next is a review of research about predictors of college student success followed by a review focusing on the retention of community college students. No research was found on dually enrolled community college and University students. Lastly, studies on nursing student retention are reviewed.

Transition to College

Applying and being accepted to institutions of higher education are among the most important events in a student's education (Robotham & Julian, 2006). Schlossberg (1981) developed a transition theory to explain the development of adolescents as they move through life. She identified sets of factors that influence an individual's adaptation to the transition: characteristics of the transition, the environment before and after the transition, and the characteristics of the person in transition. "Most transitions can be described using a common set of variables: role change, affect, source, timing, onset, duration, and degree of stress" (Schlossberg, 1981, p. 8). Role change occurs during transitions when individuals change their placement in family, society, etc. When an individual goes from being single to married, married to widowed, high school student to college student – all of these constitute a role change and can add stress to a transition. The effect a transition has can be positive or negative and can create stress. Laanan (2006) says that understanding what students go through in transition is not an easy task. We do not understand what students bring to the college experience related to "prior academic preparation or training, life experiences, and cultural experiences" (Laanan, 2006, p. 2). A student may be very excited about graduating from high school and moving out

on their own, but this transition can also be scary and intimidating. The source of transition may be internal or external in nature. It might be a transition that is wanted and deliberately made, or the transition might be motivated from an external source and not necessarily be one that is desired. Timing of transitions is often linked to large events such as going to college, getting married, and retirement. Although society as a whole has changed somewhat from linking specific ages to specific events (such as marriage and having children), we are still largely reliant on age for defining this variable. Some of the transitions that occur in life are expected, such as graduations, births, and retirements. Most of these transitions occur gradually and they are anticipated, which makes them easier to accept and handle emotionally. A sudden, unexpected event such as a death, natural disaster, or loss of employment can be a much more difficult transition (Laanan, 2006).

Another factor that affects transition is the duration of that transition. If an event, even an expected event, happens quickly, it is possible that it is easier to cope with than one that lasts for a long period of time. A long duration of transition can be more stressful and unsettling. The degree of stress is a compilation of all of the factors. Depending on the other factors, the degree of stress can either be major or minor (Schlossberg, 1981).

Environment is another factor that influences the transition. According to Schlossberg (1981), three major aspects of the environment may affect transition: the interpersonal support systems, institutional supports, and physical setting. Interpersonal support stems from a peer group of “others” who can potentially provide information and advice as well as reinforce the individual’s sense of worth. Dimsdale (1976) first described this when discussing the coping strategies used by individuals in Nazi concentration camps. If a prisoner was held in isolation or had difficulty affiliating with the group during his first few days in prison, the chances of

survival were decreased. Kahn (1975) used the term “convoy” of social support to describe the notion that each individual goes through life with a set of significant others who give and/or receive support to each other (p. 1). Spierer (1977) expands this to emphasize the importance that individuals also need to feel valued by others in their peer group. Spierer concluded that not only do individuals gain strength from their peer groups, their own fulfillment in helping someone else is itself a useful coping strategy.

Retention and Transition

A number of sources support the idea that college student success is primarily determined by experiences during the freshman year (Jeffreys, 1998; Smith & Bracken, 2003; Tinto, 1993; Upcraft & Gardner, 1989; Wolcott, 2006). Gardner and Hansen (1993) even state that it is vital to give students a good start to their college experience because this will result in a positive environment for the students and eventually lead to enhanced retention. As a result of this, many schools now have innovative first year and transition programs for their students. Surveys conducted by El Khawas (1987) through the American Council on Education (ACE) found that in 1987, 37% of the colleges in the US utilized programs to improve the students’ first year experience; that number had increased to 83% by 1995 (El Khawas, 1987, 1995). By the year 2006, the number of institutions including a first year seminar increased to 95% (Fontaine, 2014; Goodman & Pascarella, 2006).

Students are often not fully aware of the challenges that come with attending college. Learning how to study for college classes, balancing homework with a personal life, and possibly being away from home for the first time, influence the success students find in college. A large number of students leave higher education before they complete a degree. In fact, “more students leave their college or university prior to degree completion than stay” (Tinto, 1993, p.

1). Other than intellectual ability, many other factors can influence a student's academic progress. A student may have one or more of a series of variables that might help or hinder their progress. These can range from their motivation, stress level, involvement in activities, to their family responsibilities and self-determination. Adults, including young adults, continuously experience transition in their lives. There is no "order" to these changes, and individuals do not respond in a uniform manner to the changes. Understanding and helping young adults during transition is challenging, but a better understanding of the processes and responses can be useful (Tinto, 1993).

A good deal of research has addressed the transition period of new college students. Robotham and Julian (2006) made an extensive listing including scheduling demands, financial issues, increased academic load, career decisions, fear of failure, new responsibilities and family pressure. If students are not able to utilize supports from the institution and learn ways of coping, it may lead to attrition. Pascarella, Smart, and Ethington (1986) found that both academic and social integration can improve the likelihood of retention. Tinto (1993) described academic integration being discerned by grades and performance, personal development, academic self-esteem, and enjoyment of the academic environment. Social integration could be related to the number of friends one claimed, the amount of personal contact with others in the academic environment, and the enjoyment of the student experience (Tinto, 1993).

Schlossberg (1981) specifies three types of interpersonal support systems which offer support to individuals: intimate relationships, family units, and networks of friends. Duncan and Fiske (1977) found that having been in intimate relationships (even after the death of one of the individuals) can continue to be a source of comfort during time of stress. Family support has been studied by sociologists for many years. Lowenthal and Chiriboga (1975) noted in their

findings of the San Francisco study the importance of the family unit as a support system during times of transition. Individuals who felt mild stress had the highest ratings of family mutuality, while those who felt overwhelmed had the lowest family ratings. Lastly, an individual's network of friends is an important support system. During stressful life events such as death, divorce, or natural disasters, individuals turn to their friends for support and comfort.

Other more "formal" types of support can be useful to individuals when they are in a state of stress. Schlossberg and Leibowitz (1980) interviewed government employees of the National Aeronautics and Space Administration (NASA) whose jobs had been eliminated. NASA set up a series of workshops and arranged for individual counseling for each of the individuals whose jobs were eliminated. Though these individuals were not pleased about losing their jobs, they maintained a favorable relationship with NASA because the employer demonstrated concern and caring, and also offered them practical and tangible support for job training and placement opportunities. Tangible evidence of emotional support assisted these individuals with coping.

Schlossberg (1981) focused on eight characteristics of individuals which play a role in the ease of transition, including "psychosocial competence, sex, age, state of health, race-ethnicity, socioeconomic status, value orientation, and previous experience with a transition of a similar nature" (p. 12). Chickering and Schlossberg (1995) collaborated to expand the original transition theory to a transition process for college students with three phases: moving in, moving through, and moving out. Coping mechanisms to maneuver through this transition period are called the 4 S's: situation, self, support, and strategies. Tovar and Simon (2006) support this theory and propose that professional counselors and academic advisors must utilize all information they can assimilate to effectively assess the causes leading students to a lack of success.

Vincent Tinto is perhaps one of the most well-known researchers on the topic of student persistence and retention. Tinto's work was also highly influenced by the work of Durkheim (1953) and Van Gennep (1960). Durkheim (1953) described one specific kind of suicide that has to do with a person not fitting into a new setting, and therefore feeling isolated and alone. Van Gennep (1960) added to this work and noted that people go through rites of passage during their lifetime. This occurs with life events which provide a new setting for finding acceptance and a place. One of the first theoretical models of student departure was developed by Spady (1970). Spady (1970) compared dropping out of college to suicide since both are affected by incompatibility with their immediate social system. Spady proposed that adjustment to college is a longitudinal process with interactions between the student and the academic and social systems of the university. He also proposed that the degree of integration into these systems, in combination with certain student characteristics, influenced the student's decision to continue in school or to withdraw.

Durkheim (1953), Van Gennep (1960), and Spady (1970) set the groundwork for Tinto's work. Tinto's first collaboration came in 1973 with Cullen, who studied student attrition (Tinto & Cullen, 1973). Their collaboration produced a new theoretical model of attrition that has been utilized extensively even in recent years. According to this model (which has been changed numerous times since 1973), student retention is dependent on student background (prior school experiences and family), goal and institutional commitment, institutional experiences (faculty/peer interaction and academics), and the degree of interaction in academics and social experiences, goals and commitment, and outcomes. "Tinto's model proposes that the degree of success a student has in his or her pursuit of higher education influences the level of commitment a student has to an institution, academic goals, and career goals" (Demetriou & Schmitz-

Sciborski, 2011, p. 300). In 1975, Tinto revised his model of persistence and added environmental variables to the list of important variables in student retention. In the past 30 years, Tinto has added to and revised his theory to include the need to match student expectations to institutional mission, decision making, and the transitions that students endure during their college experiences (Tinto, 1982; Tinto, 1988; Tinto, 1998).

Pascarella and Terenzini (2005) took Tinto's work and added to the body of knowledge about student retention. They found that student retention is largely related to student perceptions of faculty members and their concern for their success. When students believe their faculty truly cares about them and their success, students are more likely to succeed. Results from the study also showed that when interventions are used consistently, student attrition is greatly influenced. Retention strategies need to be direct and tied into several key factors such as admissions and individuals who interact closely with students (such as advisors and financial aid personnel) in the institution (Kuh, DI, Kinzie, Schuh, Whitt, & Associates, 2005). Each student is different, and each comes to the institutions with varying levels of skills, commitment, background knowledge, and goals. Institutions should take this into account when planning retention strategies. Student attrition is not a one-dimensional area; there are many facets that influence each individual case. According to Tinto (1988), the first college semester, and in particular the first six weeks of a student's college career, are the most important for student persistence. It is within this time the student is getting accustomed to college life, homework, and most likely adjusting to being away from home. When students become invested in the institution and feel that faculty and other institutional personnel care about their well-being and their success, they are more likely to stay involved and stay at the institution for a period of time (Higgins, 2004; Tinto, 1988).

In 1987, Tinto built on his work that drew from Van Gennep (1960) and found parallels formed between the rites of passage into adulthood and a freshman's adjustment to college. The first stage is separation. This stage begins when students begin the anticipation of leaving home and then the actual physical separation of the student from family and high school friends. The second stage of the transition is the student's acquisition of new ideas, concepts, and behaviors that come about when they are immersed into the new atmosphere and surroundings. The student's personal beliefs and background are vital in this transition. If the student is academically and mentally strong and knowledgeable about their strengths and needs, and the path they want to choose, the transition will most likely be more manageable. The final stage of transition is the incorporation stage. Students become a part of the institution and participate in the institutional environment. Tinto warns in his 1987 framework that "without external assistance, many will eventually leave the institution because they have been unable to establish competent intellectual and social membership in the communities of the college" (p. 99).

Many changes and adaptations have occurred to the research on retention of college students. Originally in Tinto's research, he stated that it was important for students to disengage from their hometowns and community and start fresh in a new environment. In recent studies, students are more likely to persist in college if they maintain a strong connection with their past (ACT, 2014; Metz, 2004; Tierney, 1992). Tierney (1992) says it is also important for faculty in institutions to know where the students came from and incorporate an understanding of that into their instruction. Students need to feel a connection, and when they do feel they have been included and their opinions and thoughts validated, they are more likely to stay in school. All institutions are different and require different strategies to reach out to their students. Strategies used by four year public institutions might look drastically different than those of community

colleges or private universities, given the differences in both student populations and resource bases.

Bean (1980) focused his research on determining why students do not persist in higher education, but his model focused on the fact that there is not just a one-dimensional reason for student departure. Students leave for a variety of reasons including finances, personal reasons, grades, etc. Bean related most of his findings to earlier research done on reasons why people leave the workforce. Institutions need to be aware of the reasons for leaving and make sure there are strategies in place to prevent and/or explain the exit (Bean, 1980). In 1981, Bean used Tinto's (1975) model and Spady's (1970) social integration model to come up with a model for student attrition. This model of student attrition suggested that the following factors were major influences: "(a) student background variables; (b) interaction by students with the institution; (c) the influences of environmental variables (finances, family support); (d) the presence of attitudinal variables (a subjective evaluation of perceived quality and self-satisfaction with the institution); and (e) student intention, such as transfer and degree attainment (Metz, 2004). A few years after Bean's initial research, he collaborated with Metzner (1987) and together, they added variables to his student attrition model: the dynamics of non-traditional students, environmental factors, academic variables, and psychological variables. Non-traditional students bring with them new types of reasons for leaving college. Some start families, and others might have to follow their spouse if they get transferred to another job. Academic variables that might influence student attrition have an impact on students' academic self-efficacy. Their grade point average in high school, their standardized test scores, and their class ranking can impact their self-efficacy and self-concept before they even begin college classes. Student outcomes are also affected by psychological variables like stress and satisfaction with classes and faculty. All of

these variables can either strengthen students and their drive for a college degree or, if one of these variables is missing, can be detrimental to their success in college (Bean & Metzner, 1985; Metzner & Bean, 1987).

In 1993, Tinto updated his student departure research to include supports for successful retention programs. The focus of this research was on the institution itself and how to increase retention by using strategies for keeping students involved and attentive to their needs. Tinto proposed there are three points of interest that should be emphasized when institutions are planning retention programs. The emphasis should be on maintaining the campus as a community, social and emotional growth of students, and commitment to the students. When students view their campus as a community and see the faculty and staff involved and proud of the institution, they are more likely to want to get involved themselves and take pride in their new surroundings. When other students see a large community of student pride, they are more likely to want to become a part of the group. Institutions have to make sure the faculty and programs are committed to the social and emotional growth of the students. How is this accomplished? Institutions that have been able to find ways to bridge the gap between theory and implementation by clearly defining the factors contributing to better retention are the most successful. A commitment to how higher education views success must be clear. Evaluation data from early intervention programs shows that students need to be supported both academically and socially. First year seminars, writing centers, academic support centers, and peer tutoring have all been established as supports over the last ten years. Learning communities and improving advising have also been targeted (Goodman & Pascarella, 2006). Frequently institutions rely solely on their retention offices to come up with events and strategies for keeping students involved. Pascarella and Terenzini's (2005) research shows that if faculty view

their position as just a job, to impart knowledge to the students with no investment in their well-being, students are less likely to feel a connection to the institution. Students should be able to feel the commitment from the faculty and know they are there to assist them reach their academic goals. Interactions students have with faculty are the most important variables in student retention according to Pascarella and Terenzini (1995, 2005).

Pascarella and Terenzini (1995, 2005) outline myths that surround higher education. One of the myths states that “‘faculty members’ impact on student development and learning resides in the classroom” (Pascarella & Terenzini, 1995, p. 31). The research they have done points to the same conclusions as Tinto. They agree that faculty have a huge impact on student retention; however, contact with students in informal settings boosts student development and helps students feel more engaged in their learning community. Another myth that Pascarella and Terenzini (1995) state is that “‘students’ academic and nonacademic experiences are separate and unrelated areas of influence on learning and development” (p. 31). In fact, research has shown that when a student is involved in extracurricular activities, his or her cognitive abilities increase. According to Pascarella and Terenzini (1995), the greatest impact on a student’s college experience may come when “‘academic, interpersonal, and extracurricular involvements are mutually supporting and relevant to a particular educational outcome” (p. 32). Pascarella and Terenzini’s (1995) refinement of factors affecting student retention offers a different perspective about what interventions may be most useful in affecting student retention. These factors are worthy of continued examination.

Astin (1993) proposed a comprehensive model to address factors which affect student success and attrition. He proposed 146 input or precollege variables such as race, ethnicity, age, gender, marital status, high school grades, admission test scores, and others. Astin said these

variables must be considered when addressing student retention. These variables include institutional characteristics, financial aid, major area of study, faculty characteristics, curriculum, place of residence, and student involvement. Astin (1993) then classified 82 potential outcomes for students once they are exposed to the college environment. The primary categories are satisfaction with the college environment, career development, academic cognition, academic achievement, and retention. The overall significance of Astin's work is to emphasize the many characteristics of the student and the college experience itself, both of which can affect student retention.

The last twenty years has seen research flourish in areas related to academic achievement. The literature supports both academic and social supports to increase students' future success (ACT, 2014). Engagement with faculty, other students, student organizations, student activities, and research are avenues utilized by colleges to facilitate the navigation of a complex new environment successfully (Harris, Rosenberg, & O'Rourke, 2014; Landis, Altman, & Cavin, 2007; Pascarella & Terenzini, 2005).

The subject of retention has changed since the research started in the 1960s. The demographics of college students have changed. Minority student enrollment has increased steadily, first-generation college students have increased, community college enrollment has exploded in numbers, and Caucasian student enrollment is decreasing (Nachazel & Dziuba, 2014). Many researchers think these changes need to be addressed in the retention studies. Some startling statistics have started to show how the admission trends are changing in higher education. According to the National Center for Education 2013 statistics, between the years of 2001 and 2011, enrollment in higher education institutions went from 15.9 million to 21 million, which is an increase of 32%. The ages of students enrolled is gradually changing as well. In the

years between 2001 and 2011, the number of 18-24 year olds enrolled in college increased from 36% to 42%. In this same time, students under the age of 25 have seen an enrollment increase of 35%; students over the age of 25 have seen an enrollment increase of 41%. The percent of Caucasian students has dropped from 84% to 61% from 1976-2011. Other ethnic groups have seen a small but steady increase during this time: Hispanic enrollment has increased from 4% to 14%, and African American enrollment has increased from 10% to 15% (U.S. Department Education, 2015b). These statistics show that the population of students enrolled in higher education has changed, and will most likely continue to change. Retention strategies of institutions must strive to keep up with the changes.

Predictors of College Success

The literature is abundant with efforts to try to predict students' success in college (Beauvais, Stewart, & DeNiso, 2014; Burton & Ramist, 2001; Hoffman & Lowikitz, 2005). A large number of studies look at traditional achievement predictors (high school grade point average and standardized achievement test scores) and demographic characteristics, along with psychosocial characteristics. Previous evidence has shown high school grades are a better predictor of success than standardized test scores (Astin, 1993; Burton & Ramist, 2001; Bridgeman, Pollack, & Burton, 2008; Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008). Some believe that high school GPA reflects some of the non-cognitive aspects of school as well as scholastic ability. Attendance and effort are also reflected in the GPA (Noble & Sawyer, 2004). Standardized achievement test scores have been the subject of several hundred studies related to academic achievement in college. However, high school grades are usually the stronger predictor, with standardized test scores offering some additional value in predicting the

first year in college GPA (Astin, 1993; Bridgeman et al., 2008; Burton & Ramist, 2001; Kobrin et al., 2008).

Many large studies have looked at predictors of first year college GPA. For example, in studies of over 150,000 students (in over 100 colleges), first year of college GPA was correlated with high school GPA and SAT Critical Reading, Writing, and Math subtests and combined subtest scores (Kobrin et al., 2008). Higher correlations were found between high school GPA and first year college GPA. However, the correlations of high school GPA and combinations of SAT subtest scores were more predictive of college GPA than either high school GPA or any one subtest score alone.

Another large study of 26 colleges and 81,000 students found that high school GPA combined with quantitative and verbal test scores were highly correlated with college GPA (Bridgeman et al., 2008). SAT scores were more predictive for women than for men. There were no significant differences among differing ethnic groups.

Hoffman and Lowitzki (2005) also looked at a sample of over 500 white and Hispanic, Lutheran and non-Lutheran students. They found that high school GPA was more predictive for all the students than SAT; however, SAT did have some use in predicting success. Tracey and Sedlacek (1985) found that psychosocial variables differentially predicted GPA for whites compared to blacks. Lin, LaCounte, and Eder (1988) also found a similar relationship between whites and Native Americans. Robbins, Allen, Casillas, Peterson, and Le (2006) found race was a significant predictor of first semester GPA in a large comprehensive study of college success predictors.

Demographic variables are usually reviewed in social science research so that consumers of research can understand the limits and generalizability of findings or to disaggregate data to

focus on particular groups or outcomes. Robbins et al. (2006) also found that demographic variables were significantly related to first-semester GPA and accounted for 4% of the variance in first semester GPA when included in prior analysis with all the psychosocial variables they studied.

Gender differences in predicting college GPA have inconsistent findings. Robbins et al. (2006) found that being a male was inversely related to college first semester GPA. Though this is an unusual finding, the study included over 8500 students, so it is worth noting. However, Hogebe, Dwinell, and Ervin (1985) found that gender was not significant in predicting GPA in their study of students in college developmental courses, and Fass and Tubmann (2002) also found that gender (as a part of a block of demographic variables) was not significant.

Community College Students

A review of literature on community college students reveals that they have some distinguishing characteristics which separate them from their counterparts who attend four-year colleges and universities. Community college students have lower rates of success and retention (Law, 2014; Kahn, Nauta, Gailbreath, Tipps, & Chartrand, 2002; Schneider & Yin, 2011). They are more likely to be employed while in school (Cohen & Brawer, 2002; Ma & Baum, 2016), are more likely to commute (Gonzalez, 2000; Ma & Baum, 2016), and are less likely to spend time with their classmates outside the classroom (Hagedorn, Maxwell, & Hampton, 2001). Community college students usually have more family responsibilities (Cohen & Brauer, 2002; Carter, 2006; Ma & Baum, 2016), are more strained financially (Ma & Baum, 2016; Sandler, 2000), and have more family problems that can affect their career development process (Ma & Baum, 2016; Simon & Tovar, 2004).

Jeffreys (2007) looked at Diploma of Higher Education nursing students, which is equivalent to Associate Degree Nursing students, to determine student characteristics, progression, and graduation rates. Her sample ranged in age from 19 to 56 years; she found those who graduated to be of a younger age than those who did not graduate. In contrast, Mulholand, Anionwu, Atkins, Tappern, and Franks (2008) and Prymachuk, Easton, and Littlewood (2008) found that older students were more likely to graduate than younger students. Both these studies were conducted in England, where the Diploma of Higher Education is equivalent to the Associates Degree in the United States.

Academic variables of SAT and ACT scores, high school GPA, and other standardized math and reading scores were used by Ellis (2006) to develop a model that was 99% successful in predicting success in the first nursing course of a group of associate degree students. Variables used were SAT scores, high school GPA, and Nursing Entrance Test scores. There was, however, a low rate of variability among the students. One of the earliest nursing research studies written on the topic of prediction of academic success of nursing students was done by Benda (1991) who found that high school class ranking and high school GPA were predictors of completion and retention after the first year of nursing school. But the research on pre-nursing GPA and successful completion of a nursing program is conflicting. Some studies found pre-nursing GPA to be correlated with completion (Sayles, Shelton, & Powell, 2003; Symes, Tart, & Travis, 2005; Stickney, 2008), while others (Higgins, 2005; Newton & Moore, 2009) found no relationship between the pre-nursing GPA and successful completion. More study is needed in this area to see what other factors may be affecting these findings.

Since these issues need assessment and intervention to assist with successful transition and adjustment to the community college, it is certainly worthwhile to look at those students who are dually enrolled in the university and the community college.

Retention and Nursing Research

Though the literature reflects that research specifically about nursing student retention has been published over the last thirty years, few of these studies are grounded within a theoretical framework. More recent studies use several frameworks as the basis for research. For example, Lockie and Burke (1999) used Tinto's (1975, 1987, 1993, 1998) theory of student departure with Bean and Metzner's (1985) theory of nontraditional student attrition as the framework for their study in which they evaluated a retention program for at-risk nursing students. The program consisted of a comprehensive assessment plan that assessed incoming students and monitored them as they progressed in the program. There was a series of six, one-credit academic courses that included topics such as successful learning strategies along with a psychological component. The courses were taught by nursing faculty and focused on successful learning and developing academic and personal partnerships. Study groups, mentoring activities, and computer activities were also utilized. Their results showed that students who participated in the retention program were more successful in completing the nursing program. The attrition rate was less than 10% in the study group, compared to 43.8% in the group who did not participate. Graduation for the study group was 50.4% compared to 27% in the regular group.

Shelton (2003) utilized Tinto's theory of student departure and Bandura's (1977) self-efficacy theory as the foundation for a model of student retention. In a correlational study, Shelton administered a perceived faculty support scale to associate degree nursing students. Her results showed that students who persisted in the program perceived greater functional and

psychological support from faculty than the students who did not persist. Shelton measured this support using scores on the Perceived Faculty Support Scale, an instrument developed by the author for this study. A factor analysis of the scale revealed two factors—psychological support directed at promoting a sense of self-worth and competency and functional support, directed at achievement of tasks related to persistence and academic success. Analysis of variance indicated the persistence group differed in faculty support. In a descriptive qualitative phenomenological study, Cameron, Roxburgh, Taylor, and Lauder (2011) found that personal commitment and good support were essential for student's retention. Definition of terms was not explicit and clearly need more elucidation. Shelton (2012) found that nursing students with higher perceived faculty support had higher rates in continuing nursing education, and those students also had higher outcome expectations for themselves. Shelton (2012) used her "Perceived Faculty Support Scale" to measure perceived faculty support. This tool measured the extent to which the students agree or disagree with statements related to whether "most faculty members" exhibited supportive behaviors. Content validity was confirmed using three experienced nurse educators. Construct validity was established by factor analysis. In this particular study, the instrument had excellent reliability with internal consistency of .96 measured by Cronbach's Alpha.

Jeffreys (1998) used Bean and Metzner's (1985) theory on nontraditional student attrition and Bandura's (1994) theory of self-efficacy to examine variables of nontraditional nursing students enrolled in their first semester nursing course at an associate degree program. Students perceived environmental variables such as finances, hours of employment, outside encouragement, and family responsibilities as having more influence on academic achievement and retention than academic variables. Smith, Engelke, and Swanson (2016) looked at student

retention in North Carolina Community College programs and found that minority students are at a higher risk of attrition than other students. They also noted a positive relationship between support from family and friends and successful matriculation.

Though research has not been conclusive about which variables are most predictive regarding student drop-out, retention efforts have been increased on almost every campus across the United States, with higher education officials continuing to try to pinpoint exactly why students decide not to continue and complete a degree. No studies were identified which analyzed dual enrollment programs. With the complexity of managing two educational institutions, data that would offer both predictors of student success, as well as identify potential supports to increase that success, would be valuable. Additional research that informed this study but did not relate to one of the preceding areas of literature review are found in Table 1. As noted in the table, the studies are both quantitative and qualitative. Data collection includes interviews, focus groups, and survey instruments. Many of the studies were conducted at one institution, and no studies focused on dually enrolled students.

Summary

Transition from high school to college is a stressful time for all students (Bryde & Milburn, 1990). It may be positive stress or negative stress, depending on the person, the day and the current events in life. Whether exciting stress or depressing stress, transition requires handling multiple issues simultaneously (Bryde & Milburn, 1990). Studies of individuals' backgrounds, family support, goals, institutional commitment, and the interaction of academic and social supports have all been related to the success of individuals as they pursue advanced education. Student characteristics such as their age, gender, GPA, and test scores all play a part in the attrition of college students in their plan of study. Program characteristics such as the size

Table 1

Summary Table of Research Studies Related to Retention

Author and Date	Study Purpose	Study Design	Sample	Findings
Houltram (1996)	To examine what type of nursing students stay in higher education	Audit of entry data	258 preregistration nursing students	Mature students and younger students with conventional entry qualifications were more likely to complete the program
Hilgendorf (1997)	To determine why students leave higher education and potential ways to keep them in the program	Survey	731 preregistration nursing students, environmental resource students, athletic students 23 control students	Having identifiable goals, being encouraged towards graduation, collaboration, rigorous standards and shared values were associated with higher level of retention
Perez (2003)	To build understanding of the nursing education choices made by participants	Quantitative/Qualitative Utilizing questionnaire and interviews	Qualitative – 20 Mexican Americans – all female Quantitative – 485 responses	Numerous barriers were identified including financial difficulties and need for employment, nursing education considered more difficult than expected, stress on family priorities and commitments
Amaro et al. (2006)	To determine diverse nursing students perceptions of educational barriers	Grounded theory methodology utilizing in-depth interviews	17 ethnically diverse recent graduate RN's	Student needs and barriers included: lack of time due to family responsibilities, lack of adequate finances, major academic difficulties

Table 1 (continued)

Author and Date	Study Purpose	Study Design	Sample	Findings
Rudel (2006)	To determine why students leave higher education and potential ways to keep them in the program	Phenomenological study and interviews	12 non-traditional female pre-registration students Faculty members	Social support from spouse or significant other was most important. Peer support was secondary in retention.
Bowden (2008)	To determine why students leave higher education	Questionnaires, interviews	Phase 1 – 93 students who completed program Phase 2 – 8 students who completed program	Half of the students contemplated leaving the program. Personal tutors were seen as the most influential in facilitating students to stay. Peer support was very important.
Green, Baird (2009)	To determine why students leave higher education	Questionnaire, focus group	9 midwifery students who discontinued, 16 midwifery students continuing on in the program	Peer support and being part of a small group were important factors.
Knight, Corbett, Smith, Watkins, Hardy, Jones (2012)	To examine data related to retention of students	Qualitative phenomenological research methodology	New Zealand nursing students	Initial reports are that students stayed because of the support. Secondary reason is for the impact of financial costs to them and their families.

Table 1 (continued)

Author and Date	Study Purpose	Study Design	Sample	Findings
Scarborough (2013)	To understand factors contributing to nursing student success to decrease attrition and increase retention	Quantitative, cross-sectional, descriptive, correlational design.	Student volunteers from a baccalaureate nursing education program	A significant relationship between total mood disturbance and interpersonal trust.
Pelayo (2013)	To identify desirable and undesirable student nurse characteristics in the 1950/1960s and relate them to those who successfully completed the program and gained state registration. Also to compare with modern day values.	Content analysis approach	641 student nurses. Records from 1955-1968.	Desirable student nurse traits – kind, compassionate, attentive to patients. Most negative comments related to unsuccessful completers.

Table 1 (continued)

Author and Date	Study Purpose	Study Design	Sample	Findings
Brooks, Nguyen, Chittams, Park, Guevara (2014)	To identify common components of diversity pipeline programs to determine what effect these programs have on increasing underrepresented minority enrollment and graduation.	Chi-square statistics used to describe organizational features of nursing diversity pipeline programs and determine significant trends in underrepresented minorities graduation and enrollment between nursing schools with/without diversity pipeline programs.	164 nursing schools in 26 states	Twenty percent of surveyed nursing schools reported a structured diversity pipeline program. Most frequent included mentorship, academic, psychosocial support. These programs are associated with increases in nursing school enrollment and graduation for some, not all minority students.
Beauvais, Stewart, DeNisco, Beauvais (2014)	To describe the relationships between emotional intelligence, psychological empowerment, resilience, spiritual well-being, and academic success in undergraduate and graduate nursing students.	Correlational study	124 participants. 59% undergraduate and 41% graduate students	The significant relationship between psychosocial empowerment, resilience, spiritual well-being, and academic success supports the statements in literature that say these concepts may play an important role in persistence through nursing education.

and retention rates and standardized test scores are a part of the situation that affects the students' attrition. If a student has the support needed throughout the program, progress through the curriculum may be more attainable. Attrition is still higher than college and universities would like. The utilization of valuable educational resources without a positive outcome is not prudent. What causes attrition during the first year of college? Can we make better decisions about acceptance into college programs so that use of our resources has positive outcomes? Since dual enrollment programs between a university and community college are relatively new, the literature is void of any factors related to these students' success in higher education. Could an edited version of Schlossberg's model offer guidance regarding success factors for dually enrolled students?

CHAPTER 3: METHODOLOGY

In this chapter, details of the problem statement, research aim/questions, research design, data collection, and data analysis plan are described. Ethical considerations are also included.

Research Questions

The overall aim of this study is to examine which factors available during the screening and admission process are related to successful completion of the first year of a dual enrollment program (baccalaureate and associate degree). The principal research aim that will be addressed in this research is: “Which factors (student characteristics, program characteristics or support characteristics) contribute most to dually enrolled students’ early success in college?”

The following are the research questions for this study:

1. Is there a difference in students’ characteristics (demographic, academic) when comparing the Eastern NC collaborative to the Western NC collaborative?
 - a. H_0 = There is no statistically significant difference in the student characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.
2. Is there a difference in program characteristics (size, number of partners, NCLEX pass rate) when comparing the Eastern NC collaborative and the Western NC collaborative?
 - a. H_0 = There is no statistically significant difference in the program characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.

3. Is there a difference in characteristics (community based or institutional based) of the Student Success Advocates (SSA) when comparing the Eastern NC collaborative and the Western NC collaborative?
 - a. H_0 = There is no statistically significant difference of the Student Success Advocates (SSA) characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.
4. Are there statistically significant differences between the Eastern NC collaborative and the Western NC collaborative with regards to student characteristics, program characteristics, and SSA characteristics?
 - a. H_0 = There is no statistically significant difference in the student characteristics of each cohort of students enrolled at the two collaboratives.
 - b. H_0 = There is no statistically significant difference in the program characteristics (retention rates, size, number of partners, NCLEX pass rate) of each collaborative.
 - c. H_0 = There is no statistically significant difference between attrition rates when the SSA is community based or institutional based.
5. Which factors (student, program, or SSA) best predict attrition due to academic performance among RIBN students in the first year of the program.
 - a. H_0 = There is no statistically significant difference between student characteristics and attrition due to academic performance.
 - b. H_0 = There is no statistically significant difference between program characteristics and attrition due to academic performance.

- c. H_0 = There is no statistically significant difference between SSA characteristics and attrition due to academic performance.
- 6. Which factors (student, program, or advocate) best predict attrition due to non-academic reasons.
 - a. H_0 = There is no statistically significant difference between student characteristics and attrition due to non-academic reasons.
 - b. H_0 = There is no statistically significant difference between program characteristics and attrition due to non-academic reasons.
 - c. H_0 = There is no statistically significant difference between SSA characteristics and attrition due to non-academic reasons.

Research Design

This is a non-experimental, descriptive, correlational study based on retrospective data gathered on 3 cohorts of RIBN students admitted from 2012-2015. Data for the study is limited to information that was and is still available through the North Carolina RIBN central office. While it would have been desirable to add additional data (such as a survey of the type of support provided by each student success advocate or qualitative interviews with the program directors) this is not possible because several of these individuals are no longer employed by the RIBN program and inclusion of this type of information would decrease the already limited number of collaboratives available for inclusion. In addition, since the goal of the study is to use data that is available during screening and admission, inclusion of this type of data is not consistent with the research aim.

Setting and Sample

Data from the two largest and experienced collaboratives (Western North Carolina and Eastern North Carolina) will be analyzed for this study.

Inclusion criteria for this study are all students that were admitted to the Eastern North Carolina RIBN collaborative or the Western North Carolina RIBN collaborative between 2012-2015. This includes 221 students across both programs.

Data Collection

The data were collected by the North Carolina RIBN central office. Since the beginning of the RIBN project, a data entry person has been employed to manage data related to the project. Data from each collaborative is sent to the central office on standardized forms and entered into the database which is kept on the Foundation for Nursing Excellence (FFNE) secure server. The data will be exported by FFNE staff and sent to the investigator in a de-identified format on an EXCEL spreadsheet.

Data Analysis Plan

Data will be analyzed using the Statistical Package for Social Sciences (SPSS) version 22. Data will be exported from the EXCEL file and coded prior to entering it into SPSS (see Table 2).

After the variables are coded in SPSS, the data set will be examined for missing values or values that appear to be out of the allowed range. For example, the value for the community college attended is 1 – 8; any value not in this range will be examined and corrected.

Inconsistencies in data will also be corrected. For example, the number of students in each collaborative cohort has been published in previous reports and this data set will be examined to ensure that they are consistent with previous reports.

Table 2

Coding of Study Variables

Variable	Measurement/Coding	Source
RIBN Collaborative	1=Eastern 2=Western	RIBN Data Base
Student Demographics		RIBN Data Base
Age	Years of age on admission	
Gender	1=Female 2=Male	
Ethnicity	1 = Caucasian 2 = African American 3 = Hispanic 4 = Asian 5 = Other	
Year of Entry	2012 = 1 2013 = 2 2014 = 3 2015 = 4	
Student Academics		RIBN Data Base
SAT-Reading		
SAT-Math		
ACT English		
ACT Math	Actual score	
High School GPA (unweighted)	Actual score	
	Actual score	
	0-4 Actual score	

Table 2 (continued)

Variable	Measurement/Coding	Source
Community College Attended	Pitt = 1 Beaufort County = 2 Lenoir = 3 Craven = 4 Roanoke-Chowan = 5 College of the Albemarle = 6 Asheville-Buncombe Technical = 7 Blue Ridge = 8	
County of Residence	Pitt= 1 Beaufort= 2 Wayne= 3 Martin= 4 Lenoir= 5 Edgecombe= 6 Wilson= 7 Hertford= 8 Duplin= 9 Tyrell= 10 Perquimans= 11 Stokes= 12 Randolph= 13 Brunswick= 14 Orange= 15 Wake= 16 Carteret= 17 Buncombe= 18 Henderson=19 Madison= 20 Rutherford= 21 Transylvania= 22 Polk= 23 Yancey= 24 Clay= 25 Craven= 26	
College Transfer	Yes = 1 No = 2	

Table 2 (continued)

Variable	Measurement/Coding	Source
Program Characteristics	Actual number of partners	RIBN Data Base
Number of partners in collaborative	Actual number of students	RIBN Data Base
Number of students admitted in 2012, 2013, 2014, 2015	% of students that passed the licensing exam on the first attempt during the year the student was admitted.	NC Board of Nursing (NCBON, 2015; NCBON, 2016)
NCLEX Pass Rate (community college)		
SSA Characteristics	Community Based = 1 Institutional Based = 2	RIBN Data Base
Attrition	Academic=1 Non-academic=2 N/A = 3	RIBN Data Base

Next, each research question will be examined based on the plan outlined in Table 3. The data analysis plan is based on information found in Pallant (2013).

Ethical Considerations

The Family Education Rights and Privacy Act (FERPA) of 1974 is a federal law that protects the privacy of student education records (Family Education Rights and Privacy [FERPA], 2008). Students have specific, protected rights regarding the release of such records and FERPA requires that institutions adhere strictly to these guidelines. Any record that contains personally identifiable information that is directly related to the student is an educational record under FERPA. Data for this study will not include information that can be directly linked to the students. All data will be obtained from the FFNE and will be de-identified prior to being sent to the investigator. The FFNE has agreed to release the data to the investigator but will maintain full ownership of the data. The researcher has agreed to analyze and interpret the data and share the completed work with the Foundation. If the data is presented in a public format other than a graduate assignment the FFNE will receive acknowledgement.

Institutional Review Board (IRB) approval from East Carolina University IRB will be requested. The student has completed the required educational modules and will complete the IRB submission through ePIRATE (Electronic Portal for Institutional Research at ECU). The FFNE will provide a letter of support. Based on the nature of the study it is expected that the study will be exempt in that it does not include any identifiable information on participants. According to the ECU IRB (2017, January 17) website studies can be considered exempt if the research involves:

Table 3

Data Analysis for Each Research Question

Research Question	Data Analysis
1. Is there a difference in students' characteristics (demographic, academic) when comparing the Eastern NC collaborative to the Western NC collaborative?	Descriptive statistics will be used to describe the sample. A t-test or Chi-square will be used to determine if there are differences between the variables.
2. Is there a difference in program characteristics (size, number of partners, NCLEX pass rate) when comparing the Eastern NC collaborative and the Western NC collaborative?	Descriptive statistics will be used to describe the sample. A t-test or Chi-square will be used to determine if there are differences between the variables.
3. Is there a difference in characteristics (community based or institutional based) of the Student Success Advocates (SSA) when comparing the Eastern NC collaborative to the Western NC collaborative?	Descriptive statistics will be used to describe the sample. A t-test or Chi-square will be used to determine if there are differences between the variables.
4. Are there significant differences between the Eastern NC collaborative and the Western NC collaborative with regards to student characteristics, program characteristics, and SSA characteristics?	<p>This question will be answered using Chi-Square for categorical variables and Analysis of Variance (ANOVA) for continuous variables. For example, to examine if race of students is significantly different across the collaboratives the Chi-square test for independence will be used. Statistical significance will be set at less than .05. If the p value is less than .05, the null hypothesis will be rejected.</p> <p>An independent t-test will be used when the variable of interest is continuous (i.e. SAT scores). The independent t-test compares the mean scores of each group.</p>

Table 3 (continued)

Research Question	Data Analysis
<p>5. Which factors (student, program, or advocate) best predict attrition due to academic performance among RIBN students in the first year of the program.</p>	<p>The dependent variable in this research question is dichotomous (pass/fail). Logistic regression is used to test a predictive model when the dependent variable is dichotomous. Independent variables can be categorical, continuous or both. Because there are a large number of potential variables that can be entered into the predictive model, descriptive statistics and bivariate analyses will be conducted prior to performing logistic regression so that the number of variables is trimmed to be consistent with the sample size. Logistic regression provides an indication of the relative importance of each predictive variable and allows for calculation of the amount of variance explained by the total model. Statistical significance of the full model ($<.05$) will be determined and the amount of variance explained by the model (R squared) will be calculated. Individual independent variables will be examined to determine if they make a unique contribution.</p>
<p>6. Which factors (student, program, or advocate) best predict attrition due to non-academic reasons RIBN students in the first year of the program.</p>	<p>The analysis is the same as that described in Research Question 5.</p>

“Data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects”.

Summary

The overall aim of this study is to examine which factors available during the screening and admission process are related to successful completion of the first year of a dual enrollment program (baccalaureate and associate degree). This chapter describes the problem statement, research questions, research design, setting and sample. An overview of the data collection and data analysis plan is provided. Ethical considerations, including the plan for seeking IRB approval, are discussed.

CHAPTER 4: RESULTS

This is a non-experimental, descriptive, correlational study based on retrospective data gathered on 3 cohorts of RIBN students admitted from 2012-2015. Data for the study is limited to information that was and is still available through the North Carolina RIBN central office. Data from the two largest and most experienced collaboratives (Western North Carolina and Eastern North Carolina) were analyzed for this study.

The chapter begins with a description of the sample. Next, the analysis related to each research question is presented. Differences between the collaboratives are analyzed. Finally, the relationship between student characteristics, SSA characteristics, and program characteristics and attrition (academic and non-academic) are examined.

Characteristics of the Sample

There were 221 students that were enrolled from 2012-2015. The Western Collaborative had a slight majority of the students. As the program progressed from 2012-2015 the number of enrolled students increased each year. In 2012, only 32 students were enrolled, while in 2015 there were 80 students enrolled. The students are predominately female (89.6%) and white (89.1%). The number of minority students were primarily African American (5.9%) and Hispanic (4.1%). There were also 23 male students, which represent 10% of the sample. These results are summarized in Table 4.

The academic characteristics of the students are summarized in Table 5. The average GPA of both collaboratives are very similar, but the SAT Reading average is quite different with the West having a higher SAT mean reading score by about 45 points. The students in the West

Table 4

Demographic Characteristics of Participants

Characteristic	N	%
Region		
East	92	41.6
West	129	58.4
Date Enrolled		
2012	32	14.5
2013	56	25.3
2014	53	24.0
2015	80	36.2
Gender		
Female	198	89.6
Male	23	10.4
Race		
White	197	89.1
African American	13	5.9
Hispanic	9	4.1
Asian	2	.9
Age (M = 21.8; SD = 6)		
17-20	151	68.3
21-25	27	12.2
26-30	20	9.0
>30	23	10.4

Note. (N = 221).

Table 5

Academic Characteristics of Participants

Characteristic	N	Mean	Standard Deviation
High School GPA			
East	92	3.58	.23
West	129	3.55	.28
SAT Reading			
East	62	542.10	47.1
West	129	587.52	69.2
SAT Math			
East	62	531.45	66.1
West	0		
ACT English			
East	30	23.10	2.0
West	0		
ACT Math			
East	30	22.53	1.4
West	0		
ACT Composite			
East	30	22.43	1.5
West	0		

collaborative did not take the SAT Math, ACT English or ACT Math, so those scores are not able to be included in this study.

Research Question 1

Is there a difference in students' characteristics (demographic, academic) when comparing the Eastern NC collaborative to the Western NC collaborative?

- d. H_0 = There is no statistically significant difference in the student characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.

Using a Chi Square test of significance, there was a significant difference in race and gender when comparing the collaboratives. The East collaborative had a significantly larger number of African American students when compared to the West collaborative. The West collaborative had significantly more male students. These results are summarized in Table 6. The null hypothesis related to demographics is rejected. There is a significant difference in demographics between the East and West collaboratives.

The second part of the first research question is related to differences in academics. The independent t-test was used to explore difference related to academics. Because so few took the ACT (see Table 5) the analysis of academics did not include ACT scores. As shown in Table 7, statistically significant differences between the East collaborative and the West collaborative are found in high school GPA and SAT Reading. The strength of the relationships was assessed with Eta Squared. Values from .01 to .04 indicate a small effect, .06 to .13 indicate a medium effect, and values of .14 or greater indicate a strong effect. The effect size for high school GPA is small, whereas the effect size for SAT Reading is moderate. There is a significant difference related to these two variables; therefore the null hypothesis was rejected.

Table 6

Demographic Differences Between Collaboratives

Characteristic	East		West		x ² (2)	p
	n	%	n	%		
Race					7.8	0.02
White	79	85.9	118	91.5		
African American	10	10.9	1.3	3		
Other	3	3.3	8	6.2		
Gender					7.8	0.02
Female	85	92.4	113	87.6		
Male	7	7.6	16	12.4		

Table 7

Differences in Academics Between Collaboratives

Characteristic	East		West		T(18)	<i>p</i>	Eta Squared
	<i>M</i>	SD	<i>M</i>	SD			
HS GPA	3.58	.23	3.55	.28	.709	.005	.002
SAT Reading	542.10	47.15	587.52	69.28	-4.66	.000	.103

Research Question 2

Is there a difference in program characteristics (size, number of partners, NCLEX pass rate) when comparing the Eastern NC collaborative and the Western NC collaborative?

- a. H_0 = There is no statistically significant difference in the program characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.

The analysis for this question consists of descriptive statistics related to the size and number of partners. To determine if there is a difference in NCLEX scores, the T-test was used.

The number of community colleges is different when comparing the East and West collaboratives. Although the number of students is greater in the West, this collaborative includes only two community colleges, while the East collaborative includes six community colleges. In the East collaborative, the community college with the most students enrolled in RIBN is Pitt Community College (20.4%). Roanoke-Chowan and College of the Albemarle enrolled the fewest number of students, with two students each. The community college with the highest attrition rate was the College of the Albemarle; this school enrolled only two students, and both dropped out. The NCLEX-RN pass rates of the community colleges in the East collaborative range from a high of 98% (College of the Albemarle) to a low of 72% (Roanoke-Chowan).

In the Western Collaborative, Asheville Buncombe and Blue Ridge are the two community colleges that comprise Western RIBN. Asheville Buncombe contributed 81% of the students, while Blue Ridge Community College contributed only 19%. Academic and non-academic attrition were higher at Asheville Buncombe compared to Blue Ridge. NCLEX-RN pass rates at the two were comparable. These results are summarized in Tables 8 and 9.

Table 8

Characteristics of Programs in the East

Characteristic	N	%
# of students		
Pitt	45	20.4
Beaufort	18	8.1
Lenoir	17	7.7
Craven	8	3.6
Roanoke-Chowan	2	.9
College of the Albemarle	2	.9
Academic Attrition		
Pitt	13	30.2
Beaufort	3	16.7
Lenoir	4	28.6
Craven	2	28.6
Roanoke-Chowan	0	0
College of the Albemarle	2	100
Non-academic Attrition		
Pitt	2	4.4
Beaufort	0	0
Lenoir	3	17.6
Craven	1	12.5
Roanoke-Chowan	0	0

Table 8 (continued)

Characteristic	N	%
College of the Albemarle	0	0
NCLEX Pass Rates		
Pitt		89
Beaufort		88
Lenoir		94
Craven		89
Roanoke-Chowan		72
College of the Albemarle		98

Table 9

Characteristics of Programs in the West

Characteristic	N	%
# of students		
Asheville-Bunn	104	80.6
Blue Ridge	25	19.4
Academic Attrition		
Asheville-Bunn	18	20.9
Blue Ridge	3	13.0
Non-Academic Attrition		
Asheville-Bunn	18	17.3
Blue Ridge	2	8.0
NCLEX Pass Rates		
Asheville-Bunn		83
Blue Ridge		87

An independent T-test demonstrated that the average NCLEX pass rate is significantly different between the East and West Collaborative. Pass rates are higher in the East, and this difference is not only statistically significant but the effect size is large. This result is presented in Table 10.

Research Question 3

Is there a difference in characteristics (community based or institutional based) of the Student Success Advocates (SSA) when comparing the Eastern NC collaborative and the Western NC collaborative?

- a. H_0 = There is no statistically significant difference of the Student Success Advocates (SSA) characteristics when comparing the Eastern NC collaborative to the Western NC collaborative.

The SSA in Eastern NC was community based while the SSA in the West was institutional based. Because there were only two collaboratives, statistical testing was not possible but this factor was used to examine whether this variable had an effect on attrition.

Research Question 4

Are there statistically significant differences between the Eastern NC collaborative and the Western NC collaborative with regards to student characteristics, program characteristics, and SSA characteristics?

- a. H_0 = There is no statistically significant difference in the student characteristics of each cohort of students enrolled at the two collaboratives.
- b. H_0 = There is no statistically significant difference in the program characteristics (retention rates, size, number of partners, NCLEX pass rate) of each collaborative.

Table 10

Differences in NCLEX Pass Rates Between East and West Collaboratives

Characteristic	East		West		T(18)	<i>p</i>	Eta Squared
	<i>M</i>	SD	<i>M</i>	SD			
NCLEX Pass Rate	89.55	3.56	83.78	1.58	16.30	.007	.548

- c. H_0 = There is no statistically significant difference between attrition rates when the SSA is community based or institutional based.

The analysis related to 4A and 4B is discussed previously in Research Questions 1 and 2. The analysis for 4C is summarized below. Attrition has slowly declined as the RIBN program has grown in North Carolina. The number of students retained in the Eastern collaborative and the Western collaborative has increased yearly in both regions. The retention of students in the Eastern collaborative has improved from 62.5% in 2012 to 85.7% in 2015. In the Western collaborative it has improved from 41.2% to 97.6%. These attrition and retention rates are very important to each region when looking at the reasons students may leave the program to determine whether they are academic reasons as opposed to personal reasons. These results are summarized in Table 11.

Next, the differences in attrition between the East and West Collaboratives were examined (see Table 12). Academic attrition is higher in the East Collaborative and non-academic attrition is higher in the West Collaborative. Examining the residual values for the analysis demonstrates that the difference which is statistically significant is between the non-academic attrition ($p=.04$). Using the Phi test to estimate the effect size demonstrates that there is a small effect. The null hypothesis is rejected for Hypothesis 4C.

Research Question 5

Which factors (student, program, or SSA) best predict attrition due to academic performance among RIBN students in the first year of the program.

- a. H_0 = There is no statistically significant difference between student characteristics and attrition due to academic performance.

Table 11

Attrition by Year

Region	Students Retained <i>n</i>	%	Academic Attrition <i>n</i>	%
East				
2012	5	62.5	3	37.5
2013	15	60	10	40
2014	12	66.7	6	33.3
2015	30	85.7	5	14.3
West				
2012	7	41.2	10	58.8
2013	21	84	4	16
2014	19	76	6	24
2015	41	97.6	1	2.4

Table 12

Total Attrition by Collaborative

Characteristic	East		West		x ² (2)	p
	n	%	n	%		
Academic attrition	24	26.1	21	16.3	.044	.21
Non-Academic attrition	6	6.5	20	15.5		
Passed (no attrition)	62	67.4	88	68.2		

- b. H_0 = There is no statistically significant difference between program characteristics and attrition due to academic performance.
- c. H_0 = There is no statistically significant difference between SSA characteristics and attrition due to academic performance.

To examine which factors predict academic attrition, the independent t-test was used for continuous variables (age, HS GPA, SAT Reading, SAT Math, and NCLEX Pass Rate) and the Chi Square test was used for categorical variables (Gender and Race). The only variable that was statistically related to academic attrition was the SAT reading score. Low SAT scores at admission are predictive of academic attrition. Therefore, the null hypothesis was rejected for this variable. The alternative hypothesis that low SAT scores are related to academic attrition was accepted. These results are summarized in Table 13 and 14.

Research Question 6

Which factors (student, program, or advocate) best predict attrition due to non-academic reasons?

- a. H_0 = There is no statistically significant difference between student characteristics and attrition due to non-academic reasons.
- b. H_0 = There is no statistically significant difference between program characteristics and attrition due to non-academic reasons.
- c. H_0 = There is no statistically significant difference between SSA characteristics and attrition due to non-academic reasons.

To examine which factors predict nonacademic attrition, the independent t-test was used for continuous variables (age, HS GPA, SAT Reading, SAT Math, and NCLEX Pass Rate)

Table 13

Continuous Variables Related to Academic Attrition

Characteristic	N	Mean	Standard Deviation	T	Df	Sig.
Age						
No	150	21.59	5.6	.865	193	.388
Yes	45	20.76	5.8			
HS GPA						
No	150	3.56	-.257	-.279	193	.781
Yes	45	3.57	.251			
SAT Reading						
No	127	575.2	69.2	2.19	164	.030
Yes	39	548.9	49.61			
SAT Math						
No	39	532.3	75.0	.033	55	.974
Yes	18	531.67	51.3			
NCLEX Pass Rate						
No	150	86.02	3.6	-1.88	193	.061
Yes	45	87.24	4.2			

Table 14

The Relationship of Race and Gender to Attrition

Characteristic	No Attrition		Yes Attrition		x ² (2)	p
	n	%	n	%		
Race					2.68	0.26
White	135	78.5	37	91.5		
African American	7	58.3	5	3		
Other	8	72.7	3	6.2		
Gender					.049	.826
Female	135	76.7	41	23.3		
Male	15	78.9	4	21.1		

(see Table 15) and the Chi Square test was used for categorical variables (Gender and Race) (see Table 16). The only variable that was predictive of nonacademic attrition was age. Older students were more likely to drop out for nonacademic reasons. Therefore, the null hypothesis was rejected for this variable and the alternative hypothesis that higher age is related to nonacademic attrition is supported.

Summary

Data analyzed from this non-experimental, descriptive, correlational study based on retrospective data from 221 RIBN students indicated a significant difference in race and gender between the two collaboratives. High school GPA, SAT Reading scores, and NCLEX pass rates were also significantly different in the two groups. Academic attrition was higher in the East Collaborative, while non-academic attrition was higher in the West Collaborative. The only variable that was statistically related to academic attrition was the SAT Reading score; the only variable that was statistically related to nonacademic attrition was age. Older students were more likely to drop out for nonacademic reasons.

Table 15

Continuous Variables Related to Nonacademic Attrition

Characteristic	N	Mean	Standard Deviation	T	Df	Sig.
Age						
No	150	21.59	5.60	-2.56	174	0.11
Yes	26	24.85	7.86			
HS GPA						
No	150	3.56	.25	-.843	174	.401
Yes	26	3.61	.32			
SAT Reading						
No	127	575.2	69.2	-1.49	150	.137
Yes	25	597.6	64.6			
SAT Math						
No	39	532.3	75.0	.241	42	.811
Yes	5	524.0	43.9			
NCLEX Pass Rate						
No	150	86.0	3.69	.950	174	.343
Yes	26	85.2	3.8			

Table 16

The Relationship of Age and Gender to Nonacademic Attrition

Characteristic	No Attrition		Yes Attrition		x ² (2)	p
	n	%	n	%		
Race					1.51	.470
White	135	84.4	25	15.6		
African American	7	87.5	1	12.5		
Other	8	100	0	0		
Gender					.667	.414
Female	135	86	22	14		
Male	15	78.9	4	21.1		

CHAPTER 5: CONCLUSIONS AND IMPLICATIONS

Attrition in postsecondary educational programs impacts society at large. Access to higher education has become increasingly more difficult due to increased admission standards and overall cost. Educators in higher education are challenged to design new models to support students to be successful. One of the newer models of interest is the dual enrollment model (Fontaine, 2014; Goodman & Pascarella, 2006; Roberts & Styron, 2010). Dual enrollment programs allow students to pursue more than one degree at the same time and are generally less expensive for students. However, navigating dual enrollment programs can be more complex for students and more resource intensive for universities. According to Gardner and Hansen (1993), when students are given a good start to their college experience, it may result in a positive environment for the students and lead to enhanced retention. In Tinto's (1988) research, he found that the first college semester, and in particular the first six weeks, are the most important for student persistence. So, it is highly important to determine what factors can assist incoming students to have a positive start to their educational journey in a dual enrollment program. It is crucial for educators to determine best practices to integrate students academically and socially into the institution (Pascarella, Smart, & Ethington, 1986). If students feel a part of the institution and are connected to their peers, they will be less likely to drop out and will feel more accountable to their program.

This study sought to examine attrition in a new dual enrollment program. The first year of the program had the highest attrition; analysis of the data available at admission may yield information about what educators should look for to select those students who are more likely to be successful in a rigorous dual enrollment program. This could potentially mean fewer resources would be needed while still maintaining student success. Analyses of student

demographic characteristics, student success advocate characteristics, and program characteristics were completed on two dual-enrollment nursing programs using an adaptation of Schlossberg's (1981) transition theory. The results of this study yielded information about the model in relation to which factors, known at admission, best predict student success in the first year.

Admission and Screening Factors

This study examined factors, available during the screening and admission process, which were related to successful completion of the first year of a dual enrollment program (baccalaureate and associate degree). Data from two collaboratives, one in the eastern part of North Carolina and the other in western North Carolina, were utilized for the study.

First, the data from these two collaboratives were analyzed to determine if there was a difference in the students' characteristics (demographic and academic) when comparing one collaborative's cohort to the other. Results indicated that there were some statistically significant differences in demographic student characteristics between the Eastern NC collaborative and the Western NC collaborative. The average age in the Eastern NC collaborative is 19, while the average age in the West is 26. The Eastern NC collaborative also had more African Americans enrolled. The SAT Reading average was higher in the Western NC collaborative. This is not surprising and can be partially due to the demographic differences in the Eastern and Western portion of the state. Minority population in the Eastern North Carolina counties is 41.8% (NC East Alliance, 2017), whereas the Western part of the state is 12% (Western NC Vitality Index, 2017).

There were also statistically significant differences in academic characteristics of the students. The statistically significant academic differences were the SAT Reading score and the High School GPA. High schools in the West consistently rank higher than those in the East based on college readiness and graduation rates (U.S. News and World Report, 2017).

In the study by Bridgeman et al. (2008), SAT scores were more predictive of success for women than men, which is consistent with the findings of this study. Nursing is predominately a female profession and the SAT reading score was the only predictor of academic attrition. In contrast to previous studies, which demonstrated that high school GPA was predictive of academic success (Astin, 1993; Burton & Ramist, 2001, Bridgeman et al., 2008; Kobrin et al. 2008), this study showed that standardized test scores are a better predictor of success than high school grades.

Program Characteristics

There were differences in the program characteristics between the Western and Eastern collaboratives. The NCLEX pass rate was higher in the Eastern NC collaborative. The RIBN program began in western N.C. as a pilot project, and during the first year, Western Carolina chose to begin slowly with fewer partners until the model was more established. The Western collaborative has added two more community colleges into their partnership recently, along with two additional Student Success Advocates. East Carolina University College of Nursing is a much larger school with more resources and over 900 clinical partners. There was great interest and strong demand for partnerships as soon as the collaborative was created. This continues today with Eastern RIBN potentially adding two to three new community college partners within the next year. The difference in the number of students may be partially due to different target groups for recruitment by the collaboratives. The Eastern collaborative focuses on students

graduating from high school, while the Western collaborative more heavily recruits applicants of all ages and academic levels to apply.

Student Success Advocate (SSA) Characteristics

The strategic work of the Student Success Advocates were different in the Eastern NC collaborative and the Western NC collaborative. In the east, the SSA travels regularly to the community colleges where the students are enrolled and meets with them on site. In the west, the SSA is stationed at the institution and students travel to meet on campus at the University. This variable was not related to student attrition.

Although this variable was not related to student attrition, this may be due to the small sample size; there were only two student success advocates and more specific data related to the SSA's activities was not collected. Data such as the number of encounters the SSA had with students, the types of services provided, and the type of resources available to the students from the SSA would yield more insight into the actual SSA interactions with students.

Differences Between Collaboratives

The statistically significant differences between the Eastern NC collaborative and the Western NC collaborative with regards to student characteristics, program characteristics, and SSA characteristics were analyzed. There are differences in the collaboratives in all areas (student, program, and SSA). In addition, there are differences in the attrition rates across time and between the collaboratives, with both exhibiting improved retention over time. In the East the attrition changed from 37.5% in 2012 to 14.3% in 2015, and in the West the difference was from 58.8% in 2012 to 2.4% in 2015. The early attrition rates are high and this gives cause for concern. It is not cost effective when high percentages of students do not progress in the program. However, with these RIBN collaboratives, it appears that as the programs mature,

attrition decreases. In the last year of the program the attrition is similar to other BSN programs. It may be that over time the programs have improved their recruiting strategies while at the same time improving their support strategies. Currently, the collaboratives are enrolling more students, but they are also graduating more of the students that they enroll. While this study did not evaluate changes in processes over time, this is an important area for future research.

Factors Which Best Predict Attrition

Due to the limitations in sample size, the factors (student, program, or SSA) which best predict attrition due to academic and non-academic performance among RIBN students in the first year of the program were addressed for the entire sample rather than for each separate collaborative. The best predictor of academic attrition was the SAT reading score. Success in nursing school is based on a student's ability to read and apply knowledge and critical thinking to patient care. Reading, critical thinking, and clinical reasoning are core concepts in undergraduate curriculum, so SAT reading is a logical predictor of success in undergraduate education.

The best predictor of non-academic attrition was age. Older students were more likely to drop out of the program due to non-academic reasons. Older students typically have more family responsibilities, so they are more likely to have to discontinue higher education in order to take care of their family (Smith, Engelke, & Swanson, 2016). This is an important factor to consider in this research, because it has major implications for support services needed to retain students in dual enrollment programs.

Implications of the Study

The implications from this study offer suggestions to consider in the admission guidelines for dual enrollment programs. Reading proficiency is an important part of education at every age

level. Most institutions of higher education use some form of testing whether it is standardized testing like the SAT or ACT or more specific placement tests. As noted in this research, reading proficiency is one of the most important factors in retention for the first year of the RIBN program. Students with lower SAT reading scores were more likely not to continue into the second year. Limited resources and higher demands on educational outcomes call for innovative programs which are cost effective and have successful student outcomes. Dual enrollment programs and collaboration between community colleges and universities is one avenue that can cut costs and produce educated professionals in an efficient manner. Choosing the students who are more likely to be successful can increase the likelihood of these programs' success. The findings from this study may inform revisions for admissions for dual enrollment programs in college. This research showed that instead of focusing on high school GPA or other factor such as essays, interviews, or specific entry requirements, educators should put more emphasis on standardized test scores such as the SAT and ACT. Certainly, this goes against the current wave of many higher education programs' emphasis on eliminating test scores. More research is needed with larger and diverse samples to validate this finding.

Theoretical Model

The theoretical model that was used to frame this research was Schlossberg's (1981) Transition Theory. Attrition can be attributed to many things, especially in a program with many stressors, such as a college dual enrollment program. Student characteristics (self) such as demographics and academics certainly play an important role in determining success. The results of this research showed that academics (SAT reading) score is most important in determining success. A factor that was important in non-academic attrition was age. Results showed that older students were more likely to drop out for non-academic reasons. The program

characteristics (situation) sometimes play a vital role in retention of students, as noted in research by Pascarella and Terrenzini (2005) and Pascarella et al. (1986). But in regards to this research, the number of students, numbers of partners, and NCLEX pass rates did not impact attrition. According to Schlossberg (1981), a support system is also very important for students to succeed in higher education, especially in the first year. This is why so many institutions have implemented first year seminars and programs (Fontaine, 2014; Goodman & Pascarella, 2006). In the RIBN program, the Student Success Advocates are the support system for the students (support). They are the contact for the students for registration, advising, and for general support throughout the program. According to this research, attrition was not impacted by community based or institution based support. Each Student Success Advocate included in this study had their own unique way of supporting the students, and each seemed to work well for their population. However, future research on the actual support provided by the Student Success Advocate and how that needs to be individualized for older students is an important area for future studies.

Recommendations for Research

Based upon the findings and conclusions of this study, several recommendations are indicated. First, replication of the study with a larger and more diverse sample would either validate these findings or offer other possibilities. This study included students in two regions in North Carolina. The majority of participants were white and female. Ideally the study should be replicated in other regions of the country with populations that might be different from the students in this study. In addition, a larger sample would allow for examination of sub groups in the sample such as men and minority groups.

Long term follow-up of students in these programs would be of great value. This study only examined first year attrition. While this is the most common time frame for attrition, a longitudinal design that follows students through graduation would allow for analysis of later attrition and offer ideas to be considered for prevention of later attrition. Additionally, a follow-up interview of all students who leave the program to find out why they are leaving would be useful data for review. Interviews could also be completed with professors to find out more about the courses or assignments where these students did not perform well. Spady (1970) proposed that adjustment is a longitudinal process, with interactions between student, academic, and social systems of the university, so this process can be lengthy.

In addition, an analysis of the types of supports needed by dually enrolled students to increase their likelihood of success would be useful. This study was limited to information available at admission; however, this information could be expanded with administration of additional admission instruments. For example, Schlossberg's (1981) transition theory suggests that other factors are important for successful transition (social support, resources, and previous experiences). Future studies could include instruments to measure these variables at admission and also at later points during progression. Prospective students could be interviewed about previous experiences in education and students enrolled in the program could be interviewed or surveyed periodically to find out if they were getting the support they feel they need. Support could be tailored to their needs as noted in the survey. This would give a clearer picture of how transition is fostered through the program. Pascarella and Terenzini (2005) found that student retention is largely related to student perceptions of faculty members and their concern for their success. Perceptions of RIBN students regarding their perceptions of their community college and university faculty could offer data to strengthen another component affecting retention.

Additional research about dual enrollment programs and admission criteria between community colleges and universities is needed. There is limited research available on this topic to date. Since the Completion Agenda calls for more students to graduate from college in an expedient manner, more of these types of programs may likely become available. Research is needed to be sure the programs make the best use of the investments. There is also more research needed on differences between distance education programs as opposed to face to face programs. Distance education is becoming more prevalent all over the country, which is another way higher education is trying to comply with the Completion Agenda. Unfortunately, distance education is not always the best method for certain programs. Further research is needed to examine the differences in distance education as opposed to face to face and how to account for those differences.

Recommendations for Educational Practice

Directors of dual enrollment programs need to monitor admission criteria and revise the criteria periodically to determine which students are most likely to be successful. Admission criteria needs to be addressed and changed on a regular basis to keep up with the changes in standardized testing and student demographics. Just recently the SAT changed the entire format of the test and grade reporting, so admission criteria must reflect these changes. Student applicant pools change with population shifts. Directors need to consider different student groups who may apply to dual enrollment programs since they may have unique and varied needs.

Educators should use evaluation data from these programs to lobby for additional resources for support of these innovative programs. Because retention is improving in these collaborative programs, it shows that dual enrollment is a strategy to increase college enrollment

and college completion. Resources are needed to keep the programs going, such as funding for SSA travel, recruitment materials, and collaborative events for the students to keep them involved and connected. Collaborative events/meetings for all key partners involved increases communication and facilitates supportive relationships.

Financial assistance for students is needed for students enrolled in higher education, especially students dually enrolled in two institutions. Educators and administrators should lobby for additional funding to support scholarships and financial aid for these students. Because of federal regulations, students only qualify for financial aid through the community college for the first three years of the RIBN program. Unfortunately there is usually not enough funding to cover tuition at the community college, university, and books. Financial assistance is important to ease the burden of tuition and it is vital to keep students enrolled in the program.

Educational leaders should continue to develop processes that allow for seamless transition and dual enrollment. Constant communication among offices of admissions, financial aid, registrars, and other key administration needs to be maintained. Because there are so many separate parts, making a truly seamless transition is not easy to accomplish; it is too easy for a student to slip through the cracks. Each department must have plans in place so that everyone knows what to do when students are admitted and in the event that students are not performing well or drop out.

Ideally, there should be a structure for maintaining student records electronically so that when access is needed by more than one person or institution involved, there is a simple way for it to happen. This would aid in the seamless transition from the community college and university and lessen the chances of confusion about courses taken or requirements needed.

Research shows that students that are more integrated into their institution and feel like their faculty members and advisors care about their success are more likely to stay and finish a program (Pascarella & Terenzini, 2005; Tinto, 1993). Educational leaders should take this into consideration when employing directors, faculty, and staff who will be working with students in a dual enrollment program. The individuals working with those students should make sure they take direct interest in the students' success, both educationally and personally through personal face to face conversations, emails, and time spent one on one with each student. If the students feel that their well-being matters, they will feel more comfortable possibly conveying possible road-blocks in their educational journey. According to Tinto (1993), emphasis should be on maintaining the campus as a community, social and emotional growth of students, and commitment to the students. Small group activities with all the dually enrolled students together provides interaction with other students in the same learning situation. This can lead to informal mentoring and socialization. University professional student organization activities and larger university activities give the dually enrolled students an opportunity to feel inclusion with the larger institution.

Summary and Conclusion

In summary, this study found that SAT reading scores are statistically related to academic attrition in the first year of North Carolina's largest two RIBN programs. High school GPA is also related to first year success.

This is the first known study to examine attrition in a dual enrollment nursing program. This type of program is innovative and offers a potential solution to a national shortage of nurses and also a new educational model for students to be enrolled in an associate degree program and a baccalaureate program simultaneously with expedience in matriculation to graduation.

Baccalaureate programs are at capacity and are limited in growth because of a faculty shortage as well as limited clinical sites. Partnering with community colleges for the basic educational courses allows for the sharing of resources and builds a bridge between community colleges and universities. It fosters collaboration rather than competition and is the best use of educational and financial resources to meet society's needs for a well-educated work force.

While the data in this study was limited to what was available on admission, the results suggest that standardized testing is an important factor for success. However, it is likely that other factors are also relevant. While this study provides a beginning understanding of the issues related to dual enrollment programs, there is a need to continue and expand on the finding of this research. There is also a need for educational leaders to develop strong evaluation programs that demonstrate the value of these programs and to lobby for increased funding and resources.

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APPENDIX A: IRB APPROVAL



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
Office
4N-70 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office 252-744-2914 ☎ · Fax 252-744-2284 ☎ ·
www.ecu.edu/irb

Not Human Subject Research Certification

From: Social/Behavioral IRB
To: [Kelly Cleaton](#)
CC: [David Siegel](#)
Date: 2/2/2017
Re: [UMCIRB 17-000258](#)
Social/Behavioral IRB

On 2/2/17, the IRB Staff reviewed your proposed research and determined that it does not meet the federal definitions of research involving human participants, as applied by East Carolina University.

Therefore, it is with this determination that you may proceed with your research activity and no further action will be required. However, if you should want to modify your research activity, you must submit notification to the IRB before amending or altering this research activity to ensure that the proposed changes do not require additional UMCIRB review.

The UMCIRB appreciates your dedication to the ethical conduct of research. It is your responsibility to ensure that this research is being conducted in accordance with University policies and procedures, the ethical principles set forth in the Belmont Report, and the ethical standards of your profession. If you have questions or require additional information, please feel free to contact the UMCIRB office at 252-744-2914 ☎.

APPENDIX B: MEMORANDUM OF AGREEMENT

Memorandum of Agreement

October 30, 2015

Parties to Agreement: Foundation for Nursing Excellence
Kelly Cleaton, Doctoral Student at East Carolina University

Subject: Sharing of data from the Foundation's Regionally Increasing Baccalaureate Nurses (RIBN) Initiative

The Foundation for Nursing Excellence agrees to the following:

1. Provide raw data and survey tools from the RIBN Initiative for use by Kelly Cleaton for doctoral student project work at ECU.
(NOTE: Personal identifiers will not be present in the data to be provided.)
2. Be available to answer all questions and provide additional information (if possible).
3. Maintains full ownership of the data

Kelly Cleaton agrees to:

1. Analyze and interpret the RIBN-related data and share the completed work, including interpretations, with the Foundation.
2. If data is presented in any public format (i.e., presentation, article, poster, etc.) other than a graduate course assignment, the Foundation for Nursing Excellence will receive credit as the owner of the data and have the option to be a co-author.
3. If the data is presented as part of a graduate course assignment, the Foundation for Nursing Excellence will be given credit as the owner of the data.

This agreement may be amended at any time by either party as long as both parties agree to the amendments.

This agreement has been entered into on October 30, 2015 by:



Mary P (Polly) Johnson, RN, MSN, FAAN
CEO
Foundation for Nursing Excellence



Kelly Cleaton
Doctoral Student
East Carolina University

