

# Academic Success Factors Influencing Linguistically Diverse and Native English Speaking Associate Degree Nursing Students

Josie Lynn Veal  
*Marquette University*

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ACADEMIC SUCCESS FACTORS INFLUENCING LINGUISTICALLY DIVERSE AND  
NATIVE ENGLISH SPEAKING ASSOCIATE DEGREE NURSING STUDENTS

by

Josie Veal, MSN, RN, FNP-BC

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ABSTRACT  
ACADEMIC SUCCESS FACTORS INFLUENCING LINGUISTICALLY DIVERSE AND  
NATIVE ENGLISH SPEAKING ASSOCIATE DEGREE NURSING STUDENTS

Josie Veal, MSN, RN, FNP-BC

Marquette University, 2012

To address the healthcare needs of vulnerable populations, nursing educators should evaluate educational preparedness and identify which factors influence a successive academic trajectory in nursing school. A prospective design was used to determine the relationships and differences among the anatomy and physiology course grade, self-efficacy, linguistic diversity, language acculturation, and components of the National League for Nursing pre-admission exam for registered nurses and first semester nursing course grades of linguistically diverse and native English speaking associate degree nursing students.

A relationship exists between the PAX-RN composite score, anatomy mean grade, language diversity, and general self-efficacy score, the Nursing Pharmacology and Nursing Fundamentals course grades for associate degree nursing students. The PAX-RN composite score and the AP mean grade were related to all first semester courses for associate degree students. Differences existed in the academic success of linguistically diverse students and Native English speaking students on the PAX-RN composite scores and Nursing Fundamentals course grades.

Students may approach prerequisite courses and preadmission exams differently if the predictive nature of these factors were addressed. Nurse educators can further explore essential admission criteria which may be necessary for academic success among all students, inclusive of diverse populations.

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## CHAPTER 1

Nurses from diverse racial and ethnic backgrounds comprise less than 21% of health care professionals and approximately 17% of registered nurses in the United States (Health Resources Services Administration [HRSA], 2010). The increase in minority populations warrants diverse nurses to meet their health care needs. “Hispanic and African American nurses make up only 1.8% and 4.6%, respectively, of the total nurse workforce, whereas they consist of 13.7% and 12.2%, respectively, of the general population” (Carter & Xu, 2007, p. 149). The persistent disparity between diverse populations and the diverse number of practicing nurses warrants a closer look. With the recruitment of minority students, specifically linguistically diverse nursing students, it is important to continuously assess the rates of program retention, attrition, and first time pass rates on the National Council of Licensure Examination for Registered Nurses (NCLEX-RN). These factors are necessary to improve the quality of nursing programs, enhance curriculum course offerings, and provide the necessary support which facilitates linguistically diverse students’ and native English speakers’ academic success and transition into the profession.

### **Nursing Shortage**

The Bureau of Labor Statistics (2010) has projected a need for 587,000 new nursing positions by 2018. The projected national deficit of 260,000 nurses by year 2025 has the potential to threaten the access, cost, and quality of care (Auerbach, Buerhaus, & Staiger, 2007). Despite recruitment efforts for registered nurses, baccalaureate nursing

programs have denied entry to almost 50,000 qualified applicants (American Association of Colleges of Nursing [AACN], 2009a). The percentage of minority nurses by race and ethnicity has risen; yet, these nurses are severely underrepresented (AACN, 2009b/2009c). Among pre-licensure programs, associate degree nursing programs total enrollment (53%), admission (60%), and graduation (61%) rates are higher than baccalaureate or diploma programs, yet the one year retention rates of fulltime nursing students is highest among baccalaureate nursing programs (National League of Nursing [NLN], 2008/2009). Nursing schools have not effectively addressed the nursing shortage in part because of discrepancies between the number of qualified applicants applying and the number of available seats within nursing programs. To further complicate this problem, the percentage of licensed minority nurses, including those who are linguistically diverse, does not keep pace with the need for diversity in the nursing workforce.

### **Diversity in Nursing**

There remains a disproportionately low number of racially and ethnically diverse students entering the nursing profession and ultimately those who enter are less likely than their Caucasian counterparts to successfully complete their nursing programs (Gardner, 2005b; Seago & Spetz, 2005). Although African Americans, Hispanics/Latinos, and American Indians/Native Americans account for 30% of the U.S. population (Census, 2010) they comprise 17% of the registered nursing workforce (HRSA, 2010). By 2050, projections indicate that Hispanics will represent 25% of the total United States (U.S.) population, yet Hispanic nurses currently represent less than

4% of nurses nationally (Bureau of Health Professions, 2008). The severe need for diversity in the health professions workforce is also evident outside the discipline of nursing; shortages exist in dentistry, medical specialties, allied health professions and public health (Federation of Associations of Schools of the Health Professions [FASHP], 2009). There remains an unmet need for enhancing diversity specifically by increasing the number of direct health care providers.

Disparities in health care contribute to vulnerability and are among the most serious health problems in the U.S. (Institute of Medicine [IOM], 2003) because racial and ethnic populations (minorities) are the most underserved consumers of health care. These individuals have fewer economic resources, are more likely to receive discriminatory treatment in the health care system, and are less likely to receive preventive services for chronic conditions (IOM, 2003). Minority patients reported greater satisfaction and quality of care when there was ethnic and racial concordance between the physician and the patient (Cooper et al., 2003) and there was decreased perception of bias (Johnson, Saha, & Arbelaez, 2004). According to *Healthy People 2010* (United States Department of Health and Human Services [USDHHS], 2001) minorities are more likely to have poor health outcomes with a decreased quality of life, and earlier deaths. In addition, health communication is most effective when cultural competence, accuracy, timeliness, and understandability are addressed (USDHHS, 2001). To meet the cultural, medical, and nursing needs of increasingly diverse populations more ethnically, racially, and linguistically diverse nurses are needed.

## **Background**

Despite completing English courses in high school and at the collegiate level, language acquisition and accuracy in the academic setting can be a challenge for most college students. Educators are keenly aware of this issue because the use of grammatical English vocabulary (written or spoken) contributes to long-term comprehension and cognition (Ellis, 2006). The same could be implied for speakers of languages other than English. Standard English (SE) is commonly referred to as the dominant language spoken by individuals living within the United States. However, according to Yong-Ian (2007) SE “is defined not as a language, a style, an accent, but as standardized grammar and vocabulary with different accents and from a linguistic point of view...yet it is the most prestigious and desirable educational target.” (p. 4). This author refers to the need for a global language in which there is appreciation for differences (i.e. geographical region, pronunciation, choice of words and word use). SE has also been defined by the vocabulary (lexicon), arrangement of letters and spelling (orthography) and grammar (Crystal, 1995). In the U.S., SE is seen as the superior form of communication and this creates a potential power imbalance among native English and non-native English speakers.

### **Linguistic Diversity Definition**

The paucity of literature on linguistically diverse students exists because nursing programs overlap terms such as, English as a Second Language (ESL), English Language learners, ethnic minority, and nontraditional students when analyzing demographical data

for retention and attrition purposes. An ESL student could be a minority student for demographic purposes in nursing programs; however, minority students as a larger group are not exclusively ESL students. The term ESL has been used inconsistently in the literature to describe immigrants, international students, and the characteristics of English language learners' development of communication skills. The need to identify this particular subset of minority students remains critical in order to develop appropriate student centered interventions. Within the last decade, specific terminology has emerged in nursing research that describes this population, although the literature has at times neglected to provide a clear picture of the uniqueness of each group (i.e., number of languages spoken, time in US, native language at home, and number of ESL courses completed).

ESL students have been defined as students who: a) attended grade school outside the United States using a language other than English, b) were raised in a non-English-speaking home, or c.) continue to use their native language in the home and use English only in environments where the native language is not used (Memmer & Worth, 1991). ESL students also include those who speak a native, first, home or primary language other than Standard English and are not fluent in Standard English (Malu, Figlear, & Figlear, 1994). English as an additional language indicates that English is not the second language spoken in the home (Caputi, Engleman, & Stasinopoulous, 2006). Standard English as a Second Dialect refers to students who utilize Standard English but have also modified English in ways which allow the language to match their unique cultural, social, psychological, and linguistic needs (Malu & Figlear, 1998).



The literature broadly defines ESL as students who have cultural, linguistic, and academic backgrounds that are often unfamiliar to majority individuals (Malu & Figlear, 2001). A more holistic term, linguistically diverse learners will be used in this study to refer to nursing students whose native language is not Standard English (oral and written). This term acknowledges the uniqueness of the students' communication style and cultural identity. For the purposes of this study, the operational definition of linguistic diversity will be any student whose native (primary) grammar and/or language, either spoken or written, is not English. In addition to language, linguistic diversity encompasses the attributes of communication, cultural identity, and the process of learning for students of which English is not their native language. Although there are multiple attributes of linguistic diversity, the impact of language in the academic setting of nursing will be the focus of this study because literacy and language are necessary antecedents for English language learners. Literacy in language develops at an early age and is influenced by multiple factors that develop over time through the influence of family and society (language spoken at home, community resources, education, and cognitive ability). "Literacy matters because it has come to represent the ticket of entry to society, the currency to which social and economic positions are waged" (Bialystok, 2001, p. 152).

Literacy in higher education refers to the ability to comprehend and synthesize intellectual level conversations and demonstrate the ability to verbalize cognitive thought processes. This is often equated to academic competency, meaning individuals can analyze, think critically, synthesize information, infer meaning and solve problems (Commins & Miramontes, 2006). Linguistic diversity encompasses adult non-native

English language learners who are seeking to communicate with other English language learners. There is a level of self and societal awareness, which is necessary in order to acknowledge the differences among the ways in which communication occurs, both socially and academically. English language learners have been marginalized partially because of communication problems. This has created situations in which individuals that utilize Standard English for communication benefit and at times have the power to create situations of imbalance. This imbalance for linguistically diverse students creates an environment where vulnerable individuals experience inequitable barriers for academic success.

### **Demographics and Language**

The 2010 projected demographical trends indicate that 40% of high school graduates will be non-White by 2015 and that 23% of the nation's undergraduate students will be minorities (Brown, 2008). The 2006 Census predicted that by 2030 the Latino population will increase (328%). These findings correlate with the proposed increases in the number of individuals living in the U.S. who are non-native English speakers. The Census report (2010) reflects that the Spanish language had the largest population of speakers (35 million) and speaking a language other than English "at home" was documented by 55 million (20%) of the total population in the U.S. (Shin, Hyon, & Kominski, 2010). These statistics impact the discipline of nursing at the educational level and in the clinical practice arena. "The disconnect in the delivery of health information, communication methods of health care providers, and the ability of adults to

obtain, process, and understand health information cost \$106-238 billion a year” (Flores, 2006, p. 230; National Coalition for Literacy, 2009).

In nursing education, linguistically diverse learners are affected by high attrition which impacts diversity in the nursing workforce (Gudhe, 2003; Malu & Figlear; 1998; Sanner, 2004). A linguistically diverse nursing workforce can provide assistance with language barriers because ethnically diverse populations are more likely to seek care from providers who are from their group, meaning they speak a common language and share cultural beliefs (Smedley, Stith, & Nelson, 2003; Stone, 2002). There remains an inadequate amount of nursing research that addresses the academic and social-cultural needs of linguistically diverse nursing students to foster their academic success.

### **Acculturation**

The complex process of acculturation occurs when people from differing cultural backgrounds are in contact with one another and the potential exists for an interchange of cultural attitudes and behaviors (Berry, 1980; Trimble 2003). Acculturation is significant when considering the changes and adaptations among ethnic groups, particularly groups that are non-English speaking because the attitudes of the dominant groups impact the acculturation process. Individuals either immerse themselves in the dominant culture or there is an immersion in a culture opposite of the dominant culture (Stephenson, 2000).

There are four acculturation patterns: a) *Integration (acculturation)*- combining aspects of the dominant and origin culture, b) *Assimilation*- replacing the native cultural beliefs and traditions for the dominant orientation, c) *Separation (traditional)*- retaining the native cultural orientation while rejecting the dominate cultural traditions/beliefs, and

d) *Marginalization*- alienation from both cultures (Berry, 1980). Acculturation is believed to occur across different domains: cognitive, behavioral, and affective (Cuellar, Arnold, & Maldonado, 1995). Within the US, there are differences between ethnic groups and within ethnic groups. Generational differences should be expected within cultural groups as it relates to the acculturation process. The acculturation levels of nursing are significant because the nursing environment is foreign to most entry-level students. The nursing equipment, testing standards (performance based), and clinical situations can be stressful. Nursing research is needed to understand how the acculturation process affects the academic success of linguistically diverse nursing students.

### **Impact of Attrition**

The inclusion of minority students in nursing programs does not guarantee academic success. Historically minority students experience disproportionately higher attrition rates than Caucasian students (Phillips & Hartley, 1990). Minority nursing students' attrition rates have inconsistently ranged from 15% to 85% (Crow, Smith, & Hartman, 2005; Higgins, 2005; Gilchrist & Rector, 2007; Peter, 2005). Qualitative studies have identified that ESL students experience greater rates of depression, anxiety and learning difficulties, and they have lower academic achievement when compared to non ESL nursing students (Gudhe, 2003; Keane, 1993; Kurz, 1993; Malu & Figlear; 1998). Linguistically diverse students are more likely to have higher failure rates during the first year of the nursing program (Femea, Gaines, Brathwaite & Abdur-Rahman, 1995; Zolla, 1998). In addition, 33% to 47% of ESL nursing students passed the

NCLEX-RN on the first attempt compared to non ESL students that had a pass rate of 67% to 97% on their first attempt (Gilchrist & Rector, 2007). High attrition rates among nursing students affect the pipeline of future licensed registered nurses because often these nurses become emotionally discouraged or they become program ineligible, ultimately leading to departure from the nursing program.

The disproportionate low number of linguistically diverse nurses has major implications for health disparities among racial and ethnic groups because minorities receive poorer quality of care, have high rates of morbidity, and experience increased incidence of mortality at earlier ages (Smedley et al., 2003). We need to better understand how to assist students academically and socially as an early intervention after admission to the nursing program.

### **Statement of the Problem**

To address the healthcare needs of vulnerable populations, nursing educators should evaluate educational preparedness and identify which factors influence a successive academic trajectory in nursing school and ultimately on the nursing licensure exam. The underrepresentation of minority students in nursing has been effected by admission criteria and inadequate retention efforts (Childs, Jones, Nugent, & Cook, 2004). This problem is exacerbated by disproportionately higher attrition rates among minority nursing students (Gardner, 2005c; Seago & Spetz, 2005) specifically those who are linguistically diverse and this significantly contributes to the nursing workforce shortage.

### **Purpose of the Study**

The purpose of this study was to determine the relationships and differences among the anatomy and physiology course grade, self-efficacy, linguistic diversity, language acculturation, and components of the National League for Nursing pre-admission exam (math, science and reading) for Registered Nurses (PAX-RN) and first semester nursing course grades of linguistically diverse and native English speaking associate degree nursing students.

### **Research Questions**

The specific research questions are:

1. What are the relationships among the PAX-RN composite score, anatomy and physiology course grades, self-efficacy, linguistic diversity, and the first semester nursing course grades for linguistically diverse and native English speaking associate degree nursing students?
2. Are there differences in academic success by linguistic diversity in the nursing courses, anatomy and physiology course grades, and in the PAX-RN composite score?
3. What are the relationships among the PAX-RN composite score, self-efficacy, acculturation level and first semester nursing course grades among linguistically diverse students?

## **Significance to Nursing**

The nursing workforce shortage increases each year (Bureau of Health Professions, 2006) and the problem of attrition among nursing students have contributed significantly to this shortage. There was a significant difference “between the level of minority enrollment (14.7% of nursing students) and minority graduates (10.9% of nursing degrees)” (Bessent, 2009, p. 45). Retention strategies for minority students identified in the nursing literature can be grouped into categories: a) supportive services (i.e. financial, academic, social, and language enhancement), b) adaptation of teaching methods to recognize cultural differences and language challenges, c) examination of the assessment and testing policies for bias, d) faculty development e) cultural competence with a curriculum inclusive of cultural content and opportunities for application and f) institutional commitment/strategic management (Choi, 2005; Klisch, 2000). In order to effectively retain and graduate linguistically diverse nursing students, the relationships and differences, which influence academic preparedness and academic success, need to be better understood.

Nursing has a moral and ethical obligation to promote health through our interactions (education and communication) with clients and families. The potential for behavior change may be influenced by the communication and caring behaviors demonstrated by the nurse towards the client and family. Nurses who are linguistically diverse can provide cultural, language, and nursing skills, which may facilitate clients receiving effective health care, and ultimately address problems with health literacy. Health education serves as an avenue to increase health literacy which is defined as

“personal, cognitive, and social skills which determine the ability of individuals to gain access to, understand, and use information to promote and maintain good health” (Nutbeam, 2000, p. 261). Linguistically diverse nurses have the ability to assess for literacy, health literacy, and health status with the ultimate goal of developing an individualized nursing plan of care.

Currently, there are no nursing models to guide knowledge development or measurement of health care need attainment for linguistically diverse clients. Theoretically, there must be sufficient numbers of linguistically diverse students completing their basic registered nursing licensure programs and successfully passing the NCLEX before such a comprehensive study can be completed.

### **Significance to Nursing Education**

The underrepresentation of minority students in nursing programs has been associated with the admission criteria and ineffective retention efforts of schools of nursing (Childs et al., 2004; Williams & Newman, 2003). Historically minority students have disproportionately higher attrition rates (Crow et al., 2005; Gilchrist & Rector, 2007; Higgins, 2005; Peter, 2005). Facilitating the success of minority nursing students requires understanding their cultural and linguistic background (Abriam-Yago, Yoder & Kataoka-Yahiro, 1999). Nursing literature is replete with suggestions on the recruitment and retention of disadvantaged students. Nurse educators are responsible for looking at opportunities to promote student success and ultimately transform teaching methodologies in ways that provide multiple opportunities for diverse students to learn. Qualitative studies have identified that these students experience greater rates of



depression, anxiety, learning difficulties, and they have lower academic achievement when compared to native English speaking nursing students (Gudhe, 2003, Keane, 1993, Kurz, 1993, Malu & Figlear, 1998). Linguistically diverse students are more likely to have higher failure rates in the first year of their nursing program (Zolla, 1998) and academic performance may be affected by family responsibilities (Villarruel, Canales, & Torres, 2001).

Institutions where the current study was conducted have chosen to use standardized pre-admission exams as an attempt to admit academically prepared students who are ready for the rigor of nursing school. The question remains if standardized exam scores and academic preparation are related for minority students; particularly for those who identify that Standard English is not their native language. Most quantitative studies addressing retention use the NCLEX as the benchmark for academic success, because nursing students must pass this exam to obtain their license; however, retention efforts to promote academic success should be addressed earlier in the nursing program, such as during the first semester. Similar to the scaffolding that occurs in cognitive development, first semester is critical for the understanding of fundamental concepts (sciences, math, nursing skills) and if there are educational gaps during this period, it is much more difficult for the student to cognitively comprehend at more advanced levels (Driscoll, 2005).

There has been a long standing directive for nurse educators to develop curricula in which nursing students learn to practice within a culturally competent framework. Clients' illness can be shaped by how they perceive, experience, or cope with disease using the lens of cultural beliefs to explain sickness and social positions (Kleinman,

Eisenberg, & Good, 1978). Often in theory and clinical courses nursing students are challenged to develop base line knowledge of different cultures and consistently self assess their personal attitudes in regards to providing care for diverse populations (Canales, 2001). A better understanding of factors that which help linguistically diverse students to become competent nurses would provide an additional resource to the profession in meeting the needs of linguistically diverse clients.

### **Significance to Nursing Research**

Attempts to categorize the student characteristics, which may influence academic achievement and program retention, have been reported in the nursing literature. Among minority students, non-cognitive variables may be better predictors of the ability to succeed academically (Bessent, 2009). Self-efficacy is the “student’s perceived confidence for learning or performing specific tasks or skills necessary to achieve a particular goal” (Jeffreys, 2004, p.51). Further research is needed, specifically involving racially and ethnically diverse groups. Research is needed at both associate degree and baccalaureate levels regarding the possible links between student self efficacy, language and the impact of acculturation, on their grades early in their program of study. Currently, no studies in the nursing literature address general self-efficacy, acculturation, science grades, and preadmission nursing exam scores to determine their relationship to academic success for first semester associate degree nursing students. A study of this nature will provide insight regarding preadmission preparedness and factors that influence ongoing academic success during the nursing program for native English speakers and linguistically diverse students. The lack of language competence among

health care professions has created problems with quality of care, access to care, and inadequate information exchange (Sullivan Commission, 2004). The nursing profession is experiencing a workforce shortage and aging nursing faculty to teach at the collegiate level. These problems are exacerbated by limited available positions in schools of nursing and variability in the admission criteria, which seem to negatively impact students from racial, ethnic, and linguistically diverse backgrounds.

### **Organization of the Study**

Chapter one addressed the systematic factors which have contributed to retention problems among ethnically, racially and linguistically diverse nursing students. The persistent nursing shortage and limited space availability have created environments in which admission preparation is critical

Chapter two includes the philosophical underpinnings and conceptual framework. A comprehensive review of the research on diverse nursing students with a critical reflection of the gaps in the literature is elucidated. The research questions are:

1. What are the relationships among the PAX-RN composite score, anatomy and physiology course grades, self-efficacy, linguistic diversity, and the first semester nursing course grades for linguistically diverse and native English speaking associate degree nursing students?
2. Are there differences in academic success by linguistic diversity in the nursing courses, anatomy and physiology course grades, and in the PAX-RN composite score?

3. What are the relationships among the PAX-RN composite score, self-efficacy, acculturation level and first semester nursing course grades among linguistically diverse students?

Chapter three describes the research design, methodology, sample and setting. In addition the procedures for data collection, data analysis, protection of human subjects and study limitations are addressed. Following chapter three, two manuscripts are included for the manuscript dissertation option at Marquette University College of Nursing.

In the manuscript entitled, *Academic Success Factors Influencing Linguistically Diverse and Native English Speaking Associate Degree Nursing Students*, there were statistically significant relationships between the PAX-RN composite score, AP mean grade, language diversity, and general self-efficacy score, among the Nursing Pharmacology and Nursing Fundamentals course grades for associate nursing students. The PAX-RN composite score and the AP mean grade were significantly related to all first semester theory courses. Differences existed in the academic success of linguistically diverse students and the native English speaking students on the PAX-RN composite scores and nursing fundamentals course grades.

The manuscript entitled, *A Framework for Ethnically Diverse Graduate Nursing Students' Academic Persistence and Success*, examined how ethnically diverse graduate nursing students persisted with their academic studies. A grounded theory approach was used and five focus groups conducted with sixteen ethnically diverse graduate students and two diversity recruiters in nursing. Analysis of the data indicated that the process of learning to balance stressors with moderators was key to academic persistence and

retention. The findings suggest recommendations to address faculty development, administrative action, and student resources.

## CHAPTER 2

### **Philosophical Underpinning**

Critical theory developed as a broad theoretical perspective in opposition to the views of positivism (Kushner & Morrow, 2003) and the theory calls for critical praxis which seeks social change. This interdisciplinary theory is based on the understanding that human societies are “oppressive” in nature (Gortner, 1997). Critical theory connects social reproduction and change in an effect to understand how agency and structure affect social and cultural issues (Habermas, 1971). Critical social theory is based on critical theory as a philosophical underpinning.

### **Critical Social Theory**

Critical social theory (CST) has a historical perspective and epistemological framework based on emancipation and empowerment through an understanding of reality which leads to reflective action (Freire, 1970; Morrow, 1994). Historical realism contends that the virtual realities of beings are shaped by political, cultural, social, ethnic and gender values (Guba & Lincoln, 1994). Although, this study utilizes a quantitative design, the need to explore the meaning of variables in the context of English language learners encompasses the broader viewpoint of CST. Nurse educators and college administrators are posing ontological questions regarding the nature of reality for students who are non native English speakers and questioning what can be done to adequately prepare linguistically diverse nursing students. An awareness of historical

domination and societal control challenges the traditional assumptions of knowledge formation. Nursing seeks diversity among our professionals and therefore nurse educators have a willingness to gain knowledge of ways to facilitate the successful academic progression of diverse students. Nurse educators directly interact in the clinical and classroom setting with linguistically diverse students; therefore, the educator has a responsibility to assess methodology and evaluation of learning within the curriculum. High attrition rates among diverse students require further research to understanding the factors which influence academic success. Educators can respond to linguistically diverse student needs in a transformative state rather than a reactionary mode to facilitate retention and diversify the nursing workforce.

Historical, societal, and political domains are evident in the struggles of immigrant, international, and linguistically diverse individuals. The Commission on Graduates of Foreign Nursing Schools assists in providing validation of international professional credentials for health care professionals, inclusive of nursing. In the U.S. in order to obtain a visa, the ability to speak English is assessed using examinations: the Test of Spoken English and/or the Test of Written English to test English as a Foreign Language (TOEFL) (Dexter, 1999). The TOEFL examination is generally used at the collegiate level to evaluate the ability of international students to understand and utilize English. One could propose that is it biased to use this type of an examination for a student who may not have been exposed to the history, culture and tradition of the U.S. In addition, the terminology and syntax of English may be foreign for English language learners who complete this examination.

Critical social theory supports the belief that knowledge is embedded in society and culture, which are often developed and interpreted through a society's history. Historically, the term limited English proficiency (LEP) was authorized by the federal government in 1978 as an attempt to replace the term *limited English speaking* in order to emphasize students' needs across the domains of communication (Wiley & Wright, 2004). The term "*limited*" has a negative connotation, indicating it is below the minimal standard. Critical social theory analyzes the context in which language is used, meaning are there potential conscious and unconscious constraints (Falk-Rafael, 2005). It remains imperative to challenge the traditional assumptions of knowledge, truth, and power as it relates to linguistically diverse learners (Fontana, 2004; Guba & Lincoln, 1994; Ray, 1992). There is an opportunity for autonomy among linguistically diverse nursing students and there is a responsibility among educators to understand the oppressive nature of the educational system in regards to admission, advancement, and graduation within nursing.

In higher education, diverse students have reported multiple oppressions, such as racism and isolation, which cause negative psychological effects that adversely affect academic outcomes (Brown, 2008; Coleman, 2008). Linguistically diverse students have reported inadequate supportive services and inequitable expectations related to learning in nursing environments (Carter & Xu, 2007). A critical reflection of the collective needs of linguistically diverse students is necessary because often these students' voices remain silent to peers and faculty, thus they may not be receiving a comprehensive assessment and evaluation of their needs (Gortner, 1997). The silence is usually caused by the



oppressive nature of the academic settings and the inability to find likeness (faculty & peers) of languages, culture, ethnicity, and race in the nursing academic setting.

### **Constructivist Paradigm**

The constructivist paradigm is also applicable to this research because it recognizes that the nature of social reality may be different or that there are multiple realities, which are socially constructed and experientially based (Guba & Lincoln, 1994). This acknowledges that there are linguistically diverse students who were born in the U.S. while others may be first or second generation immigrants, who have very different needs as a student. Constructivists recognize that a single explanation is not possible for complex phenomena.

When studying linguistically diverse nursing student's experiences, the principles of the constructivist paradigm are relevant because new knowledge will be constructed from the exploration of multiple empirical data as factors which may be predictive of academic success. The constructivist paradigm acknowledges the complex interplay that shapes an individual's constructions of phenomena (Appleton & King, 1997). The constructivist paradigm is necessary to understand the labyrinth of the linguistically diverse nursing students' experiences as individuals, students, and family members, which interact within the social world. There are overt and covert sociopolitical and economic influences; therefore, an exploration of what it means to be a linguistically diverse student entering the nursing profession as a minority could facilitate the development of improved strategies for retention. In the constructivist viewpoint, culture is more than a list of characteristics. Many of these concepts are not well understood

because of the “socially constructed” basis and the historical context (Rosenblum & Travis, 2000). Through the complex process of social interaction, meaning of events and realities, phenomena are formulated. These phenomena include communicating using Standard English, incorporating the unique terminology of nursing, while maintaining the cultural and linguistic uniqueness of a native language. These phenomena are not well understood among nursing students.

Paulo Freire (1970) stressed the importance of dialogue, particularly in the educational system the “teacher is no longer the one who teaches” (p. 80). There is a joint relationship in which hierarchical boundaries should not exist to limit learning. In such an environment, there is a preservation of culture and nursing knowledge. In addition, there is a relationship between social mobility and education for minority students (Swail, 2000). Language proficiency in the academic classrooms of nursing is a sensitive issue because it revolves around issues of culture, race, and power. In higher education, the person having the final input regarding the grade is the instructor, and hence students see them as the person in power. Often language barriers go unaddressed until the student is in academic jeopardy, despite early indicators that language is a critical foundation for learning within the nursing program (Femea et al., 1995; Malu & Figlear, 1998; Newman & Williams, 2003).

Nursing students interact with many individuals during any routine day: the instructor, peers, family members, patients, and the patient’s family members. The understanding and interpretation of these experiences are based on interpersonal communication, social interaction and potentially the use of negotiation skills. The ability to utilize these skills becomes most evident academically in the classroom when

students are assessed on written or verbal examinations. In addition, the ability to clearly define cultural identity is often redefined, managed, and negated through individual and societal processes (Gray & Thomas, 2006). New knowledge will be gained by this research study based on understanding of the relationship which exists among academic success and the cognitive and non-cognitive variables of linguistically diverse and native English speaking nursing students.

### **Conceptual Framework**

#### **Nursing Undergraduate Retention Model**

The Model of Nursing Undergraduate Retention and Success (NURS) (Jeffereys, 1993/1998/2001/2002/2004) is a comprehensive framework of factors which affect nontraditional and traditional nursing student retention and success. This conceptual model frames my research because it specifically addresses the multidimensional process of student retention and it addresses criteria which are unique to nontraditional nursing students. Nontraditional nursing students meet one or more of the following criteria “a) commuter status, b) male, c) part-time enrollment, d) member of an ethnic or racial group, e) speak English as a second (other) language, f) require remedial classes, e) have dependent children, or f) earned a general equivalency diploma” (Jeffereys, 2004, p. 7). The Technical College System (2009) reported student characteristics for the 2007-2008 academic years which were reflective of similar nontraditional student characteristics: 38% (males) and 50% (females) were enrolled in degree or diploma program courses

with an average age of 35 years. Approximately 25,866 of these students were single parents, 58,922 were economically disadvantaged, 72,156 were academically disadvantaged, and 14,086 had limited English proficiency.

From a historical perspective, community colleges have attracted students from diverse backgrounds who could attend college for an affordable tuition rate and remain in the community after graduation (Haase, 1990). ADN programs accounts for greater than 60% of all registered nursing graduates (NLN, 2006). ADN programs have been known to increase access to educational opportunities for nontraditional students (Orsolini-Hain & Waters, 2009). ADN programs within the community college setting account for two thirds of all new nursing students and these nursing programs provide educational opportunities to more minority nurses than bachelors degree programs (American Association of Community Colleges, 2008). It is essential to study academic success for linguistically diverse students at the associate degree level because there is a high likelihood of finding this student population.

For many nontraditional students the desire to attend college is often not enough. Once enrolled academic and social support are necessary for degree completion. The NURS model proposes that retention is affected by the interactions between academic outcomes, environmental factors, student profile characteristics, affective factors, professional integration, academic factors, surrounding factors, and psychological outcomes. Jeffreys (2004) identified family financial support, family emotional support, employment responsibilities and hours, living arrangements, child care arrangements, family crisis, encouragement by outside friends, and transportation as environmental factors. These factors are external to the academic classroom, but they may provide

insight regarding student academic performance. Professional integration factors are central to all students. These factors include: nursing faculty helpfulness, memberships in professional organizations, peer mentoring-tutoring, enrichment programs, and professional events. Professional integration factors can enhance students' interactions with the social system of the college environment and they potentially enhance retention through professional socialization.

The outside surrounding factors (world, national, local events, politics, economics, nursing professional issues, job certainty, and the health care system) are external factors outside the academic environment which indirectly impact student retention. These factors were included to increase awareness; however, there are no direct connections between the other factors in the model. In the attrition models of Bean and Metzner (1985) and Tinto (1975), academic outcomes (course grades, cumulative GPA, and overall GPA) interact with psychological outcomes of stress and satisfaction. These outcomes are mediated by the unique academic factors (study skills, study hours, attendance, class schedule, and general academic services) of each student. The student profile characteristics have value in terms of addressing retention because these factors provide key background information about the student.

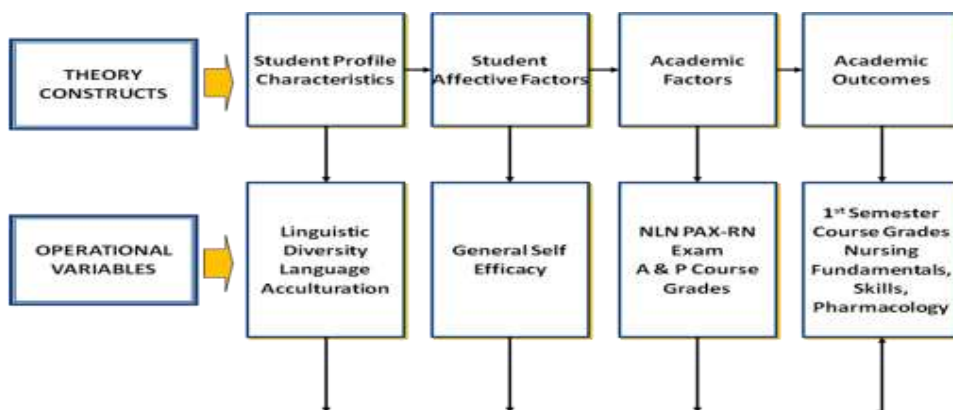
The profile characteristics include ethnicity and race, age, enrollment status, language, prior educational and work experience, as well as the family's educational background. Frequently the student has personal motivation, cultural values and beliefs, and self- efficacy which are referred to as student affective factors in the model. The early identification of at risk students is critical if educators wish to increase retention of nontraditional and traditional nursing students.

The NURS model has identified retention factors which can guide nursing education in the innovation of teaching, educational research and evaluation strategies. Nurse educators have the potential to decrease attrition rates by developing empirically based retention strategies grounded in an understanding of the dynamic factors which influence academic success.

### Key Study Factors Incorporated from the NURS Model

The Model of Nursing Undergraduate Retention and Success (NURS) provided a comprehensive framework of factors (Figure 1) which affect nursing student retention (Jeffreys, 2004). The quantitative questions alone cannot account for academic success and thus the demographic questionnaire and the self efficacy tool may provide additional components such as the student affective factors, psychological outcomes, and academic factors which are of importance to students' success. Since the NURS model is comprehensive, it is not feasible to incorporate all factors in this research study. Several of the selected key study variables will be briefly highlighted to frame the purpose of this work

Figure 1: Factors Affecting Academic Outcomes



Note: Theory constructs from Jeffreys (2004) NURS Model

### **Student Profile Characteristics**

The nursing admission data often neglects to report or collect the ethnic and language characteristics of the student population. When working with diverse student populations, there is an opportunity to study the concepts/factors among students when the demographics are provided and clearly defined within the study. The student profile characteristics (ethnicity and race, age, enrollment status, language, prior educational and work experience, socioeconomic status and family's educational background) can be analyzed in relation to academic success among students. In college, the impact of retention and departure is dependent on varying attributes: values, attitudes, behaviors, social and cultural capital (Keller, 2001; Miller, 2003).

### **Academic Outcomes and Academic Factors**

The pre-admission variables of science grade and the NLN PAX-RN composite scores were analyzed with the outcome variables being the final course grades in three nursing courses at the completion of the first semester. The preadmission variables were analyzed as way of identifying which academic factors indicate that students are academically prepared for the rigor of nursing school.

### **Student Affective Factors and Psychological Outcomes**

The demographic questionnaire and the self-efficacy tool were used as measures of affective factors that may contribute to persistence in the nursing program. Unlike the other variables, the affective factors and the psychological effects may fluctuate. These

tools assessed some of the non-academic characteristics encompassing the affective and psychological aspects of being a nursing student.

### **Assumptions of the NURS Model**

Nurse educators have the ability to decrease attrition rates by developing empirically based retention strategies which are grounded in an understanding of the dynamic factors which influence a student's academic success. As a model of student retention, the underlying assumptions of the NURS model (Jeffereys, 2004, p. 9) are:

- all students have the potential to benefit from professional socialization
- enrichment through pre-professional and professional integration influence retention
- persistence can be influenced by psychological and academic outcomes
- professional and environmental integration factors may influence retention
- multiple factors influence student retention because retention is a dynamic and multidimensional phenomenon

These factors have not been studied exclusively among linguistically diverse nursing students. Jeffereys (2004) reported that among nontraditional students the environmental factors are more important than academic factors. Attrition models (Bean & Metzner, 1985; Tinto, 1975) have suggested that academic outcomes interact with psychological factors. This is assumed in the NURS model; in addition it is assumed that professional integration factors can enhance students' interactions with the social system of the college environment. Jeffereys (2004) identifies family financial support, family emotional support, employment responsibilities and hours, living arrangements, childcare



arrangements, family crisis, encouragement by outside friends, and transportation as environmental factors. The model highlights nursing faculty helpfulness, memberships in professional organizations, peer mentoring-tutoring, enrichment programs, and professional events. Finally, the outside surrounding factors and individual factors have the ability to affect persistence and retention. This model assists with the identification of at risk students and it has provided a reference for the study variables. This model has been critiqued for lacking in the areas of pedagogical practices, student experiences, and classroom environments (Mulready-Shick, 2008). However, if the educator and student are working together, it is assumed that this relationship would guide the classroom pedagogy.

Nurse educators are facilitators of academic success among students. In this role, it remains critical that students at risk of attrition are identified early in the program in order to provide multidimensional supports which lead to academic success. Educators need to remain cognizant of the student body and the factors which influence their cognitive and social growth. This requires an analysis of effective teaching methodologies, culturally inclusive learning activities, and a willingness to listen to the needs of linguistically diverse students. Nursing research has focused on attrition models in which there were not differences established between voluntary and involuntary attrition, the student population focused on baccalaureate students, and sample of diverse student characteristics, such as native language has not been clearly reported. Despite these issues, the problem of high attrition rates among diverse students remains unchanged and the research is in the early stages among the linguistically diverse population of nursing students. The NURS model of retention provides a framework of

interacting factors that influence students' decisions to persist or leave their academic nursing programs.

### **Outline of Literature Review**

An online keyword based literature search was conducted using the Cumulative Index of Nursing and Allied Health Literature (CINAHL), Social Sciences in ProQuest, Education Resources Information Center (ERIC), and MEDLINE. Search inclusion criteria required that the publication be written in English and published in a peer-reviewed journal. There was no need for a restriction based on the date of publication since it was fundamental to read all nursing literature that contributed to what is known about linguistically diverse nursing students.

The following terms were used in the search: *nursing students, English as a Second Language (ESL), diversity, minorities, retention, nursing education, English as an Additional Language (EAL), and acculturation*. All searches were restricted to articles related to linguistically diverse students who were pursuing a degree in nursing or classified as pre-nursing students. In addition to the search of online databases, the reference lists of selected publications were reviewed in order to discover ancestral documents which provided a knowledge base for the needs of other diverse populations. The initial database search identified research on the needs of linguistically diverse nursing students. The second database search looked for dissertations with the same key term criteria. Lastly, the databases were searched to gather background knowledge on the needs of other racially and ethnically diverse student groups in nursing. The review will include a) communication factors, b) theoretical frameworks, c) minority student

issues, d) predictors of academic success, e) admission and progression factors, and conclude with h) linguistically diverse students' studies.

### **Critical Review of the Literature**

Nurse researchers have examined the persistent shortage of minority nurses and multiple variables to include: admission criteria, retention and attrition factors, family and socio-cultural factors, age, and first time nursing licensure pass rates. Despite the findings, attrition among minority nursing students continues to significantly contribute to the nursing workforce shortage. The review of the literature on linguistically diverse nursing students (Table 1) documents the first author, year of publication, research purpose, and sample information. The literature on ESL nursing students has spanned several decades, with obvious gaps and a resurgence of literature in the year 2000. The focus of this review was not on international ESL nursing students but rather ESL students studying and living in the U.S.

Table 1

*Literature Review of Linguistically Diverse Nursing Students, by Research Methodology*

1 <sup>st</sup> Author Year	Purpose	Sample
<b>Quantitative Studies</b>		
Memmer 1991	To survey the approaches used to retain ESL students through graduation in baccalarute nursing (BSN) programs in California.	N= 21 nursing programs
Keane 1993	To examine the relationship between preferred learning styles and selection of learning/study strategies To explore the relationships of specific background factors, preferred learning styles, and selection of learning strategies.	N= 112 Sophomore BSN 50% ESL
Femea 1995	To determine the differences in sociodemographical and academic characteristics of primary English speaking nursing students & students who were ESL attending a historically black college/university.	N= 173 BSN
Whitehead 2006	To reveal possible language bias that may act as barriers when ESL nursing students (NS) complete the ATI Critical Thinking Exam.	N= 209 (17 ESL & 192 English)
Salamonson 2008	To validate the English Language Acculturation Scale (ELAS); To determine the relationship between English language acculturation and academic achievement in first year nursing students.	N= 273 BSN students
Salamonson 2011	Assess entry characteristics of nursing students (attrition, completion, progression)---3yr program (international study)	N= 352 BSN 33% spoke language other than English
<b>Mixed Method Studies</b>		
Jalili- Grenier 1997	To determine the perceptions of learning activities which contribute to knowledge development. To determine NS and faculty perceptions of learning difficulties and to compare the perceptions of ESL and non ESL students studying in Canada.	N= 160 1 <sup>st</sup> yr NS N= 111 2 <sup>nd</sup> yr NS N= 27 1 <sup>st</sup> & 2 <sup>nd</sup> yr faculty
Klisch 2000	A review of nursing articles from 1990-1999 on ESL retention strategies; Described how these strategies were used at a nursing school with limited funding.	N= 31 ESL NS 29 females & 2 males
Guhde 2003	To examine the use of nurse tutors 1:1for students having difficulty with clinical coursework. The focus for the session was to increase the mastery of English Language.	N = 1 NS from China
<b>Qualitative Studies</b>		
Malu 1994	Defines the multicultural ESL nursing student. Proposes ways to select ESL applicants for admission to nursing school.	N= 4 (2 students; 2 faculty)
Malu	To analysis the problem of language development that immigrant ESL NS and educators face.	Sample not specified

1 <sup>st</sup> Author Year	Purpose	Sample
1998		
Shakaya 2002	Explore the experiences of ESL nursing students during 1 <sup>st</sup> year of studies at Australian University	<i>N</i> = 9 undergraduate ESL/international NS Australian (4) Vietnamese (2) Ethiopian (2) Iran (1) <i>N</i> = 1
Gardner 2005	Examine factors influencing foreign born students success in nursing school	<i>N</i> = 7
Caputi 2006	Evaluate the needs of EAL students using conversation circles	<i>N</i> = 5 1 <sup>st</sup> yr NS BSN
Bosher 2008	To determine the effects of linguistic modification on ESL students' comprehension of nursing test items	<i>N</i> = 35 BSN
Brown 2008	Literature review related to educating foreign-born NS in the United States; Focuses on the unique factors affecting the academic success of ESL students attending a historically black college/university	<i>N</i> = 134 Mexican American (BSN)
Lujan 2008	Discuss the linguistic and cultural adaptation needs of Mexican American nursing students with ESL to multiple choice exams	<i>N</i> = 3 BSN students (Asian Pacific Islander, African)
Sanner 2008	Faculty concern for students with ESL in the nursing program; To develop a better understanding of the reasons for course failure	<i>N</i> = 17 (1 <sup>st</sup> & 2 <sup>nd</sup> semester NS) Included non English speaking
Andrew 2008	Explore if differences exist in the reasons/rationale why students leave a nursing course during the 1 <sup>st</sup> or 2 <sup>nd</sup> semester (international study)	<i>N</i> = 14 Mainland China (6); Korea (2); Romania (2); Ukraine (2); Japan (1); Hong Kong (1) 10 Qualitative studies metasynthesis
Donnelly 2009	Identify factors which influence ESL students' academic performance	<i>N</i> = 10 senior NS
Starr 2009	Synthesize the current qualitative literature on challenges faced in nursing education for EAL students	<i>N</i> = 52 stratified in 3 groups (Chinese, non- Chinese with ESL, and
Junious 2010	Triangulation approach used to explore the essence of stress and perceived faculty support as identified by foreign born baccalaureate NS (attending college in the US)	
Koch 2011	To assess students' perception of the usefulness of a web based computer assisted learning intervention Explore the barriers and facilitators to language acquisition	

1 <sup>st</sup> Author Year	Purpose	Sample
		native English speaking)
<b>Descriptive Studies</b>		
Phillips 1990	Increase awareness among nurse educators regarding the language problems ESL NS encounter in an academic setting	Sample not provided
Crow 1993	Discuss the role of nurse faculty in understanding the world view of nursing's Euro American culture based curriculum	Sample not provided
Kurz 1993	Identifies the challenges faced by adult foreign (ESL) nursing student attending school in the United States	Sample not provided
Abriam- Yago 1999	Discuss the importance of changing teaching strategies for ESL students using the Cummins model as a framework	Sample not provided
Malu, 2001	Proposed six active learning based teaching tips for faculty	Sample not provided
Sanner 2002	Explores the perceptions and experiences of international NS in a BSN program	N= 8 ESL NS Nigerian
Cunningham 2004	Addresses the challenges and strategies among ESL students and foreign born nursing students when preparing for the NCLEX-RN	Sample not provided
Guttman 2004	Describe a strategy to ensure that nurses with limited English proficiency provide linguistically competent care among English speaking patients	Sample not provided
Choi 2005	Review of the challenges faced by ESL NS; Exploration of Cummins model and its utility in educating ESL nursing students	Sample not provided
Colosimo 2006	Addressed the feelings of shame expressed by ESL nursing students	Sample not provided
McAdams- Jones 2008	To provide a quick read regarding the challenges faced by ESL nursing students	Sample not provided
Shearer 2008	Discuss implications of ESL students in LVN/LPN programs	Sample not provided

1 <sup>st</sup> Author Year	Purpose	Sample
Wood 2009	Gain a deeper understanding of the perceptions of locus of control, ethnicity, and academic success	N= 106 BSN 37% ESL students
Scheele 2011	Literature synthesis of published articles on Asian nursing students from 1980-2010 Four critical domains: language and communication, support and infrastructure, instructional strategies and conceptual frameworks	55 articles reviewed
Hicks 2011	Provides guidelines for nurse educators to reduce/eliminate bias when creating multiple-choice examinations	No sample
Dissertations		
Tagger 1998	Study identified nursing faculty perceptions of the teaching strategies and styles which assist ESL NS in clinical and classroom settings	N= 41 Nursing faculty AD, BSN, Graduate
Smith 2000	To gather data regarding the profile of ESL nursing students who have been successful on the National Council of Licensure Examination for Registered Nurses	N= 20 ESL NS
Sims- Giddens 2002	To describe and compare the graduation rates and NCLEX-RN pass rates of Mexican American students with English as a first language in an associate degree program	N= 67 AD NS
Sanner 2004	Described the experiences of ESL students in a BSN as a way of improving retention. (qualitative)	N= 3 ESL NS BSN
Chamberlain 2007	Explore the meaning of being a junior or senior ESL nursing student in a baccalaureate program. (qualitative)	N= 10 ESL NS BSN
Hammett- Zalanko 2007	This study compared the 459 psychosocial needs scores of ESL and non-ESL senior nursing students who took the HESI exam between September 1, 2005 and August 31, 2006 to determine if there difference in the mean scores of the two groups. (quantitative)	N= 25 & 782 ESL NS Both AD & BSN
Mulready- Shick 2008	Explored the lived experiences of English language learners in the nursing classroom. (qualitative)	N= 6 ESL NS AD
Bosch 2008	This study examined the Spanish-English Nursing Education (SENE) program, which was created in 2003 to address the shortage of bilingual nurses, both practical (LPNs) and registered (RNs). Specifically, were student academic backgrounds and cultural heritage related to success, as measured by program persistence and performance on the National Council Licensure Examination (Mixed Method Approach)	BSN & Associate Degree Students
Benack 2009	Qualitative study to explore the communication needs of ESL students in practical nursing & pharmacology technician programs in southern Ontario Canada. Students want assist with discipline specific vocabulary and cultural nuances	N= 11 ESL NS

*Note:* <sup>a</sup> Baccalaureate Nursing Program (BSN), <sup>b</sup> Associate Degree Program (ADN), <sup>c</sup> English as a Second Language (ESL), <sup>d</sup> Nursing Student (NS), <sup>e</sup> Associate Degree Nursing Program (AD)

## Communication and the Impact on Health Literacy

### Language Proficiency

The nurse patient relationship is built on communication; therefore, the ability to effectively communicate is critical for all nursing students. In healthcare, nursing standards mandate that nurses have the ability to communicate in a culturally relevant manner that acknowledges the needs of the patient and family in the delivery of nursing services. Despite these standards, Wisconsin Coalition for Linguistic Access to Healthcare [WCLAH] (2004) surveyed hospitals ( $N = 57$ ) and found that only 53% of hospitals utilize bilingual health provider services in the client's native language to address the needs of limited English proficiency (LEP) patients. When the LEP person could not receive interpreter services, the agencies (hospitals, community centers, health departments) reported utilizing several strategies a) reschedule appointments (19%;  $n = 26$ ), b) utilize national telephonic interpreting services (55%;  $n = 73$ ), c) utilize "make do" methods (simple phrases, bilingual employee) in an attempt to provide care ( $n = 27$ ,  $n = 20\%$ ) or c) utilize an employee or other individual for interpreter services (15%;  $n = 17$ ). The National Advisory Council on Nurse Education and Practice (2000) found that in clinical settings, when minority nurses had cultural and language similarities with the patient, there was an increase in the acceptability of the delivery of healthcare services from minority populations. Language barriers affect health outcomes of individuals with LEP differently than English speaking clients (Wisconsin Department of Health and Family Services, Healthiest Wisconsin, 2010), and even when these



services are utilized, in Wisconsin there remains no universal certification of standard of practice for interpreters.

Within the last decade, greater than 50% of students enrolled in elementary and secondary education, the majority being of Hispanic and Asian backgrounds, have reported limited English proficiency (National Clearinghouse for English Language Acquisition and Language Instruction Educational Programs, 2006). In 2005, in the United States, undocumented youth totaled 1.8 million and approximately 13,000 of these youth enroll in public universities and colleges (Passell, 2006). This mirrors the statistics in the US population and it serves as a potential factor which will be witnessed across multiple educational settings in the future. In Wisconsin, the top five non-English languages reported in healthcare organizations are a) Spanish, b) Hmong, c) Chinese and/or Mandarin, d) Russian, and e) American Sign (WCLAH, 2004).

Nursing educators are beginning to explore the intersection of English language proficiency and fluency, and the impact on learning in a nursing environment. It is not adequate to assess language ability through the use of the TOEFL exam alone. Unfortunately, there are currently no accreditation agencies which record the number of linguistically diverse students admitted, enrolled, or graduating from schools of nursing. This information is just recently being differentiated in schools' demographic databases. When analyzing attrition data, nurse educators do know that linguistically diverse learners appear to have limited English proficiency and this ultimately has a cumulative effect on their academic performance in nursing school (Abriam-Yago et al., 1999; Gudhe, 2003; Klish, 2000; Malu & Figlear, 1998; Newman & Williams, 2003). Internationally, in a qualitative study ( $n= 17$ ) two themes specific to language emerged:

1) Language is a barrier to achievement and affects self confidence and 2) Focusing on the spoken word increases interaction capacity and self-confidence (Koch et al., 2011). These themes were identified by first year baccalaureate nursing students using a web-based learning intervention for bioscience courses. The absence of culturally sensitive language acquisition and communications models in the literature seems particularly precarious since understanding Standard English and the significance of acculturation is important when attempting to understand the needs of linguistically diverse nursing students. Language and cultural differences can become a threat to therapeutic communication (Hendrickson, 2003) in any setting because effective nursing and healthcare is dependent upon communication.

### **Health Literacy and Nursing**

Language barriers impact health literacy, which is defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information” (Nielsen-Bohlman, Panzer, & Kindig, 2004, p. 31). In addition, health literacy is a process which encompasses the attributes of capacity, comprehension, and communication (Mancuso, 2008). Health care facilities (Martinez-Gibson & Gibson, 2007) found a continual need for better language access services for limited English proficient Spanish speaking patients and yet these same facilities reported shortcomings in the area of language access. Language barriers among healthcare providers and clients have a direct impact on the type of quality and care received (e.g., reduced utilization of preventative services and increased risk of adherence to medication) (Flores, 2006; Martinez-Gibson & Gibson, 2007; Yodudelman, 2008). Further, clients from ethnically

and racially diverse groups are more likely to seek care from health practitioners who are from similar groups (Smedley et al., 2003). Hispanic nurses, particular those who speak Spanish, and Asian nurses many of whom are foreign born, offer the healthcare system bilingual and culturally sensitive nurses. These nurses have the ability to decrease client frustration and difficulties related to making life style changes (Rosenberg, Leanza, & Seller, 2007) and provide an opportunity for more accuracy in regards to the collection of patient information (Abbe, Simon, Angiolillo, Ruccione, & Kodish, 2006). Therefore, the healthcare system is significantly impacted by the shortage of linguistically diverse nurses.

Language access in the healthcare setting remains the most significant issue for clients who are non-native English speakers. Effective communication between the client and the health care provider is critical in order to achieve optimal health outcomes. “Twenty three million people remain at risk for receiving substandard care merely because they are not fluent in English” (Youdelman, 2008, p. 424). Patients with LEP were less likely to receive preventative care (Flores, 2006), had fewer physician visits, and ultimately this resulted in greater expenditure of health care dollars (Martinez-Gibson & Gibson, 2007). Health care institutions are challenged to provide interpreter services for language access in a manner that accommodates the 24-hour needs of the client. The provision of adequate language services results in optimal communication, patient satisfaction, outcomes, resource use, and patient safety (Flores, 2006). As nurse educators, this is a call for better strategies which will facilitate the retention and graduation of minority nurses who communicate in languages other than Standard English specifically for purposes of health education and health promotion.

Linguistically diverse nurses also have the opportunity to create better translated materials for specific cultures. The nurses' ability to use language effectively is the cornerstone of the nurse-patient relationship because this directly impacts the clients care (Guttman, 2004). Linguistic competence is one component of the broader delivery of nursing services, which should be provided in a culturally competent manner.

### **Theoretical Frameworks & Models in the Nursing Literature**

As a theoretical framework, the Cummins Model of Language Proficiency challenges nursing educators to remain cognizant of the time aspect of language development and utilize multiple teaching strategies to deliver culturally neutral context. Other communication models were cited in the nursing literature: *Dr. Madeline Leininger's Sunrise Model*, which can be applied to diversity in the instruction of nursing students, *Edward Hall's* conceptualization of the differing context of communication difficulties, and *Politzer's Model* of language deficit.

Additional theoretical and conceptual models in the literature addressed various issues related to understanding the complexity of the linguistically diverse student. *Vincent Tinto's model of Student Retention* (Tinto, 1993) asserts that student retention is strongly influenced by the cultural climate on campus. This model of student retention advocates for the inclusion of students through social involvement. *The Uprooting Theory* by Upvall (1990) describes the four phases that foreign students encounter when they are abruptly moved from a familiar environment to a new environment. *The Theory of Multicontextuality* by Robert Ibarra (2001) suggests that foreign born students have differing perceptions than their Caucasian peers regarding how they perceive the world.

The absence of more conceptual models, whether language acquisition or culturally inclusive, seems particularly precarious since understanding Standard English and the significance of acculturation is important when attempting to understand the needs of linguistically diverse nursing students.

### **Cummins Model of Language Proficiency**

The Cummins Model of Language Proficiency explains how ESL students learn language for social and academic purposes (Abriam-Yago et al., 1999; Cummins 1981). Language proficiency moves along a continuum that includes context embedded and context reduced communication situations. Context reduced (Basic Interpersonal Communication Skills or BICS) communicative situations offer fewer cues so it's more linguistically demanding. In contrast, context embedded (Cognitive Academic Language Proficiency or CALP) communicative situations offer contextual cues to assist in the understanding of language. In academic settings, activities are cognitively demanding and context reduced which makes comprehension and retention difficult for linguistically diverse students. As a theoretical framework, the Cummins model provides one perspective regarding the differences in the way that language is learned and utilized in different settings. Educators should have an understanding of language development and utilize a variety of strategies to provide instruction in a culturally neutral context.

On average, a linguistically diverse student's English language acquisition requires a minimum of two years to become proficient using BICS (social language). Cognitive academic language proficiency requires approximately five to seven years for linguistically diverse students. It should be noted that students from other countries who

receive a formal education in the US may speak several languages other than English (Caputi, Englemann, & Stasinopoulos, 2006). Often there is not a formal or informal assessment of nursing students' profile characteristics after they are admitted to the nursing program. Just as nurses complete a comprehensive assessment of patients, educators need to assess the uniqueness of students in the classroom. This assessment helps to form the collective group and individual plan of care or instruction for the student. Students often rely on the educators to identify nonverbal cues of distress in the classroom because "students can be reluctant to give up the safety of silence if that means becoming reduced to the 'object' of another student's or the teacher's discourse" (Allen, 2006, p. 70). Cultural identities are not formulated in isolation; instead the process of cultural definition is developed by the cultural environment and the purposes of this identity (Allen, 1995).

Cummins model has been critiqued as 'oversimplified' because it does not empirically or comprehensively address the complexity of language development within a social cultural framework (MacSwan & Rolstad, 2003). A hierarchical system exists with the use of BICS/CALP terminology when academic language is preferred and there is an inference that learning academic language occurs only in the school environment, a form of prescriptivism (MacSwan 2000; MacSwan & Rolstad, 2003). This creates environments of academic failure when students are labeled as academically unprepared or deficient based on linguistic ability. Educators may have confusion regarding linguistic ability (variations) and linguistic competence because the Cummins theory does not identify differences among language and literacy (MacSwan, 2000; MacSwan, 2005) which both influence academic achievement. Yet, Cummins contends that the model

was created as a way to identify how educational systems create barriers for nonnative English speakers. Nurse educators have an obligation to understand the significance of culture, cultural identity and the students' perspective of this relationship to their style of learning and the use of language. This process evolves as the academic semester progresses and impacts the learning environment for all students. The creation of culturally inclusive and diverse environments further facilitates the understanding of all students in regards to acknowledging issues of cultural diversity and communication.

### **Minority Student Issues in Nursing**

#### **Issues of Cultural Competence**

Culture competence has a significant influence in the lives of clients in regards to quality of services, legislation and outcomes of care. For nurses, cultural competence has an impact on the delivery of nursing services, hospital accreditation, and risk associated with malpractice. Cultural competence is tripartite at the individual, system, and organizational level (Betancourt, Green, & Ananeh-Firempong, 2003). Davidhizer and Shearer (2005) define cultural diversity as the consideration of various factors which include: a) immigration status, b) education, c) career background, d) place of birth, e) lifestyle, f) gender, and e) age; therefore, all individuals represent some form of diversity (difference). It is the differences among people which necessitate a discussion of cultural understanding and competence during interactions. Often textbook generalizations regarding culture nuances have the potential to be used in a stereotypical or biased manner. Cultural competence is "the process in which the healthcare

professional continually strives to achieve the ability and availability to effectively work within the cultural context of a client (family, individual, or community)” (Campinha-Bacote, 2002, p.181). This definition denotes that cultural competence is a process rather than an actual state of achievement. The process evolves through experiential learning and thus educators are in an excellent position to create culturally inclusive learning environments which include simulation labs and clinical experiences. When cultural diversity and cultural competence training occurs, there tends to be an absence of the “pervasive nature and influence of systems of oppression” and therefore the lingering effects on health and quality of life outcomes may be improved (Hassouneh, 2006, p. 256).

The question remains if educators have developed an endemic blindness to the complex needs of linguistically diverse nursing students? Faculty members’ perceived lack of knowledge and empathy in regards to cultural differences coupled with the students’ intuitive sense of prejudice and racism have been detrimental to the sustainability of diverse student enrollments in higher education (Barbee & Gibson, 2001; Hassouneh-Phillips & Beckett, 2003; Weaver 2001). The appreciation of the equality in cultures should cause one to consider their frame of understanding in a way that is reflective of other people’s ways of being and thus guide the actions that demonstrate respect regarding cultural differences (Pacquiao, 2008). Campinha-Bacote (1998) model depicts cultural competence as five inter-related constructs which have a direct relationship between competence of the provider and the delivery of culturally responsive care.



The five constructs should be experienced and individuals continually work on these constructs to improve balance among the constructs. Campinha-Bacote (2002) defines each of the constructs (p. 182):

- *Cultural awareness* is the process of self reflection of multiple factors which include, one's personal culture, professional background, and personal biases towards other, including the effect of 'isms' (i.e., racism).
- *Cultural knowledge* is the process in which individuals gather accurate information regarding the worldviews and biological variations of different cultural and ethnic groups.
- *Cultural skill* involves the capability of providers to perform a cultural assessment and physical assessment.
- *Cultural encounter* is a way of preventing possible stereotyping about diverse groups. To modify preexisting beliefs, this process calls for an engaging face-to-face cultural interaction with clients from culturally diverse backgrounds.
- *Cultural desire* addresses the motivation of wanting to engage in the process of becoming culturally competent. This pivotal factor is inclusive of a spiritual aspect towards the journey of becoming cultural competence.

It is the intersection of these constructs which depict the true process of cultural competence because cultural competence impacts all race and ethnic groups as well as addresses differences and similarities within cultural groups. In order to provide an optimal environment for all students, educators continue to build culturally congruent learning environments.

Many times the educator needs to serve in an advocacy role which necessitates an examination of both similarities and differences across cultures (Leininger, 2006). This is difficult to accomplish when faculty do not acknowledge or incorporate the cultural backgrounds of students in their instructional methodology (Yoder, 2001). The inclusion of culture backgrounds in the classroom is only one aspect in the matrix of providing

curriculums and learning opportunities, which advocate for cultural competence. Nurse educators should continue to question how best to teach cultural competence in the classroom and observe the demonstration of these skills in the clinical environment. The model by Campinha-Bacote (1998) has significance because the majority of nursing faculty across academic programs are traditionally English speaking, older white middle class females, who have reported limited background in instructional strategies for diverse students (Tucker-Allen, 1994; Yoder 1997).

Despite faculty members' ambivalence or ignorance regarding the culture and race relations in nursing, students are acutely aware of this disconnect, lack of diversity in the classroom, and the lack of diversity within the nursing workforce (Barbee & Gibson, 2001). This same author provided the following recommendations for nurse educators over nine years ago in response to lack of diversity in nursing (p. 244):

- Acknowledge that non-White students are not academically inferior.
- Eliminate racially biased attitudes regarding educational backgrounds of non-White students.
- Develop institutional support for non-White students who demonstrate educational deficiencies in academic readiness.
- Talking and writing about “cultural diversity” without dealing with racism in nursing education perpetuates the status quo.

There have been position statements by ethnic nursing organizations (i.e., National Black Nurses Association, National Coalition of Ethnic Minority Nurses, and the National Hispanic Nurses Association) which support diversity in nursing and have recommended the pedagogy of nursing education to embrace culturally sensitive and inclusive principles when developing the nursing curriculum and structuring the learning

environment. Consistently the theme of facilitating the success of diverse nursing students encompasses understanding their cultural and linguistic backgrounds (Abriam-Yago et al., 1999; Kataoka-Tahira & Abriam-Yago, 1997; Villaruel et al., 2001; Yoder, 1997). These same professional organizations have national strategic programs geared towards the recruitment, retention, and continual advancement of future generations of minority nurse leaders who will design, conduct, and implement culturally inclusive research among minority populations. In addition, the US Department of Health and Human Services, Office of Minority Health developed the *National Standard for Culturally and Linguistically Appropriate Services in Health Care* (CLAS) to acknowledge the significant interaction of culture and language in response to patient accessibility and response to health care. Nationally, *Healthy People 2010* sought an increase in the number of minorities from underrepresented racial and ethnic groups who receive health profession degrees (Department of Health Human Services [DHHS], 2000). In nursing education, the Division of Nursing, Department of Health and Human Services identified increasing diversity and cultural competence as a strategic goal (Geolot, 2000). The Joint Commission on Accreditation of Healthcare Organizations (2008) has provided culturally competent care guidelines which highlight effective communication, patient centered care, and cultural competence as hallmarks of safe quality care. Despite these concerted national efforts, the picture of diversity in nursing has not changed significantly during the past decade. This is alarming given the resources in the discipline of nursing; however, the remainder of this literature review will focus on what is known regarding factors affecting minority students and linguistically diverse students' academic progression in nursing school. This critical

review will uncover what is known, what questions remain unanswered, and what questions have yet to be asked regarding why diverse students, specifically linguistically diverse students remain underrepresented in nursing school. Despite what is known about the benefits of teaching and adhering to the principles of cultural competent care, this is a difficult construct to measure in relationship to who is accountable for the actions or inability to observe these actions. What is the penalty for failure to adhere to the principles of culturally competent care among individuals in the academic or clinical setting? Who is negatively impacted and are their voices heard? Weissman et al., (2005) surveyed 2,047 medical residents regarding their preparedness for cross-cultural care. These residents perceived the concept as important but reported they felt unprepared to actually utilize these skills because of time constraints, inadequate training, and lack of role modeling. In Hispanic, Asian American, and African American populations, the benefits of cultural congruence among the health care provider and the patient have been reflective of patient satisfaction and improvement in the care delivery (Fernandez, Schillingerm, Grumbach, Rosenthal, Stewart, Wang, et al., 2004; Green, Ngo-Metzger, Legedza, Massagi, Philips, & Iezzoni, 2005; Lee, Batal, Maseilli, & Kutner, 2002; Morales, Elloitt, Weech-Malonado, & Hays, 2006; Willis & Porche, 2006). Culturally competent interventions should recognize differences and build upon similarities, based on communication and an accurate collection of data.

### **Attrition and Retention Factors**

African American nursing students attending predominately White-serving institutions were the focus of earlier (1980's) research pertaining to issues of attrition.

Racial discrimination, institutional abandonment, social isolation, poor interpersonal relationships, biased performance evaluations, and cultural conflict were some of the barriers experienced by African American nursing students (Barbee & Gibson, 2001; Coleman, 2008; Gardner, 2005a; Gardner 2005b; Janes & Hobson, 1998; Merrill, 1998; Yurkovich, 2001). However, African American nursing students are only one of many diverse nursing student groups. There has been an expansion of the research regarding attrition among other minority groups which includes Hispanics, Native Americans, and other underrepresented ethnic groups in nursing.

Attrition is a complex problem which is costly to the student and the educational institution; in addition psychologically the student is affected on multiple levels (Jeffreys, 2001). The literature on attrition and retention has been addressed in an inverse manner because retention strategies are usually provided as a remedy for attrition problems. The disparity in attrition rates, graduation rates, and first time National Council Licensure Examination for Registered Nurses (NCLEX-RN) failure rates have historically impacted students from minority populations (Evans, 2004; Fletcher et al., 2003; Villarruel et al., 2001; Yoder, 2001).

### **Attrition**

Attrition in this study is defined as a withdrawal (W) on the academic transcript and/or a letter grade of “U” academically in two or more nursing courses. At the technical colleges in this study, for readmission consideration in nursing a withdrawal has the same significance as a letter grade of “U”. If a student is academically unsuccessful in two or more nursing courses throughout the nursing program, this constitutes program

ineligibility and the nursing student will need to complete the readmission process in order to continue taking nursing coursework. According to the college policy any student who has failed two or more nursing courses is program ineligible and must submit a formal petition for re entry consideration. Attrition rates among minority nursing students have inconsistently ranged from 15% to 85% (Dowell, 1996) and 82% of attrition occurs within the first year of the baccalaureate program (Ehrenfeld, Rotenberg, Sharon & Bergman, 1997). In a comparative study examining differences in first year and second year nursing education attrition in Austria, 1<sup>st</sup> year students expressed 1) under preparation, 2) dislike of nursing courses, and 3) competing roles (Andrew et al., 2008). These authors deemed these first year students are less likely to return to or persist in pursuing nursing education as a career choice. Attrition ranges in nursing are similar globally, Austria (10%-25%), UK (25%, mostly 1<sup>st</sup> year attrition), Canada (10-18%), and USA (reported by California, 20%) (Andrew et al., 2008). The literature is unclear regarding if these nursing attrition rates are specific to semester or overall program attrition. In addition, there are rarely any identified variances in attrition rates by selected variables (i.e. demographics, race). Some of these students are educationally and socially disadvantaged which is a challenge in an academic setting that does not provide supportive services based on diagnostic criteria and learning needs (Dowell, 1996). Attrition or more accurately the process of attrition among students was not always clearly defined in the nursing literature. Attrition can be a result of the students' cognitive ability or it can be related to a student voluntarily withdrawing from the nursing program. Unfortunately, either form of attrition contributes to the nursing shortages and affects the utilization of nursing schools resources. In California, if attrition rates were decreased,

there would be an additional 500 nurses practicing in the profession (California Postsecondary Education Commission [CPEC], 2003). The following exploration will look at the multiple reported causes of attrition in nursing school for minority students. Ultimately, attrition is problematic because it can lead to academic dismissal from the nursing program.

It has been proposed that attrition is high among minority students because of a lack of academic preparation (Brown & Marshall, 2008; Fisher, 2007) or their first generation college status. Evidence suggest there is a lack of understanding among minority nursing students regarding college expectations and the rigor of academic life (Abriam-Yago, 2002; Childs et al., 2003; Evans, 2004; Gilchrist & Rector, 2007; Hurd, 2000; Villarruel et al., 2001). Unfortunately, by the time the student seeks help from the educator, the timeline for implementation of the best interventions have passed, and the support may not be as effective because the students' grade is unsatisfactory (Hurd, 2000; Ofori & Charlton, 2002). The disconnection occurs because students "lack the understanding of the 'rules' of classroom engagement or student faculty interaction" (Zuzelo, 2005, p. 29). According to this same author, attrition is complicated because of the lack of diverse educators (role models) seen in the nursing classroom. Many diverse students are acutely aware of the lack of diverse faculty and peers which can increase anxiety because there is a heightened awareness of "white privilege and the ways in which it shapes the educational environment" (Puzan, 2003, p. 195).

Consistently, the need for faculty and student engagement is evident for purposes of retention. Faculty development (i.e., academic and personal advisement) was successfully utilized as a retention strategy for disadvantaged African American students

(Hammond, Davis, Hodges, Jordan & Warfield, 1999). Using a qualitative design, African American students (n=14) attending a two year nursing program in a predominately white serving institution, reported four themes a) coping and survival, b) difference, c) the institutional context of a predominately White nursing program and institution and d) support systems (Coleman, 2008). Lack of support from teachers, racism, and isolation from culture and family were significant barriers to academic success among American Indian and Hispanic students enrolled in the nursing program (Evans, 2004).

Unique to the Hispanic population was the theme of gender bias in which women with families are provided little support for academics from their families and the community (Villarruel et al., 2001). The ALCANCE (reach in Spanish) program reported that Hispanic/Latino and American Indian students ( $N= 14$ ) were more likely to worry about academic failure, family and community obligations, and worry about power and privilege issues than Anglo-Saxon students (Evans, 2008). Likewise, minority students ( $N= 1,377$ ) attending community colleges and state universities in California Valley had negative perceptions of institutional diversity and African American students had less interaction with faculty and peers (Wong, Seago, Keane, & Grumbach, 2008). Among minority groups, especially linguistically diverse students Standard English (language) is a barrier which impedes academic progression in nursing school (Abriam-Yago et al., 1999; Klisch, 2000). Internationally, English as a Second Language was not statistically significant in regards to academic performance, and success among students (Mulholland, Anionwu, Atkins, Tappern, & Franks, 2008). However in the US, nursing students perceived that faculty misinterpreted their accents and/or ESL status as a



measure of their cognitive ability; this was seen as a barrier to educational mobility among Hispanic nurses (Villarruel et al., 2001). We have seen similar findings of attrition among different ethnic and racial groups in nursing. In California, among state collected data, attrition rates (32%) were highest for Asian and African-American nursing students. Although the effect sizes were small, there was a higher percentage of on time program completion when a learning resource center ( $r = .13, p > .05$ ), tutoring center ( $r = .13, p > .05$ ), and an English as a Second Language program ( $r = .13, p > 0.05$ ) were operational on campus (Seago & Spetz, 2005). Only one study ( $N = 151$ ) in this literature review identified race (African American, Hispanic and Asian) as a statistically significant demographic variable among practical nursing students (Stickney, 2008). The independent sample *t test* result reflects higher attrition rates among minority students on the components of the TABE exam: math ( $M = 10.08, SD = 2.33; t = 3.98, p < .00$ ); verbal ( $M = 9.47, SD = 3.19, t = 6.34, p < .00$ ); reading  $M = 10.93, SD = 2.48, t = 4.65, p < .00$ ); introduction to health care course ( $M = 3.05, SD = 0.72, t = 3.17, p < .002$ ) and medical terminology course ( $M = 2.85, SD = .81, t = 3.30, p < .001$ ). The eta squared values were not provided by the author, however by using Cohen's (1988) guidelines to interpret the values the effect size was large for math, verbal, medical terminology and moderate for reading and the introduction to health care course. Financial burden, cultural values, and perceived discrimination were barriers among Hispanic registered nurses attempting to complete their baccalaureate or master's degree (Villarruel, et al., 2001). Institutions of higher education are admitting greater numbers of academically "at-risk" students and there needs to be a strategic method in place to

identify these students or attrition rates will continue to increase among students in nursing (Lewis & Lewis, 2000).

Jeffreys (2004) used the term “*stopout*” to mean the student has a break from their academic studies for one or several semesters (p.8). This period is significant because there is an opportunity for the educator to intervene with retention strategies, rather than view this as a final period of attrition (Bessent, 2009). Urwin et al. (2010) conducted an integrative literature review of attrition in nursing education in the United Kingdom which analyzed attrition at three levels (*Micro*-individual student factors, *Meso*- institutional factors, and *Macro*- political and professional factors). Issues of attrition have persisted in nursing education, despite what is known about the benefits of early intervention. There is a need to reflect on institutional policies which may contribute to academic failure among minority students. This focus is evident in the literature on retention and predictors of academic success in nursing.

## **Retention**

Retention of students within nursing courses is conventionally defined as the number of students who begin and complete the nursing program as opposed to course retention which refers to the number of students who start and complete a specific course. Colleges of nursing traditionally assess course retention, program retention, and first time NCLEX-RN pass rates as variables which influence academic success. If students have been successful academically in passing the nursing courses, the student has a higher likelihood of passing the NCLEX-RN exam on the first attempt. The NCLEX-RN examination predictor variable is important because if students are unable to pass state

boards they are unemployable in the nursing workforce. Gilchrist and Rector (2007) found that 33% to 47% of linguistically diverse nursing students passed the NCLEX-RN on the first attempt, compared to non ESL students who had a pass rate of 67% to 97% on their first attempt. Since the focus of this study is retention during the first semester, the NCLEX-RN as a predictor variable may not provide the data which is needed to identify students who may be at risk of academic failure early in their nursing careers. However, nursing literature has consistently used the NCLEX exam as the main predictor variable for measuring academic success among nursing students.

Retention was improved by 25% in a nursing program located at a historically black college following the addition of resources such as, tutoring, faculty mentoring, service learning, and freshman orientation classes (Brown & Marshall, 2008). Among nursing students, ( $N = 1,156$ ) emotional support from family and friends was the most frequently selected factor which influenced retention (Jeffreys, 2007). Of these students, 86% were from an associate degree nursing program, and 40% of these students identified that English was not their first language.

The literature on retention of diverse students has overwhelmingly indicated the importance of mentors, supportive faculty, family, and peers (Bessent, 1997; Fletcher et al., 2003, Higgins, 2004, Shelton, 2003). For African American students, this support provided a mechanism in which students felt safe from the isolation and loneliness experienced in the academic setting (Childs et al., 2004).

The Native American worldview and the nursing academic environment are strengthened when faculty and students become “*culture brokers/interpreters*” (Crow, 1993) in which educators recognize the cultural components of learning. Native

American (American Indian) students in nursing have been identified as the least represented group in nursing (NLN, 2006) and therefore there is a need to better understand which factors facilitate student success. Similar to other minority groups, American Indian/Alaska Native (AIAN) nursing students struggle with historical issues of assimilation, inadequate college preparation, and struggles with balancing family and academic priorities (Grandbois, Madison-Jacobs, & Sanders, 2009). In addition, financial support is needed to decrease financial burden for students and their families, this retention strategy consistently was seen for groups of diverse students in nursing (Bessent, 2009; Cabrera & Padilla, 2004; Grandbois et al., 2009; Villarruel et al., 2001).

Faculty, institutional commitment, and the academic environment significantly impact African American student retention (Campbell & Davis, 1990; Zuzelo, 2005). Retention efforts should be integrated at the institutional level which addresses the needs of non-White students through resources such as, tutoring (Shelton, 2003) and mentoring (Barbee & Gibson, 2001). Multicultural focused retention strategies are most successful when implemented using self- reflection (institutional level) and sustainable college resources (Ackerman-Barger, 2010).

The need for bicultural relationships, financial assistance, and experiencing caring relationships (institution, peers, and family) was validated, using a qualitative design, among Mexican American students ( $N=9$ ) attending a predominately White nursing program (Taxis, 2006). More attention is warranted in analyzing the number of course repeats during the pre-nursing phase, as this may be an indication of possible attrition problems once enrolled in the nursing program (Philips, Spurling, & Armstrong, 2002). In fact, colleges are encouraged to provide additional supports in the form of a

minority student nursing association, faculty-student advising programs, activities in professional organizations, and joint research opportunities.

Organized academic programs aimed at increasing minority student retention are quite common in the nursing literature. These programs are usually federally funded for three to five years; however, problems can occur if the academic institution does not build an infrastructure which supports the students after the grant has completed the funding cycle. It is unclear if academic and social achievements were achieved after the funding cycles ended. The one year Minority Nurse Retention Project in California achieved 100% retention of minority students ( $N$  unknown) through the integration of supportive resources such as language partnerships, family night activities, building a mentoring network, minority support groups, and minority pre-nursing student outreach (Gardner, 2005c).

The Experimental Program to Stimulate Competitive Research (EPSCoR) program received grant funding for equipment purchases, program development and faculty stipends for curriculum development (Noone, Carmichael, Carmichael, & Chiba, 2007). This initiative provided math and science support to underprepared students (88% ethnically diverse;  $N= 25$ ) attempting to enter nursing; activities included communication and critical thinking exercises, mentoring, case management, occupational socialization, and successful life and study skills. With these strategies, cohort one had a 48% (GPA 2.1) retention rate at the completion of first semester, cohort two had a 84% (GPA 3.2) retention rate, and the overall success rate was 36% at  $p < .01$  (Noone et al., 2007). With the use of these organized pre-entry efforts, 88% of cohort one, received a passing score on the NLN pre-admission examination (PAX-RN).

It appears that peer relationships are just as important for retention (Evans, 2004; Junious, Malecha, Tart, & Young, 2010). In a descriptive, exploratory study, nontraditional students performed better with group activities, which were voluntary in nature, and included structured interventions in an enrichment program with peer mentor/tutors study groups (Jeffreys, 2001). At the baccalaureate level, Sutherland, Hamilton and Goodman (2007) found that in the absence of the ARMS (Affirming At Risk Minorities for Success) program, Anglo Saxon students had a 2.9 times better chance of passing the NCLEX-RN than other minority students, according to odds ratio. ARMS was a federally funded program of baccalaureate nursing students ( $N = 64$ ) which utilized specific strategies (e.g., tutoring, mentoring, advising, educational programs) to increase program retention, graduation and NCLEX pass rates. Many of these same strategies have been utilized in associate degree programs. Nursing program directors from associate degree programs ( $N = 45$ ) identified four strategies which were utilized to increase retention: a) campus counselors, b) remediation efforts, c) faculty, and d) preadmission assessment exams (Higgins, 2005). Therefore, equalization of race and ethnicity was achieved with interventional strategies of expert tutoring, faculty-student advisement and mentoring, seminars, and the distribution of personal laptop computers with educational software. Retention efforts seem best utilized when they are implemented based on individualized or diagnostic student abilities (Porter, 2008), ultimately these strategies should be utilized at pre-entry and continued through the students' academic progression in nursing school.

## **Predictors of Academic Success in Nursing**

Nursing literature has attempted to categorize the student characteristics which may influence academic achievement during each course, which ultimately leads to program completion. In the nursing literature, there have been vicissitudes among which predictor variables best indicate academic success and ultimately lead to success on the NCLEX-RN examination. Although, the majority of studies that analyze predictor variables utilize the dependent variable of the NCLEX examination. This is problematic because many students are struggling earlier in the nursing program coursework, during the first semester. Nurse educators understand the successive and progressive nature of content difficulty in the nursing curriculum as the students progress each semester. Philips, Spurling, and Armstrong (2002) reported three pre-nursing admission variables which predicted student success in a baccalaureate nursing program a) English GPA b) Biology GPA (microbiology and anatomy & physiology) and overall college GPA. When compared to White students enrolled in nursing, often minority students inclusive of linguistically diverse students, struggle as evidenced by lower GPAs (Jeffreys, 2007; Martinez, Sher, Krull & Wood, 2009). Linguistically diverse learners experience more academic difficulty than native English speakers in multiple aspects of the learning milieu in nursing (Bellefleur, Bennett-Murray, Gulino, Liebert & Mirabito, 2009). These predictor variables used for admission and progression among the different nursing programs are important because they can assist in the early identification of necessary supportive programs for nursing students. This information can provide evidence of the long term need for institutional supports which are a part of the nursing program's

infrastructure and provide development for faculty, opportunities for research within the nursing program, and the use of evidence based, educational theory driven teaching methodologies in the classroom.

### **Demographic Variables**

#### **Age**

Inconsistent findings exist regarding age as the most significant demographic variable to predict success in nursing school. Manifold and Rambur (2001) found that Indian students ( $N= 150$ ) who were older and enrolled in nursing school (practical and associate degree) were more likely to complete their program and scored higher on the math and language examinations of the Test of Basic Education (TABE) than the students who did not complete the program. The TABE exam for language evaluates structure, mechanism and the clarity of writing whereas the math exam assesses the understanding and application of mathematical concepts.

Internationally, a retrospective study conducted in the United Kingdom ( $N= 1,259$ ), found that older (25 years and older) students and those who had high levels of educational qualification were more likely to complete the nursing program compared to involuntary attrition which occurred more frequently among males and ethnic/racial students (Prymachuk, Easton, & Littlewood, 2009). In England, Ofori and Charlton (2002) concluded in a path model, that older students sought more support than the younger students ( $r = .45, p < .01$ ); however, nursing students' entry qualifications (age and previous academic performance) should not be used as the most predictive criteria



for admissions. Older students are thought to have stronger non cognitive ability in the area of self regulation and internal control beliefs (Murray-Harvey, 1993) and this leads the student to confidently seek assistance with their academic studies. It appears that older students are ready for the rigor of nursing school; however, most do have life situations (work, social position, and balancing family life) which may present barriers to academic success.

### **Language Ability**

The pre-nursing English courses do not primarily assess the student's ability to comprehend reading in a social and academic setting. The goal has traditionally been to develop the student's ability to write in a scholarly manner. It is a fallacy to believe that if college students, especially linguistically diverse students, can develop a college level essay, they should also be able to successfully navigate the language nuances in the nursing curriculum. In Australia, qualitatively, students reported satisfaction with web based learning activities (glossary & self-test) developed for bioscience courses targeted to promote language acculturation and acquisition for first semester nursing students (Koch et al., 2011). Chacko and Huba (1991) utilized three tools (Learning and Study Strategies Inventory, Life Experience Survey, and the ASSET test) to survey the learning styles and cognitive ability of first semester nursing student ( $N = 134$ ) attending a community college. Academic achievement was measured by the course grade achieved in the nursing theory course. Language ability and reading ability accounted for 38% of the variance, self-efficacy 8% of the variance and all three factors were correlated with academic achievement. Salamonson, Andrew, Clauson, and Cleary (2011) used a

prospective longitudinal design to study entry level characteristics of nursing students ( $N= 352$ ) in a baccalaureate program in Australia. The most predictive factors for timely course completion were native English speaking ability and grade point average. The significance of language ability was validated by the California Postsecondary Education Commission [CPEC] (2003) recommendations which encouraged nursing community colleges to offer ESL remedial support services and tutoring programs which are inclusive of medical terminology for limited English proficient students. CPEC also provided recommendations for faculty training that address intercultural communication, advising and mentoring to promote success among racially and ethnically diverse students. Lastly, cross-cultural communication was identified as one of the diversity pitfalls in nursing education (Bednarz, Schim, & Doorenbos, 2010) because language issues among faculty and students are so complex and often these issues are often not addressed until the student is in academic crisis.

## **Race**

Recent literature regarding ethnicity has consistently placed racially and ethnic diverse (minority) students at a disadvantage in regards to first time NCLEX success. The white student participants ( $n = 143$ ) had positively correlated ( $r = .19, p < .01$ ) results, while the Hispanic student participants ( $n = 105$ ) had negatively correlated ( $r = -.25, p = .01$ ) success rates on the NCLEX-RN exam (Crow, Handley, Morrison, & Shelton, 2004). Using pre existing program data Haas, Nugent and Rule (2004) found a higher rate of NCLEX-RN success among BSN Hispanic students ( $n = 2$ ) than White ( $n = 309$ ) or African American ( $n = 32$ ) students; note the small sample sizes of these ethnic groups.

Higgins (2005) used ex-post facto data of associate degree nursing students and found no statistical significance among the demographic variables of age, gender, race with completion of the nursing program and passing the NCLEX-RN. Race as a demographic factor among students (Foreign born [ $n = 76$ ], African American ( $n = 67$ ), Hispanics ( $n = 36$ ), Caucasians ( $n = 987$ ) and other ( $n = 9$ ) was not significant for pass rates (Enders, 1997).

### **Academic Variables**

#### **Grade Point Average (GPA)**

According to Stickney (2008) past successes in nursing school, as reflected in grade point averages and pretesting scores, are predictive of future success. In addition, Sayles, Shelton, and Powell (2003) reported that retention rates were higher among associate degree nursing students who had higher high school and nursing course GPAs, while the overall GPA was not predictive of NCLEX-RN success. A retrospective study of ADN students ( $N = 325$ ) found higher science GPAs ( $M = 3.11$ ) and preadmission nursing GPA's ( $M = 3.20$ ) were correlated with NCLEX-RN success (Yin & Burger, 2003). Whereas other researchers found that the cumulative nursing GPAs correlated with NCLEX-RN success (Mills, Sampel, Pohlma, & Becker, 1992; Campbell & Dickerson, 1996). The pre-nursing mean GPA of 3.29 accounted for 20% of the variance ( $F = 25.17$ ,  $df = 98$ ,  $p < .001$ ) and was found to be the best predictor of a successful first semester nursing GPA; however, the second cohort of students' Test of Essential Academic Skills (TEAS) composite scores accounted for 16% of the variance ( $F =$

11.834,  $df = 65$ ,  $p < .001$ ) among successful students in the first semester (Newton, Smith, & Moore, 2007). A meta-analysis of predictive admission variable among baccalaureate programs and NCLEX-RN success reported correlations for pre-nursing GPA ( $r = .34$ ,  $n = 2,733$ ), overall nursing GPA ( $r = .39$ ,  $n = 3,798$ ) and second year GPA ( $r = .49$ ,  $n = 2,082$ ) (Grossbach & Kuncel, 2011).

The Spanish-English Nursing Education (SENE) program was developed to address the shortage of bilingual nurses (licensed practical and registered nurses). This program did not have entrance requirements; however, the study found that students with a higher GPA were more likely to persist and successfully pass the NCLEX-RN (Bosch, 2008).

### **Science Courses**

Sciences courses have been strongly correlated with student success in the nursing program (Campbell & Dickerson, 1996), particularly the anatomy and physiology (A&P) course grade and the first semester nursing courses (Potolsky, Cohen, & Saylor, 2003). Using prerequisite course grades, at the  $p < .05$  level, weak correlations were found for the anatomy and physiology II course ( $r = .15$ ), microbiology ( $r = .19$ ), and completion of the nursing program among nursing students ( $N = 213$ ) at the associate degree level (Higgins, 2005). Within this same sample, the anatomy and physiology I course ( $r = .17$ ) positively correlated with passing the NCLEX-RN (Higgins, 2005). Students who took two or more anatomy/physiology courses prior to admission to nursing were more successful as indicated by a cumulative GPA greater than or equal to 2.5 (Lewis & Lewis, 2000). Prerequisite science grades (microbiology, organic chemistry, inorganic

chemistry, microbiology, anatomy and physiology) were used to assess the relationship with academic success among BSN nursing students. Potolsky et al., (2003) reported a strong positive correlation between the average prerequisite science course grade of B and the mean pathophysiology grade of C ( $r = .77; p < .01$ ); and a moderate positive correlation between the mean prerequisite science course grades and the mean pharmacology grade of C+ ( $r = .60, p < .01$ ). The Self Efficacy for Science scale was positively correlated ( $r = .32$ ) with higher performance in the first year science course, despite students expressing a dislike of physics, chemistry, and general science in high school (Andrew & Vialle, 1998).

The literature continues to support the need to evaluate science course grades in the admission process. What remains unclear is which courses are the most influential for academic success and the issue of when the course was taken in comparison to time of entry to nursing school. Many schools of nursing have raised the admission criteria, meaning strong nursing applicants need to have a grade of B or higher in the core sciences prior to applying to the nursing program. Only one study refuted the findings. Pre-nursing sciences were not significant in influencing the attrition, retention or graduation of associate degree students (Jeffreys, 2007).

### **Non-Academic Variables**

In non-nursing literature, social support (family & friends), measured with the *Perceived Social Support Inventory* and the *Mentoring Scales* were the strongest predictor of academic persistence among six different Asian American undergraduate student groups ( $N= 160$ ) attending southwestern universities (Gloria & Ho, 2003). The

importance of social support from friends, perception of the university environment, and perceived mentorship were validated among ninety-nine Latina undergraduates (Gloria, Castellelanos, Lopez, & Rosales, 2005). Non-cognitive variables, such as self-discipline, positive self-concept, and support network, are believed to be more reliable predictors of minority students' potential to succeed in higher education (Bessent, 2009).

### **Self-Efficacy**

Self-efficacy is the belief that students will use whatever energy possible to accomplish a task; despite obstacles and hardships (Bandura, 1986) based on social cognitive theory. The motivation of learning and the process of learning are influenced by self-efficacy, either domain or task specific (Jeffreys, 2004). In addition, self-efficacy buffers the student's appraisal of stressful situations (Jerusalem & Schwarzer, 1979/1992). Bandura (1994) identified four sources which influence self efficacy:

- *Enactive Attainment* – Successful performance of a task increases self efficacy.
- *Vicarious Experience* – If others succeed personal beliefs in succeeding increase and self efficacy increases.
- *Social Persuasion* – Self efficacy can be influenced by positive persuasion.
- *Physiological Factors* – Emotions, moods, and physical reactions impact efficacy.

Self-efficacy has been thought to be a motivating factor which influences students' persistence in nursing school (Jeffreys, 2004; Zetlin-Ophir, Melitz, Miller, Podoshin, & Mesh, 2004). People with high self-efficacy challenge themselves with high goals and also persist longer than people with lower self-efficacy (Luszczynska, Gutierrez-

Dona, & Schwarzer, 2005). According to these same authors, there are differences among the constructs of self-efficacy (belief), self-esteem (emotional) and locus of control (responsibility). Similar constructs are included in the *Expectancy-Value Theory of Achievement Motivation* by Wigfield and Eccles (2000, p. 68) which theorized that “individuals’ choice, persistence, and performance can be explained by their belief about how well they will do and the extent to which they value the activity.” Collectively the students’ values and expectations influence achievement. Rather than focusing on outcomes, Bandura’s theory acknowledges the predictive nature of self-efficacy on performance and choice. Research studies have demonstrated that students’ self efficacy is a mediating, a predictor, and a correlational variable when analyzing motivation and learning (Zimmerman, 2000). These nonacademic variables (i.e., self-efficacy, expectation of success and subjective task value) in educational research are often used and at times are difficult to differentiate.

The relationship between self-efficacy and academic success has been positively correlated in the literature (Harvey & McMurray, 1994; Lane, Lane, & Kyprianou, 2004) and there have been results which did not support the relationship among self-efficacy and academic achievement (Okech & Harrington, 2002). Among high school students ( $N = 116$ ) perceived self-efficacy for academic achievement was affected by the students’ beliefs in their efficacy for self-regulated learning (Zimmerman, Bandura & Martinez-Pons, 1992). Although this study was conducted with high school students, the author suggests that educators seek to facilitate academic achievement by structuring learning experiences that build on or utilize the students’ existing self-efficacy beliefs. Jeffreys

(2004) provided recommendations based on the nursing students' level of self-efficacy

(p. 47):

- *Low efficacious students*- These students “benefit most from diagnostic specific interventions designed to enhance self-efficacy, academic and psychological outcomes.”
- *Inefficacious students*- “Early identification, followed by diagnostic-prescriptive interventions can maximize strengths and facilitate success.”
- *Supremely Efficacious students*- “Often lack the motivation for the task and see no need for assistance, the educator can initiate actions with these students.”

In nursing, academic self-efficacy, not clinical self- efficacy, was predictive of course withdrawal among first year nursing students ( $N = 306$ ) using the 22-item Nursing Academic Self Efficacy Scale (NASES) and the 24-item Nursing Clinical Self-Efficacy Scale (NCESES) developed by Harvey and McMurray (1994).

Self-efficacy tools typically assess task specific self-efficacy in hopes of changing behavior or promoting self-management/self-regulation; however, the focus of the current study was to examine the current state self-efficacy of first semester nursing students. These students have had previous success in college as demonstrated by acceptance in the nursing program and completion of their prerequisite credits. Beginning nursing school is a stressful time period because of the unknown, also in my experiences students underestimate the time and critical cognitive skills which will be necessary for learning in a nursing environment. Therefore, the focus of the dissertation was to assess a more generalized form of self-efficacy among the linguistically diverse and native English speaking nursing students.



## **General Self-Efficacy**

General self-efficacy (GSE) is a broad global confidence which is manifest through the coping ability of the individual in various stressful situations (Schwarzer & Jerusalem, 1995). GSE is a universal construct with a unidimensional measure, the General Self-Efficacy Scale which has been tested in 25 countries and translated in 28 languages. The GSE scale attempts to broadly address a range of coping outcomes and human behaviors (Luszczynska et al., 2005).

Peterson (2009) used a descriptive correlational design to explore the relationship between academic success, general self-efficacy, and self-esteem. Academic success was determined by the students' first semester GPA. General self-efficacy was measured with the GSE Scale and self esteem was measured using the Rosenberg self esteem scale. Among ethnically diverse first semester baccalaureate nursing students ( $N= 66$ ) no relationship was found between academic success and self-esteem ( $r = -.022, p < .01$ ) and a negative small relationship was found between self-efficacy and academic success ( $r = -.025, p < .01$ ) (Peterson, 2009). There was a positive relationship between self-esteem and self-efficacy ( $r = .45, p < .01$ ). The effect size used in this study was .50. The GSE scale provided data on the relationship of general self-efficacy on first semester academic success among nursing students.

## **Self-Regulation**

Academic support seeking which is a form of self-regulation of learning is a better predictor of student performance rather than previous academic ability and age

(Ofori & Charlton, 2002). Zimmerman et al., (1992) define academic self-regulated learning as “the degree to which students are metacognitively, motivationally, and behaviorally proactive regulators of their own learning process” (p. 664). There has been no research to identify the causal impact of self- regulation and self-efficacy (general or task specific) among nursing students who are linguistically diverse.

The period prior to admission to clinical and theory nursing courses, presents an opportunity for an introduction to the resources available for students. Nursing administration and educators share the decision making process of selecting candidates who are prepared for the rigor of nursing school. An exploration of the admission and progression policies will illustrate which variables are predictors for admission and graduation from nursing school.

### **Admission & Progression Policies**

Nursing programs have limited seats available for students because of the shortages of nursing faculty and clinical facilities. These deficits contribute to the competitive nature of nursing school admission; in addition students need to be able to demonstrate academic proficiency upon applying to the nursing program. The primary goal of using an admission policy is to select a group of potential candidates that will progress through the nursing curriculum in a timely fashion and have first time success on the NCLEX examination. Educators are again challenged to select the best-qualified candidates based on multiple variables which have been inconsistently described as predictive of student success. The existence of grade inflation and inconsistent faculty grading criteria further muddles the usefulness of these variables (Murray, Merriman &

Adamson, 2008). Among baccalaureate sophomore nursing students ( $N= 173$ ), policies related to student admission affect the quality of students enrolling and ultimately progressing through the nursing curriculum. This has led to the overwhelming use of standardized exams that are assumed to be reliable and valid assessment tools of students' cognitive ability. As well, these standardized exams have been used as adjunctive admission criteria for entry to nursing school and their predictive nature has been used to measure students' future learning and retention in the nursing program (Crow et al.; 2004; Sayles, Shelton, & Powell, 2003; Stuenkel, 2006).

Many nursing admissions departments have chosen to utilize standardized pre-admission exams and have specified admission criteria as one method of selecting academically prepared nursing students. Admission criteria are most likely to identify students who will be academically successful in nursing courses and ultimately pass the NCLEX-RN (Gallagher, Bomba, & Crane, 2001). However, the use of these standardized exams as part of the admission criteria for nursing school has been an ineffective admission tool for nontraditional students because these exams may be biased and inadequately assess the student's level of preparation (Belack, 2005). Colleges of nursing are forced to choose students who they believe are the best and the brightest, often based on high aptitude ability on standardized achievement exams and other academic variables (GPA, SAT scores). There are no central standards across nursing schools regarding which criteria constitute a valid preadmission exam or even which levels of cut off scores should be used in the selection of nursing students. This discrepancy validates the need for more research evaluating demographic student characteristics, admission and progression criteria, and rates of retention, graduation, and

first time NCLEX-RN success. The Sullivan Commission (2004) stressed that these admission exam scores alone inadequately evaluate the future competency of nurses.

The use of standardized entrance exams in bachelor level nursing programs was found to be significantly predictive ( $\chi^2 [1, N=12] = 11.11, p < .001$ ) of students who later went on to pass the NCLEX examination (Crow et al., 2004). In contrast, Higgins (2005) reported only certain components of the students' ( $N= 213$ ) preadmission examination results, science ( $r = .18$ ), math ( $r = .13$ ) and reading ( $r = .12$ ), positively correlated with completion of the nursing program; whereas, science ( $r = .41$ ) was correlated with success on the NCLEX examination. In this particular study, the type of preadmission examination used at the Texas community college was not provided. Effect size information was not provided in either of these studies. Evaluating data pertaining to students' preparation for entry to nursing school is a critical issue among nurse educators. Several widely used preadmission examinations have been reviewed to gain better insight regarding the use and application of these exams in the admission process.

### **Standardized Exams in Nursing**

The Nurse Entrance Exam (NET) exam has been used as a screening tool for admission to nursing school. This examination evaluates social and academic skills including 31 individual scores based on the students' profile regarding stressors and learning style. The composite score is the mathematical and reading comprehension mean score. Abdur-Rahman and Gaines (1999) found a significant positive relationship between the NET examination and first semester nursing grades when the admission criteria required baccalaureate students ( $N= 281$ ) to score at the 50<sup>th</sup> percentile in reading

and the 70<sup>th</sup> percentile in math. Ellis (2006) reported that 89% of students were retained at the completion of the first semester after the preadmission scores were raised for the NET; whereas, 70% of the nursing students were retained at the completion of first semester for those students who did not complete the NET at the higher criteria. Sayles et al. (2003) found that the NET exam composite score ( $r = .41$ ), math skills ( $r = .31$ ), and the reading score ( $r = .35$ ) were positively correlated and significant at  $p \leq .05$  to predict NCLEX success among associate degree students. In this same sample, other significant variables included ethnicity, Pre-RN exam, GPA for courses, and grade in the last nursing course (Sayles et al., 2003). On the NET exam, neither reading nor math were significant in identifying associate degree nursing students ( $N= 385$ ) who would have problems on the NCLEX and higher grades in the beginning nursing courses were predictive of the final average nursing course grade (Tipton, Pulliam, Beckworth, Illich, Griffin, & Tibbitt, 2008). Unfortunately, the name or description of these courses was not provided in the study. First semester students (92% Caucasian; 86% female) were more likely to be successful when the pre nursing GPA and benchmark levels on the TEAS exam was achieved (Newton et al., 2007). The TEAS exam consists of assessing math, science, English and reading. This exam was meant to be administered prior to the start of the nursing program. However, Newton et al. (2007) administered it as a form of remediation and the exam was given early during the first semester of the nursing program.

The NET exam was used in a comparative study with The Entrance Examination for Schools of Nursing (RNEE) exam and the findings did not support the continual use of the NET exam. Students who successfully completed ( $N= 109$ ) the first nursing course

had better RNEE admission scores ( $r = .23, p < .05$ ) than those who were not academically successful and the NET academic subtests did not find any differences between the successful and unsuccessful students enrolled in the NUR 101 course among associate degree students (Gallagher et al., 2001). Logistic regression tests ( $p < .05$ ) identified that students with a reading comprehension RNEE score of 32 had a 50% probability of academic success in the nursing program and students with a RNEE score of 59 had a 50% probability of earning a letter grade of B or better in the first nursing course (Gallagher et al., 2001, p.133). The RNEE exam is an academic achievement test which produces a verbal and a composite score for each student.

The preadmission exam created by the National League for Nursing (NLN) is the Pre-Admission Examination (PAX-RN), which determines students' verbal, mathematics, and science abilities (NLN, 2003). Stuenkel (2006) used an archival correlational design to determine if the PAX-RN exam and diagnostic readiness could predict NCLEX success. The findings indicated that the preadmission criteria (PAX-RN, grade point average, and scholastic achievement test [SAT] total scores) accounted for 51% of the variation among students ( $n = 45$ ) and these same factors correctly identified 67% of the students who later failed the NCLEX-RN exam. In addition, the NLN pretest and prerequisite GPA accounted for 16% of the variance and correctly identified 17% of baccalaureate students ( $N = 312$ ) who would later fail the NCLEX, of which 31% of these students spoke English as their second language (Stuenkel, 2006).

Weatherby (2007) conducted a validity study with registered nursing programs ( $N = 6,260$  nursing students;  $N = 66$  nursing programs) who utilized the PAX-RN exam. Only 1,481 students completed the first year of nursing school, 906 of these students

completed the nursing program. The PAX-RN composite score was the best and most reliable predictor of completing the first year of the nursing program. Kirking (2004) reported that at program entry, qualified nursing students ( $N = 876$ ) perform well on the PAX-RN. The composite score on the PAX-RN exam was the best predictor of success in anatomy and physiology course and it correlated with successful course grades in an associate degree nursing program between 1995 and 2002. This validation study also indicated that the PAX-RN exam was a valid predictor of first-year academic success for all types of registered nursing programs ( $N = 68$  schools;  $N = 8,786$  students during 1982-1983 (Breyer, 1985). What remains unclear is if the samples were reflective of nontraditional students and if there were differences between the correlations among these groups.

Despite these findings, there are no studies which have used the PAX-RN exam as a predictive model to measure academic success in associate degree nursing programs with linguistically diverse students. Most quantitative studies used the NCLEX-RN exam as the benchmark for academic success, because nursing students must pass this exam to obtain their license. In light of the high attrition rate, retention efforts reflective of academic success should be addressed earlier in the nursing program; such as during the first semester.

The Health Education Systems, Inc. (HESI) exit examination was predictive of students who were successful on NCLEX-RN (Daley, Kirkpatrick, Frazier, Chung, & Moser; 2002; Lauchner, Newman, & Britt, 1999), but it could not accurately predict those who would fail (Spurlock & Hanks, 2004). According to Morrison, Adamson, Nibert, and Hsia (2004) the HESI examination exit exam is a comprehensive 150-item

examination which evaluates the nursing student weaknesses and strengths in order to identify areas which may need remediation prior to the NCLEX examination. The HESI company produces admission examinations (A<sup>2</sup>) which contains seven exams, a) vocabulary, b) math, c) grammar, d) anatomy and physiology, d) chemistry, e) biology, and f) reading comprehension. In addition, there are optional testing materials such as the learning styles assessment and the personal inventory. The A<sup>2</sup> does produce an English-language subset score, which is the average of the initial seven components. Murray et al. (2008) reported that the HESI admission assessment results ( $n = 69$ ) positively correlated with 50% of all nursing course grades and correlated with 80% of the beginning level courses in the BSN program. The exam results positively correlated 100% with the three nursing courses in the first level of the associate degree program ( $N = 217$ ). The exam in itself is not problematic; instead the use of the exam results has the potential to omit minority students, particularly those who are linguistically diverse. In my experience, when these exam scores are low students are either not admitted and students are advised to take non-credit remedial math and English courses, which do not have a diagnostic or learning assessment component, or students are admitted conditionally and it is assumed that they will use appropriate resources to supplement their academic studies. This method of utilizing the exam scores does not advocate for the student and it is not cost effective for the student or the educational institution.

### **Progression Factors**

Progression policies which utilize standardized examinations have been implemented for a variety of reasons: a) mechanism to track academic success at



benchmark periods b) facilitates establishing program requirements for advancement c) mechanism to evaluate the students' level of preparedness for the NCLEX-RN exam and d) provide data which may indicate the need for remediation and additional instruction (Crow at al., 2004; Sayles at al., 2003; Spurlock. 2006). "Schools that develop progression policies hope to prevent those students who are most likely to fail the NCLEX-RN from taking it; by doing so, school NCLEX-RN pass rates should be preserved" (Spurlock, 2006, p. 297).

Many of the same companies that develop preadmission examinations produce progression and exit examinations for schools of nursing. There are no universal progression policies among nursing schools; however, state boards of nursing have warned against using these examinations as the only criteria for progression within the nursing curriculum. The use of a single predictor for progression or graduation is a high stakes test which places the student in a disadvantaged position, especially the minority student. High stakes testing occurs when there are direct consequences, for examinees, programs, or institutions based on how students perform on the examination (American Educational Research Association & National Council on Measurement in Education, 1999). These types of tests are often seen in a negative manner because it is essentially another standardized examination. Nursing schools began using these examinations, as a result of pressure from accreditation agencies and state boards of nursing who evaluate the colleges' NCLEX-RN pass rates. Lastly, Spurlock (2006) questioned the validity of these high stakes examinations in relationship to bias toward minority students, students with disabilities, and linguistically diverse students.

Nursing research has historically measured academic success using the NCLEX-RN scores as the dependent variable. With the high rates of attrition, particularly in the first semester, attention should be given to strategies which assist in the early identification of students who may be at risk for attrition. During the pre-nursing phase, upon application submission and during review of the admission criteria, faculty share a responsibility in developing, implementing, and evaluating which admission criteria are predictors of academic course success for all students, to include linguistically diverse students who are often grouped among minority or race/ethnicity classifications. In order to better develop these interventions, empirical data are needed across academic settings that share the same curriculum. The majority of research presented related to the predictors of success, attrition, and retention. Researchers did not clearly identify or distinguish the needs of the linguistically diverse nursing student. Additional literature will be presented to highlight what is known regarding the barriers and facilitators of academic success for this population of students. To date, there are no comprehensive predictive models specific to nursing program type (i.e., practical, associate, baccalaureate) because there has not been a parsimonious method to measure the interaction/influences of academic, demographic and psychosocial variables (DiBartolo & Seldomridge, 2005) among nursing students.

### **Studies Exclusively with Linguistically Diverse Nursing Students**

#### **Communication**

Multiple studies identified problems with reading, listening, speaking and writing (Fema et al., 1995; Jalili-Grenier & Chase, 1997; Keane, 1993; Phillips & Hartley, 1990). In nursing school, the substantial amounts of complex reading present a challenge for all students. Linguistically diverse students tend to read at a slower pace due to the time it takes to translate materials into their native or primary language. To compound this issue, nursing exams are timed and require linguistic processing (Malu & Figlear, 1998; Phillips & Hartley, 1990). These factors can cause reading to be a time-consuming and frustrating task for linguistically diverse nursing students. Since Standard English is phonetically foreign, lectures in the classroom can be perplexing and have the potential to negatively affect the type of notes the student records. When receiving written feedback on assignments, students may perceive the instructor comments as vague because the instructor has unknowingly given feedback based on their understanding of Standard English. In addition, linguistically diverse students ( $N = 273$ ) in Australia have reported difficulty hearing and producing sounds when communicating (Salamonson, Everett, Kock, Andrew, & Davidson, 2008). These sounds are omitted because they are not heard. Language problems have been correlated with academic problems in nursing (Paquiao, 2007; Washington & Perkel, 2001) and the inability to understand Standard English as utilized in the academic educational arena has been caustic to linguistically diverse students (Guhde 2003; Manifold & Rambur, 2001).

Difficulty when communicating leads to increased anxiety, embarrassment, and depression when linguistically diverse learners are in the classroom and/or the clinical environment. Difficulty with writing is noted among undergraduate students, but it may be magnified for the diverse learners because of the way that Standard English is

processed in reading, listening and speaking (Caputi et al., 2006; Crow, 1993; Gudhe, 2003; Kurz, 1993; Malu & Figlear, 2001). Lujan (2008) felt that students need to acknowledge the need to improve accuracy and speed of translation of English words. In contrast, Sanner and Wilson (2008) qualitatively reported that ESL nursing students did not perceive that reading comprehension and speech were a major cause of their academic difficulty. These findings should be approached with caution because of the small sample size ( $N=3$ ). However, it does highlight the need for further studies which incorporate mixed methodology with triangulation of the findings to gain a holistic view of communication concerns within this population. The fundamentals of reading and writing are the basis for communication in any language. When these components are altered or underdeveloped it creates colossal linguistic barriers.

### **Language Acquisition and Development**

Language barriers both verbal and written pose the greatest barriers for linguistically diverse nursing students (Klisch, 2000; Phillips & Hartley, 1990). For example, for Mexican Americans, the syntax of English is challenging because the adjective precedes the noun, the opposite is true in the Spanish language (Lujan, 2008). For nursing students, 60%-80% of their daily activities rely on the ability to communicate with others in the healthcare setting. In Canada, Jalili-Grenier and Chase (1997) found that ESL students did not ask questions if they perceived it unnecessary because of their cultural traditions of respect for authority. Faculty perceived this lack of questioning as an area of difficulty for students in the learning process. Faculty felt this was a language

related problem when in actuality it was not an indication of lack of knowledge or preparation.

Malu and Figlear (1998) found that the completion of ESL content specific coursework does not automatically provide adequate command of the English language. There is an assumption that when there is an adequate level of social English this also translates to a proficient level of academic Standard English. In nursing, language development encompasses the need for nursing students to use specific occupational terminology, assertiveness skills, and therapeutic communication. For linguistically diverse nursing students, this material was best learned in a communications course (Choi, 2005) which utilized role playing and information gathering techniques. Nursing skills are often learned through repetition and feedback. When communication is impaired for the ESL student or between the educator and the student, it has a domino effect of potentially lowering self esteem or self motivation. These results mirror the thematic student perspectives that learning styles were influenced by educational and early home environments; necessitating that linguistically diverse students proved themselves (persist) by utilizing resources in the nursing academic environment (Sanner, 2004). These perceptions of failure can affect the student's ability to seek help or even limit their ability to perceive future success in nursing school. Further research on faculty development of curriculum tools to evaluate longitudinal language development in the nursing program is needed.

## **Academic Preparation and Learning Style**

Many linguistically diverse students are taught to learn through rote memorization (Brown, 2008) and they may not be adequately prepared for the higher levels of cognitive skills (critical thinking). This is contradictory to Western culture nursing curriculums in which student learning is evaluated with a “best choice” among multiple options. Linguistically diverse students can struggle with the Western culture’s independent learning styles, if they are accustomed to collaborative type learning (Yoder, 2001). Nurse educators often fail to appreciate the different learning styles of diverse students and may not chose the appropriate teaching strategy in the classroom (Choi, 2005).

There have been inconsistent findings in regard to the preferred learning styles of ESL nursing students. Fetma et al. (1995) indicated the preferred learning style among ( $n = 173$ ) ESL nursing students was social and writing dependent. However, Keane (1993) found that group learning among ESL nursing students was negatively correlated with academic achievement and length of time in the United States was positively correlated with the learning strategy of information processing. The length of time does correlate with the assertion that ESL nursing student grades improved from semester one to the end of semester two (Fetma et al., 1995). This also supports the work of Whitehead (2006), there were no statistically significant differences between NCLEX-RN pass rates or ATI exam scores between ESL and non-ESL students. Although the licensing exam and predictor exams are longitudinal outcome measures for nursing students, attrition is highest during the first two semesters of nursing school. Linguistic or cultural biases were found in 39% of 67 pathophysiology test items (Bosher & Bowles, 2008) which

may be offered early in the nursing curriculum. Of these items, 35% of the items required linguistic modification, which decreased the word count and the average words per sentence.

In an anonymous questionnaire, faculty reported they did not directly modify instruction and primarily used the lecture method during instruction, despite indicating that linguistically diverse students appear to learn better with alternate methodologies a) analogies, b) case studies, c) visuals, d) concrete objects and e) examples (Tagger, 1998). Given the importance of evaluating linguistically diverse nursing students accurately, linguistic and cultural bias on written exam has implications for test writing among nurse educators.

### **Acculturation**

Acculturation measures are complex because this concept can be measured in various ways (i.e., county of birth, language spoken at home, or years of residence in the adopted country). There has not been consensus regarding the index of acculturation but there is support for measuring acculturation according to suggested indicators (i.e., years of residence or languages spoken) (Escobar & Vega, 2000). During factor analysis, language use and preference account for a large amount of variance, tend to be the most sensitive measures of acculturation, and both are significant when studying students in an academic environment (Coronado, Thompson, McLerran, Schwartz & Koepsell, 2005; Serrano & Anderson, 2003).

The English Language Acculturation Scale (ELAS) was used to measure the relationship between English language acculturation and academic achievement in first

year nursing students living in Australia. There was a positive correlation between ELAS scores and length of residence in Australia. The increase in students' grades was proportional to the ELAS scores, and ELAS scores were the only significant predictor of student grades (Salamonson et al., 2008). Academic performance among linguistically diverse students is related to their levels of English language acculturation or proficiency (Brown, 2008; Cummins, 1981; Salamonson et al., 2008; Stephenson, 2000); although language and acculturation scales were used in each study and these studies are not all unique to nursing. Telephone interviews to evaluate a web-based intervention used sociodemographic data (ELAS tool) to group students. The ELAS scores (low: 5-13; medium: 14-18; high: 19-25) were not significant in identifying differences among ESL Chinese ( $n= 21$ ), non-Chinese ESL ( $n= 24$ ) and Native English speaking nursing students ( $n= 7$ ); although 75% of the Chinese students had low ELAS scores (Koch et al, 2011).

### **Social Isolation**

Students may display feelings of shame (Colosimo & Xu, 2006) or report feelings of self-consciousness related to their native language and accent. Linguistically diverse students are less likely to engage in interactive classroom learning and social exchange among peers when social isolation, anxiety, and discrimination are internalized (Brown, 2008; Gardner, 2005; Kataoka-Yahiro et al., 1997; Malu & Figlear, 2001; Yoder, 2001). Social interaction theory highlights the need for mediation of learning through the back and forth conversations which occur in group settings. This serves as a process for achieving higher cognitive levels or the development of critical thinking skills (Driscoll, 2005). Social isolation can be connected to the cultural climate and welcoming climate



within the school of nursing. There is also a systems issue with the lack of faculty from diverse backgrounds. Linguistically diverse nursing students perceive the lack of racial and ethnic resemblance with faculty and peers and this can be perceived as a lack of sensitivity to their own uniqueness (Sanner, Wilson & Samson, 2002).

### **Marginalization**

Linguistically diverse nursing students have reported experiencing difficulty in the clinical environment from nurse educators, staff and clients related to stereotyping behaviors. For example, a Vietnamese student described how she was assumed to be a nursing assistant instead of the nurse (Amaro, Abriam-Yago, & Yoder, 2006). These negative behaviors become detrimental because the linguistically diverse student is not viewed as an individual who is capable of achieving success in a nursing environment. Native American students have reported contrasting views of familial cultural learning and academic learning in a Euro American based nursing curriculum. These students were taught a worldview which included holism, circular life events, oneness with nature and cultural pluralism (Crow, 1993). Previous cultural experiences and prior knowledge have the potential to lead to difficulty for ESL students because they may feel like *outsiders looking in* (Sanner & Wilson, 2008). Common problems that emerge for ESL students include: differing expectations of nursing education and fear of failure (Malu & Figlear, 1998). Among linguistically diverse students ( $N= 35$ ) attending a historically black college, the same feelings of social isolation and a resolved attitude lead to persistence. In fact students should be taught to see the big picture, shifting their locus of control from external to internal, to reduce the stressful influences of others (Colosimo &

Xu, 2006). The implications of cultural values and how these values affect responses in the nursing environment may be major obstacles for diverse nursing students. Nursing faculty are encouraged to acknowledge the significance of cultural dissonance and the cultural pressure placed on linguistically diverse nursing students to succeed (Cunningham, Stacciarini, & Towle, 2004; Gardner, 2005b).

### **Institutional Support**

Baccalaureate nursing programs in California, that had the greatest percentage of retention for ESL nursing students, utilized nearly thirty retention strategies (Memmer & Worth, 1991). The need for effective communication training is critical, as 80% of nursing faculty indicated the need to learn more about advising and working with ESL nursing students (Jalil-Grenier & Chase, 1997). Faculty should continue to assess personal bias, cultural perspectives, and the knowledge of the ESL student's cultural experiences as a way of building communication (Abriam-Yago & Kataoka-Yahiro, 1999). Nursing faculty need to convey empathy and demonstrate their commitment to retention efforts. The idea of a longitudinal relationship between nursing faculty and the linguistically diverse students has not been fully explored in the literature in terms of how to create an avenue which supports and avoids stereotyping and misconceptions. Often faculty members are with the students for one course or a clinical term. If the ultimate goal were connectedness and support it would seem that mentorship type relationships should be explored as a retention strategy.

Nursing school administrators have the opportunity to evaluate the needs of the faculty and the diverse nursing student. Based on the feedback, faculty and

administrators can develop transformative action plans which support the principles of active learning and cultural competence. Klish (2000) suggested that this commitment may be evident in multiple ways such as: faculty release time for advanced training in transcultural nursing and the provision of academic supportive services (tutoring, advisors, and peer mentors). Although nursing is faced with a faculty shortage, it also remains fundamentally important that schools of nursing attempt to attract and retain faculty from diverse backgrounds which may mirror the diversity seen in the student population (Brown, 2008).

### **Proposed Solutions to Assist Linguistically Diverse Nursing Students**

Educational strategies can be utilized by collectively to facilitate academic success while enrolled in nursing coursework (Table 2). There is not one solution to remedy the challenges of linguistically diverse nursing students just as there is not one learning theory that supports why these students experiences are unique. The literature review revealed specific interventions which could be utilized with linguistically diverse students in nursing.

### **Institutional Commitment**

There remains a need for ESL advisors and minority nursing faculty teaching in nursing programs who can serve as mentors, role models, facilitators, tutors, and/or as consultants to other faculty (Klisch, 2000; Memmer & Worth, 1991). These personnel help to create an environment that promotes diversity. Ownership of diversity standards

does not rest with one individual, but rather all faculty members in the college of nursing are collaborators working toward this goal.

Advancements in nursing technology and simulation can support nursing content using multiple languages and culturally sensitive learning scenarios. These programs serve as a rehearsal of information in a safe non-threatening environment (modeling). While there is a place for rote memory and recall of nursing content; when nursing content is utilized in a clinical scenario it has true meaning for the linguistically diverse student. Technological advances such as instruction via simulation, Skype and/or IPOD/IPHONE media, may further develop critical thinking skills among linguistically diverse nursing students.

### **Academic & Social Support**

Jeffreys (2007) interviewed 1,156 nursing students, of which 60% reported that English was not their first language. The greatest support was from family, friends in class, and moderate support from nursing faculty. Family continues to serve as a source of psychological support and cognitive structuring in providing background knowledge. This is congruent with the socio-cultural perspective of learning theory; which proposes that individual's development can only be understood within a socio-cultural context. The students' mental processes are mediated by the existing culturally created ways of learning. This learning theory highlights the uniqueness of language and the role that language has in the way that information is processed. This makes sense considering the time involved with learning a language and this translates into meaningful learning/language acquisition.

## **Language Acquisition**

Nursing faculty and ESL nursing students are encouraged to work on language development in an academic and social setting. Guhde (2003) used role-playing, conversation circles with peers, and 1:1 tutoring. The tutoring occurred over a 10-week period, with a clinical application of reading, writing, speaking, and listening skills. The ESL nursing students improved the accuracy of their written skills by 40%. This modeling of communication among native English and non native English speaking students allows for learning from other students. This facilitates mutual respect, assertiveness skills, information gathering and it communicates an understanding of the role that culture plays in health care. Although, the implied relationship is reciprocal between the ESL and non-ESL nursing student, no quantitative findings support the ongoing inclusiveness of these relationships outside of the learning environment.

## **Curriculum Modifications and Teaching Strategies**

A communications course designed for ESL students (Choi, 2005) included therapeutic communication, information gathering, assertiveness training, and an exploration of the role of culture in communication. This course provided background data regarding Standard English and assessed the language needs of the ESL student. Language acquisition and the use of academic and social language are correlated with cognitive information processing (Driscoll, 2005) because learning requires a specific acquisition of facts, skills, and concepts. Prior knowledge affects how information is

processed and learning occurs through the use of learned concepts. Nursing educators are encouraged to identify previous learning experiences and solicit background knowledge from ESL nursing students. The cognitive constructivist views learning as an individually constructed body of knowledge. Knowledge is built on what the learner brings to the classroom. The learner should be given multiple opportunities to demonstrate what is already known. The use of journaling was advocated as a way to gather a sense of the students' background knowledge in a non-challenging format (Guhde, 2003). This sort of student initiated work focuses on understanding and using knowledge.

### **Assessment & Evaluation**

Instructor created exams may introduce bias, which affects the validity and reliability of the test. Linguistic modification is a process by which the reading load of test items is reduced while the content and integrity of the items are maintained (Bosher & Bowles, 2008). The ESL student will be evaluated on relevant content and they the nurse educator is not creating bias.

Malu and Figlear (2001) proposed six active learning tips for educators: a) study groups, b) integration of technology, c) mutual understanding, d) concept maps, e) pre/post conferences, and f) the use of clinical journals. Malu, Figlear and Figlear (1994) suggested preadmission interviews and use of assessment tools which match ESL nursing applicants and the school of nursing. This seems less likely given the large number of applicants applying and it seems discriminatory to only offer this option for ESL nursing students.

## **Faculty Development**

Students who perceive higher levels of support are more likely to persist and complete their nursing education (Amaro et al., 2006). ESL students are often experiencing a significant amount of stressors and an educator initiated commitment (e.g. mentorship) needs to be apparent to decrease the students' amount of anxiety. Faculty should use the students' cultural knowledge and expertise as an educational tool to advance cultural competence and cultural awareness (Brown, 2008). The mentor also serves as a person who has the expertise to clear misconceptions and guide conceptual restructuring of nursing knowledge.

Table 2

*Proposed Solutions for Nurse Educators Working with Linguistically Diverse Students*

Academic and Social Support	<p>Create mutual understanding (student &amp; faculty) &amp; Provide a linguistically diverse advisor &amp; mentor</p> <p>Establish social &amp; academic support groups on campus with faculty advisors</p> <p>Encourage the use of supportive resources &amp; provide continuous feedback on academic progression</p> <p>Encourage language emersion activities &amp; language building activities</p>
Teaching Strategies	<p>Assess students' background knowledge, cultural differences and similarities</p> <p>Provide written copies of lecture notes and lecture for multiple learning styles</p> <p>Integrate technology (computers/video)</p> <p>Model the use of reading textbooks &amp; study strategies/concept mapping</p> <p>Discuss diversity in relationship to peers, patients, and institutions</p> <p>Present information in context &amp; demonstrate skills repetitively</p> <p>Understand the role of cultural, race, gender, and power</p>
Assessment and Evaluation	<p>Provide additional testing time with clear guidelines</p> <p>Provide multiple opportunities for practice among peers and faculty</p> <p>Decrease test bias---- Avoid idiomatic wording/language, linguistic modification of test items</p> <p>Consider written assignments as works in progress &amp; Document the progress of meeting learning objectives</p> <p>Encourage a vocabulary notebook in combination with a bilingual dictionary</p>

Abriam-Yago, Yoder, & Kataoka-Yahiro, 1999; Boshier, 2008; Caputi, Engelmann, & Stasinopoulos, 2006; Choi, 2005; Cunnigham, Stacciarini & Towle, 2004; Gudhe, 2003; Jalili-Grenier & Chase, 1997; Keane, 1993; Klisch, 2000; Malu & Figlear, 2001; Memmer & Worth, 1991; Starr, 2009; Hicks, 2011



Table 2

*Proposed Solutions for Nurse Educators working with Linguistically Diverse Students*

Faculty Development	Attend workshops/in-services to increase cultural competence Assess personal bias regarding racial and ethnic groups, issue of diversity Understand the influence of cultural norms in the lives of our students Commit to facilitate college retention goals (time intensive) Understand the time elements of language development for linguistically diverse students Allow student and faculty expression of identity, sharing of the cultural world Initiate early intervention strategies and learning contracts
Curriculum Modifications	Provide ongoing language enhancement services & Network with other disciplines for knowledge building Develop a required transcultural nursing course, provide communication classes & assertiveness training Evaluate admission policies and track retention data Consider class load options/time commitments/effective academic advising
Institutional Commitment	Develop a strategic plan to address the academic and financial needs of diverse student populations Recruit, hire and support diverse faculty instructors Assess the college climate for inclusion Consider placement tests/language assessment test as form of remediation Budget for the cost of longitudinal retention activities

Abriam-Yago, Yoder, & Kataoka-Yahiro, 1999; Boshier, 2008; Caputi, Engelmann, & Stasinopoulos, 2006; Choi, 2005; Cunnigham, Stacciarini & Towle, 2004; Gudhe, 2003; Jalili-Grenier & Chase, 1997; Keane, 1993; Klisch, 2000; Malu & Figlear, 2001; Memmer & Worth, 1991; Starr, 2009; Hicks, 2011

## **Qualitative Themes**

Linguistically diverse students have voiced concern regarding limited language skills, discrimination, and perceived inferiority (Donnelly, McKiel & Hwang, 2009). Students struggle with family stressors, marginalization issues in the academic setting, and yet there is a resiliency in obtaining a nursing degree (Mulready-Shich, 2008; Sanner, 2004). At the baccalaureate level students exhibit learning difficulties, conflicting cultural issues, and difficulties with the language of nursing (Chamberlain, 2007). As diverse students progress through the nursing curriculum, it appears that family support, motivation, and academic preparation are the significant factors which influence NCLEX-RN success (Sims-Gidden, 2002; Smith, 2000).

## **Gaps in the Literature**

The literature on linguistically diverse students occurred primarily among nursing students enrolled in baccalaureate programs. This does not account for the majority of minority students, inclusive of linguistically diverse students, who begin their nursing careers at vocational, practical, and associate degree nursing programs (Brown & Marshall, 2008). It was difficult to tease out linguistically diverse students from among other minority populations and international students who plan to return to their native country. In addition, not all of the studies provided data regarding the type of nursing program or the level of the students' academic studies (i.e., freshman, sophomore). Rarely, was acculturation discussed or measured among the samples in the nursing literature. The absence of acculturation components (i.e., language(s) spoken, years

living in the US) limits the body of knowledge. Lastly, specific keywords which highlight the inclusion of linguistically diverse students would facilitate the utilization of research conducted by educators interested this population of nursing students.

Nursing students enter nursing programs with multiple barriers which have the potential to lead to increased frustration, course withdrawals, and academic failures. The literature clearly highlighted multiple educational strategies which can be utilized in the academic nursing setting with English language learners. There was a significant lag among the time periods of research regarding this population. The cause of this gap is unclear; however, the renewed initiatives to increase diversity and the demographic trends regarding linguistically diverse student enrollment in higher education has led to more research and dissertations in nursing regarding this population. This demonstrates a commitment to identify the most current data and evidence based practices.

There were minimal research instruments such as self-efficacy or acculturation tools utilized in research studies regarding linguistically diverse learners. When research instruments were utilized, the researcher often failed to give the name of the measurement tool or the tool was not in print within the study. The absence of tools could partially relate to the researchers' reluctance in using a tool that had not been validated specifically with this population. Many of the studies in this review have not addressed the issue of power and effect size indexes, particularly the post hoc power analysis. This information is helpful in determining if a study was sensitive enough to detect significant effects and it allows readers to make appropriate comparisons between similar studies with the same outcomes.

Typically when the tool was not provided, the researcher attempted to provide information as to what type of data the questions or survey sought to answer. For example, questionnaires were developed from the information in the literature and pilot tested with fourth year students ( $N = 10$ ) and eight third and fourth year faculty members (Jalili-Grenier & Chase, 1997). The reader is unclear if the questions were revised after pilot tested or left in the original context. As the research continues to provide background knowledge about diverse nursing students, it would be helpful if measurement tools (instruments) were readily accessible for replication with author consent.

The majority of literature regarding linguistically diverse nursing students was explanatory or descriptive in nature. This literature provided recommendations which expanded on the previous retention strategies for minority or nontraditional students. Even when qualitative methodology was used, it was difficult to ascertain the type of qualitative study (distinctions between grounded theory, phenomenology, etc). When case study narratives were used; however, the reader was unsure of the original research question. There was a clear identification of themes that have been identified in the review of the literature.

The sample sizes were small which limits the generalizability of the findings. Also, there was homogeneity of samples (white and female), which is indicative of the national trends in nursing. There was an absence of research conducted with faculty who has linguistically diverse backgrounds, which may provide the necessary lens for addressing some of the unanswered questions from an educational perspective. In the qualitative studies, smaller sample sizes are expected according to the methodology

utilized. The studies did seek information from multiple sources: observation in clinical and the classroom, the ESL nursing students, nursing faculty, and the schools of nursing.

With limited design methodology, the potential exists for underestimation or generalizations regarding the needs of linguistically diverse students. Rigor and multiple research methodologies are necessary to advance the science of nursing, specifically nursing education. In the studies that described the methodology, triangulation was assured when all the pieces of the data were accounted for within the patterns identified. Overall, small sample sizes, limited methodology and limited rigor open the door of opportunity for future studies.

To date, there are no existing studies among associate degree nursing students which measure the relationship and differences of academic success during the first year of nursing courses using a combination of standardized nursing placement exams, language, acculturation and predictor variables. There needs to be more research in nursing which quantitatively analyzes standardized tests, critiques the cut off scores, addresses if repeated attempts are available for retest, and addresses the validity of these exams among linguistically diverse learners. Furthermore, educators remain unclear regarding how to create remediation strategies prior to entry based on standardized exam scores. Clearly, a more integrated approach is needed for the interpretation of standardized exams in nursing programs with traditional and nontraditional nursing students.

The theoretical learning model, *Double Loop Diversity*, supports the notion that short term- interventions (single-loop) should not be recognized as “*successes*” of outcome measurements if the values and flaws of the educational system which

continually place the diverse students at disadvantage are not addressed (Argyris, 1985; Paul, 2003; Sitzman, 2007; Ackerman-Barger, 2010). Nurse educators find that attrition is an ongoing struggle among minorities enrolled in nursing school. College administration, nursing faculty and linguistically diverse nursing students should work together to focus on language development, academic preparation and acculturation issues. This process facilitates mutual respect, support and it communicates an understanding of cultural competence which has the potential to positively influence retention and graduation among linguistically diverse nursing students. Retention strategies are time intensive and require active participation from faculty and students with institutional support. As this process evolves, nurse researchers are tasked with expanding the state of the science regarding how we diversify the nursing workforce by retaining minority nursing students.

Other gaps in the literature include the fact that nursing curricula have been so focused on NCLEX-RN results of students that efforts which address the early identification and remediation needs of students are lacking in the literature. Remediation efforts are time consuming and faculty are already stretched to the limit with obligations to the profession, the institution, their practice, and family. These factors alone place students in a position of vulnerability with the system of higher education in nursing. These gaps in the literature indicate the need for additional research on the predictors of success which may support academic readiness and progression ability for linguistically diverse and traditional nursing students. Given the oppressive nature of society and sociocultural pressures that exist in higher education, a

constructivist perspective is needed to highlight the true meaning of these predictor variables in relationship to admission policies and nursing curriculum standards.

### **Vulnerable Populations**

Vulnerability implies a susceptibility to harm or neglect (Sebastian, 1999) and it applies risk for adverse outcomes either psychologically, physically, or in a health context (Aday, 2001). The situational marginalization of linguistically diverse nursing students puts them in a vulnerable state in the academic and clinical learning environment. Linguistically diverse students are marginalized based on small population numbers in schools of nursing, lack of faculty which resemble them ethnically and racially, and mostly they are marginalized because of overt social and institutional barriers of oppression which silence their perspectives.

Inequities in health, accessibility and delivery of health care services have contributed to the need for more nurses from diverse backgrounds. Conceptual frameworks such as Aday (2001) have proposed relational interactions among health status, relative risk, and resources. I would contend that this same relationship exists in the retention models (i.e., NURS Model) seen in nursing education. The impact of culture, language, and the intercultural communication piece that links academic and social support among educators, students, and administrators should consistently be addressed in the research discourse. The need for health care providers to translate language and provide culturally sensitive care is optimal across all nursing settings. The ability for nurse educators to intervene early and respond with effective methodological

strategies could potentially decrease the stressor experienced by linguistically diverse and many nontraditional nursing students.

### **Summary**

Schools of nursing must systematically identify linguistically diverse nursing students among the minority population. An obligation to promote retention and remediation strategies prior to the student's start in the nursing program is needed based on the literature regarding minority students. There should be a multidisciplinary approach to helping all students succeed; however, particular attention should be given to populations which are underrepresented in nursing. Faculty must commit to collect data, observe, document, revise, and implement research that supports the state of science with how we diversify the nursing workforce by retaining our diverse nursing students. In the literature, there remain multiple gaps regarding the retention of linguistically diverse nursing students. This study addressed the preadmission criteria, use of standardized exams (PAX-RN), and the resulting course grades among linguistically diverse and traditional students studying in an associate degree nursing program.

### **Assumptions of the study**

1. As a minority faculty member, my experiences in the classroom and clinical setting provide a grounded framework regarding academic expectations and standards.



2. There is the potential to identify additional student resources for linguistically diverse nursing students which are unique to populations attending a community college.
3. Academic success is influenced by the responsive practices of nurse educators and institutions.

### **Research Questions**

The goal of this study was to determine the relationships and differences among the anatomy and physiology course grade, self-efficacy, linguistic diversity, language acculturation, and components of the National League for Nursing pre-admission exam (math, science and reading) for Registered Nurses (PAX-RN) and first semester nursing course grades of linguistically diverse and native English speaking associate degree nursing students. The specific research questions were:

1. What are the relationships among the PAX-RN composite score, anatomy and physiology course grades, self-efficacy, linguistic diversity, and the first semester nursing course grades for linguistically diverse and native English speaking associate degree nursing students?
2. Are there differences in academic success by linguistic diversity in the nursing courses, anatomy and physiology course grades, and in the PAX-RN composite score?
3. What are the relationships among the PAX-RN composite score, self-efficacy, acculturation level and first semester nursing course grades among linguistically diverse students?

## CHAPTER 3

### **Research Design and Method**

#### **Introduction**

The purpose of this study was to determine the relationships and differences among the anatomy and physiology course grade, self-efficacy, linguistic diversity, language acculturation, and components of the National League for Nursing pre-admission exam (math, science and reading) for Registered Nurses (PAX-RN) and first semester nursing course grades of linguistically diverse and native English speaking associate degree nursing students.

(Appendix A). The research design, methodology, description of the sample, procedures and tools for data collection, the statistical analysis plan, and anticipated limitations are discussed.

#### **Research Design**

A prospective cohort quantitative design was used to identify the factors which predict academic success at the completion of first semester nursing coursework. This method was chosen because cohort designs are useful when analyzing subjects over a selected period of time and analytic designs allow the researcher to study associations between predictors and outcomes (Hulley, Cummings, Browner, Grady, & Newman, 2007). In addition, the potential to capture part time students was increased with

including students who may have been in the program outside the usual two year program time frame.

Quantitative studies use empirical data for the purposes of analyzing influencing factors, not answering the why question (Polit & Beck, 2008). In particular, quantitative demographic and preadmission data (Anatomy & Physiology grade and PAX-RN scores) were studied in relationship with the students' academic outcomes of the first semester nursing courses (nursing fundamentals, nursing skills, and nursing pharmacology). Since there were no existing studies specifically with linguistically diverse nursing students that utilized a standardized exam and specific academic success variables in nursing at the associate level, this design was used to answer the research questions.

### **Setting**

The selected technical college system completed a statewide curriculum redesign which allowed competencies and outcomes of the stand-alone practical nursing program to be identical to the competencies and outcomes of the first year of the associate degree nursing program. Curricular alignment across campuses allowed inclusion of nursing programs at two sites.

Two public associate degree campuses of a statewide technical system in the Midwest region were utilized. The nursing department includes a bilingual nursing assistant program, a stand-alone practical nursing program (PN) at the diploma level, a nursing assistant program, the LPN-RN progression program and a registered nursing program at the associate degree level (AD). The PN and AD programs consist of students between the ages of 18-24 (30%), 25-34 (27%), 35-49 (16%) and over 50 (7%).

The number of new enrollments (96), total enrollments (426) and graduations (191) from the associate degree nursing program has remained consistent. The 2008 AD nursing students' statistics reflect an average program retention rate of 84% and a 16% attrition rate. The National Council of the Nurse Licensure for Registered Nurses (NCLEX-RN) candidate pass rate for the 4<sup>th</sup> quarter (2009) was 82%, below the national average of 88%. This research has the potential to contribute to the decision-making process regarding admission and curriculum standards for the associate degree nursing program.

### **Sample**

The convenience sample consisted of students currently enrolled in an associate degree nursing program in the Midwest. Convenience sampling was used because the current nursing students were most readily available, had experienced the phenomena of interest and they met the eligibility criteria for inclusion (Polit & Beck, 2008). Nursing students were invited to participate in the study during the orientation sessions held according to the students' level (semester) in the nursing program. A similar recruitment plan was initiated at both sites, with the dates assigned by the Associate Dean.

The nursing program comprises four levels: semester 1, semester 2, semester 3, and semester 4 (Appendix A). The nursing program admits first semester nursing students twice a year (fall & spring). Semester four students were excluded because these students did not complete the PAX-RN examination. In an attempt to collectively capture more of the empirical data on students, all students actively enrolled in semester one courses and those students' who had completed the first semester of the nursing program were eligible to participate. At the start of each academic semester there are

informational sessions which orient the students to the expectations of the theory and clinical courses. All students are expected to attend the sessions which usually last two to three hours.

Student recruitment occurred at the start of each semester as this is the time when students are not as challenged in their academic studies. In addition to the initial recruitment sessions, several electronic sources (i.e., nursing web link and g-mail) served as reminders to students that they could chose to participate at any time during the semester. Recruitment continued until the maximum numbers of participants was met.

### **Sample Size**

The sample sizes were calculated prior to the study based on the sample size assumptions for appropriate statistical power. These calculations were based on the G\*Power 3.01.01 statistical calculation tool. For a two tailed, t-test analysis (Bonferroni adjusted  $\alpha = .013$ ), with a medium effect size of .50, and power of .80, 128 total participants were determined to be sufficient. The adjusted alpha level reduced the risk of a Type I error (Pallant, 2010). A sample size of 84 participants were needed for the Pearson correlation coefficient based a two tailed analysis ( $\alpha=.05$ ) with a medium effect size of .30 and a power of .80. The final data revealed a non-normal distribution with the exception of the PAX-RN composite scores, therefore a Mann Whitney U test was performed on the final data set. With a larger sample, data analysis can include robust statistical tests (multiple regressions). A sample size of 85 was needed for a multiple regression analysis ( $\alpha = .05$ ) with four predictors, based on medium effect size of .15, and power of .80. Since letter grades were converted to a numerical scale, the data were

ordinal in nature, requiring ordinal logistic regression (Norusis, 2010). An a priori sample size could not be determined for ordinal logistic regression. Accounting for 10% program attrition, an approximate sample size of 140 participants with an even distribution of native English speaking and linguistically diverse students was recruited for this study.

### **Inclusion Criteria**

The following inclusion criteria were used: a) admission in the Associate Degree Nursing program b) actively enrolled or completed the nursing pharmacology, nursing skills, and nursing fundamentals courses within the last four years at a Technical College c) completed the PAX-RN examination as a preadmission criteria, d) ability to speak and understand English, e) willing to complete the demographic survey and f) willing to release their academic record as reflected in the college's database/transcripts in accordance with the Family Educational Rights and Privacy Act (FERPA) regulations.

### **Instruments**

#### **Nursing Student Survey**

To collect the demographic data, a Nursing Student Survey was created by the researcher (Appendix D). This survey included information related to age, gender, race/ethnicity, education level, employment and primary language(s) spoken.

**English Language Acculturation Scale (ELAS)**

The English Language Acculturation Scale (Appendix F) was administered to linguistically diverse students to measure language acculturation (Salamonson et al., 2008). The ELAS is a five item measure, with five response formats to each question a) *Only non-English language(s)*, b) *More non-English than English*, c) *Both non-English and English equally*, and d) *More English than non-English* and e) *Only English*. There are numerical values assigned from 1 to 5 and the scores range from 5 to 25. The ELAS scores are then grouped low (5-13), medium (14-18) and high (19-25). The Kaiser-Meyer-Olkin sampling adequacy was .87, exploratory factor loading ranged from .70 to .86 and the coefficient alpha was .89 (Salamonson, et. al., 2008) and Cronbach alpha of .95 (Koch et al., 2011).

**National League for Nursing Preadmission Exam (PAX-RN)**

The standardized NLN PAX-RN is a paper and pencil multiple choice examination composed of three sections: math (40 items), science (60 items), and verbal ability (60 items). This exam measures academic proficiency and offers an appraisal of the student's academic abilities as one criterion to facilitate admission decisions (NLN, 2003). The verbal ability test measures word knowledge and reading comprehension, the math test measures the students' ability to solve basic arithmetic problems, and the science portion measures knowledge of general chemistry, physics, biology, and general science at the high school level. All nursing students are required to complete this exam as part of the petitioning process for the associate degree program.

The PAX-RN has an average difficulty level of .60 and an item discrimination of .40 (Breyer, 1985). Test reliability was reflected in the test retest coefficient of  $r = 0.86$ , with a sample of 85 students from 20 different states, based on 160 days. Reliability was shown with the internal consistency as measured by the Kuder-Richardson index of homogeneity which reflected, verbal ability (.82), math (.80) and science (.75) (NLN, 2003). Additional validity studies have been conducted which indicate the PAX-RN composite score is an accurate predictor of NCLEX-RN first time success (Weatherby, 2007). The results include raw scores for each section and the weighted combination of all scores (composite) ranges from 0 to 200.

### **General Self-Efficacy Scale (GSE)**

The General Self-Efficacy Scale assesses perceived self-efficacy in regards to the predictive nature of coping with daily stressful life events and aims to predict coping as a measure of adaptation after experiencing stressful events (Jersalem & Schwarzer, 1979/1993). The original scale was developed in 1979 in Germany, and contained 20 items. In 1981, the instrument was reduced 10 items and now requires four minutes on average for completion. The scale is designed for adults, twelve years of age or older and the final composite score ranges from 10-40, with no identified score to predict self-efficacy. The likert scale responses range from *not at all true* to *exactly true* (Appendix E). Alpha coefficients have ranged from .76 to .90 and the stability has been evaluated in longitudinal studies with test-retest reliability in range of .55 to .67. Using the back consensus model, this scale has also been adapted for use in 28 other languages by bilingual speakers.



## Data Collection

All participants received a consent form that explained the purpose, methodology, and terms of participation in the study. Data collection occurred after the participants completed the consent (Appendix B). All students were asked to complete the consent form, demographic form, and the General Self Efficacy Scale. If students indicated they were linguistically diverse, they were asked to complete the English Language Acculturation Tool. A research assistant was hired to assist with data collection. The completed forms were placed in a sealed coded envelope that was collected by the research assistant. The research assistant placed the envelopes in a lock box, which was secured in the researcher's office in a locked file cabinet. The data remained in the sealed envelopes until the completion of the 16 week academic semester so that the researcher had no knowledge of which students decided to participate or their responses on the instruments. Data were recorded from the three surveys and the student's academic records (course grades and PAX-RN scores). Each student survey was coded and all identifiers were removed. The codes were used to correlate the students' PAX-RN scores and their academic course grades. The students' academic information was obtained through the college's computer system and from the Associate Dean of Nursing. Student academic information was obtained from the institutional research department.

The researcher utilized a password protected electronic SPSS file for the entry of the study variables at the completion of the semester. Data collection occurred until the number of subjects needed for power of .80 was sufficient.

## **Procedure**

Institutional Review Board (IRB) approval was obtained from Marquette University, and the technical college research departments. Recruitment of nursing students occurred during the clinical orientation sessions held at each technical college campus. These particular sessions were chosen because all program students are expected to attend. After IRB approval and student consents were obtained, subjects were asked to complete the study materials. The principal investigator was given fifteen minutes to discuss the research purpose and methodology. The students also would have received an invitation to participate prior to the orientation session. The time was provided to allow students to read the research information and consider participation in the study. If the student wished to participate but was absent during the orientation sessions, the researcher's contact information was available.

After written consent was obtained, and once the academic semester was completed, data were collected from information in the college database. All participants were assigned a code, which was used to identify the student academic records while maintaining confidentiality. Data collection was ongoing for three academic semesters. The students' records were housed in a locked file cabinet located in a secure faculty office space. Computerized files were password protected with access available only to the principal investigator.

## **Data Cleaning**

Data entry in SPSS occurred after the completion of each academic semester. The principal investigator was responsible for data entry and data cleaning. Descriptive and frequency reports were analyzed to identify outliers and missing data. For example, responses on the ELAS tool ranged from one to five. The principle investigator evaluated the minimal value and the maximum value in SPSS for errors in data entry. If the values entered in SPSS fell outside the expected range, the paper copy was checked against the data entered in SPSS for accuracy. Items entered incorrectly were corrected. All variables were checked for missing data. Next, the principal researcher randomly selected questionnaires from each academic level for both data collection sites and checked each item with the corresponding data in SPSS for accuracy. This process was repeated until 30% of the questionnaires were checked for accuracy and revealed no incorrectly entered data.

### **Data Analysis**

Statistical Package for Social Science (SPSS) 19.0 software was used for the data analysis. The independent variables for inclusion were determined by the critical review of the literature. Descriptive statistics of demographic data were analyzed to summarize the sample characteristics. The mean scores and standard deviations were provided for the science grades, PAX-RN scores, self-efficacy and ELAS scores and the nursing course grades. The research questions and statistical analysis are provided (Table 3).

Table 3

<i>Research Questions with Corresponding Statistical Test</i>			
Research Questions	Independent Variables	Dependent Variables	Statistical Tests
Relationship of academic success by PAX-RN composite score science course grades, self efficacy and linguistic diversity for associate degree students	PAX-RN Linguistic Diversity AP Mean Grade Self Efficacy	Fundamentals Skills Pharmacology	Ordinal Logistic Regression
Difference in academic success by linguistic diversity	Linguistic Diversity	Fundamentals Skills Pharmacology PAX-RN AP Mean Grade	Mann Whitney Test Independent Sample <i>t</i> test
Relationship of academic success by self-efficacy and acculturation among linguistically diverse students	ELAS Score Self-Efficacy	Fundamentals Skills Pharmacology PAX-RN	Ordinal Logistic Regression

The courses grades for anatomy and physiology were converted from a letter grade on the transcript to a numerical value (ordinal) reflective of the point system utilized by the college for the purposes of grade point average tabulation (Table 4). Students are required to take two anatomy and physiology courses. The grades from these courses were calculated for a mean science course grade.

Table 4

<i>Letter Grade and Grade Point Allocation, College Wide</i>					
Letter	Grade Point	Letter	Grade Point	Letter	Grade Point
A	4.00	B-	2.75	D+	1.25
A-	3.75	C+	2.25	D	1.00
B+	3.25	C	2.00	D-	0.75
B	3.00	C-	1.75	F	0.00

In addition, for the nursing course grades, the health occupations division established a letter grade and numerical criteria which differs slightly from the college letter grade and grade point system (Table 5). The AD nursing program requires that

successful academic course outcomes be measured by a course percentage grade of 77% or higher, changed to 80% or higher in 2010 academic year.

Table 5

<i>Letter Grade, Point Allocation and Percentages, Health Occupations</i>					
Letter	Grade Point	Percentage Range	Letter	Grade Point	Percentage Range
A	4.0	94 -100%	B-	2.75	83 -84%
A-	3.75	92 - 93%	C+	2.25	80 -82%
B+	3.25	89 -91%	C	2.00	77 -79%
B	3.00	85 -88%	U	0.00	Below 77%

Note. Based on 2008 Health Occupation Standards

### **Human Subjects Protection**

All participants received a consent that explained the purpose, methodology, and terms of participation in the study. The participants might have felt uncomfortable with demographic questions regarding their native language, employment information and the release of their academic records/transcripts, so the study was thought to involve some risk, but at the minimal level, since confidentiality was maintained. Participants could have refused to answer any question or opt out of the study at any time without penalty. The participant's names and identities were held confidential and codes were assigned to facilitate data analysis. Reassurance of confidentiality was given to the participants and the instructors teaching in the health occupations department. Instructors were informed of the research study purpose and data collection time frame. Student academic records were accessed via the colleges' database tracking systems. The principal investigator provided training for the research assistant prior to the study. This training orientated the

research assistant to the study purpose, data collection methods and the requirements to protect subject confidentiality

Indirect benefits to the research participants included knowledge gained through this research which will assist in curriculum decisions and admission criteria used for admission to nursing school. In addition, nursing educators and nursing administrators will better understand the relationship between preadmission criteria and academic success. There were no known physical risks involved in the study and there was no compensation for participation.

### **Limitations**

The sample selected included only associate degree nursing students at colleges in the Midwestern region. Grades from selected courses within the nursing curriculum were analyzed. It is unknown how preadmission variables may affect other course grades. Finally, other confounding variables could exist and possibly affect the academic success of students enrolled in the nursing program.

## CHAPTER 4

Veal, J., Bull, M., & Miller, J. (2012). A framework of academic persistence and success for ethnically diverse graduate nursing students. *Nursing Education Perspectives*, 33(5), 254-259.

**Abstract Aims:** The goal of this qualitative study was to examine how ethnically diverse graduate nursing students persisted with academic studies. **Background:** Ethnically diverse nurses are vastly underrepresented in the workforce. This problem is accentuated by high attrition rates in academic programs. **Methods:** A grounded theory approach was used. Five focus groups were conducted with 16 ethnically diverse graduate students in nursing and interviews were conducted with two diversity recruiters. **Results:** Analysis of the data indicated that the process of learning to balance stressors with moderators was key to academic persistence and retention. A conceptual framework emerged from the data that provides a guide for academic institutions seeking to implement strategies to promote retention and graduation of diverse graduate nursing students. **Conclusions:** Recommendations are offered to address faculty development, administrative action, and student resources.

**Key Words:** *Nursing, Minority Graduate Students, Academic Persistence, Monolithic Culture, Ethnicity, Diversity*

## **Introduction**

Less than 21 percent of health care professionals and approximately 17 percent of registered nurses in the United States represent diverse racial and ethnic backgrounds (Health Resources and Services Administration, 2010; Sullivan Commission, 2004). Of nurses enrolled in research doctoral programs, only 22 percent can be described as ethnically diverse. Similarly, 24 percent of nurses in master's programs (American Association of College of Nursing, 2009) and 27 percent of students enrolled in baccalaureate programs in nursing (National League for Nursing, 2012) are ethnically diverse. High attrition rates among minority nursing students further exacerbate the problem of underrepresentation (Seago & Spetz, 2005). While minority nurses are more likely than others to serve ethnically diverse populations and exhibit culturally sensitive behaviors, supply has not kept pace with growth trends in minority populations (Sullivan Commission, 2004). Effective strategies to recruit and retain minorities are essential to better meet the health care needs of diverse populations.

The aims of this qualitative study were to: a) elicit the experiences of ethnically diverse graduate nursing students, b) examine how these students persisted with academic studies, and c) identify the facilitators and barriers to academic success. To develop culturally sensitive and supportive educational environments, it is vital that nurse educators understand the needs of ethnically diverse graduate nursing students.

## **Literature Review**



Previous research on facilitators and barriers to academic success among minority nursing students focused primarily on recruitment and retention in associate degree and baccalaureate nursing programs. Undergraduate students consistently noted that financial resources for tuition, books, and living expenses were critical for recruitment and retention (Amaro, Abriam-Yago & Yoder, 2006; Bond et al., 2008; Brown & Marshall, 2008; Coleman, 2008). Obstacles to retention included a nonsupportive campus climate, lack of faculty involvement/mentoring, feelings of isolation, alienation, marginalization, and powerlessness, and perceived discrimination (Anders, Edmonds, Monreal, & Galvan, 2007; Bond et al.; Childs, Jones, Nugent, & Cook, 2004; Coleman; Mingo, 2008). In these studies, academic climate encompassed faculty-student interactions, peer support, and social integration (Coleman; Price, Forgeron, & MacConnell, 2008; Tinto, 1993).

Interactions that conveyed personal interest and caring about students' well-being had a positive influence on retention. An optimal climate was characterized by cultural awareness among faculty, students, and administrators and recognition of cultural variances among students (Leiper, Van Horn, Hu, & Upadhyaya, 2008). In addition, emotional and moral support from other students, family, and friends helped diverse undergraduate students persist with their academic endeavors (Amaro et al., 2006; Bond et al., 2008; Price et al., 2008; Taxis, 2006).

The literature on undergraduate nursing students highlights the importance of social integration, defined as "informal or non-classroom interaction of the students with faculty and peers, involvement in the schools extracurricular social activities, and the extent that these activities influence the student's growth, values, attitudes, career goals, and intellectual growth" (Zeitlin-Ophir, Melitz, Miller, Podoshin, & Mesh, 2004, p. 327).

African American nursing students attending four-year colleges reported fewer interactions with faculty and negative perceptions of their academic institutions (Wong, Seago, Keane, & Grumbach, 2008). Limited interactions decreased intercultural communication (Xu & Davidhizar, 2005) and ultimately led to negative perceptions. For Hispanic students, social integration with peers had a moderately significant influence on retention; sense of belonging and socializing with peers were not significant (Vaquera, 2007).

Little attention has been given to academic climate and social integration and their influence on the educational experience for minority graduate students in nursing programs. Doctoral students from disciplines other than nursing, which had higher levels of academic and social integration, were more likely to complete their programs (Lovitts, 2001). Graduate women of color enrolled in doctoral study identified racism as a harmful influence that was overwhelmingly invisible to students with European backgrounds and faculty (Hassouneh-Phillips & Beckett, 2003). Childs et al. (2004) reported that students' perceptions that faculty were discriminating against them on the basis of race (intentionally or not) provided an impetus to withdraw from the program.

To understand retention issues among Mexican American doctoral students, Valverde and Rodriguez (2002) developed the Model of Institutional Support, which describes financial support, emotional and moral support, technical support, and mentorship as facilitators of degree completion. Bond and colleagues (2008) adapted the model, adding academic advisement and professional socialization as facilitators for Hispanic student degree completion. This model describes facilitators of degree

completion, but does not posit relationships among the factors or explain how these factors lead to academic persistence.

The literature on the nature of the experiences of ethnically diverse graduate nursing students remains sparse and different lenses are needed to understand the facilitators and barriers to academic success. This study addresses one aspect of understanding the process of persistence in doctoral nursing education and is designed to help nurse educators promote academic success.

## **Method**

### **Design/Sample/Setting**

A descriptive, qualitative focus group design was used to elicit the experiences of ethnically diverse graduate nursing students; this was not a grounded theory study, but the coding and analysis principles were based on grounded theory. Interview and focus group data were audiotaped and transcribed verbatim. Accuracy of the transcription was verified by listening to tapes and reviewing transcripts. Conceptual categories that reflected the participants' statements were generated from the data (Polit & Beck, 2008). Data were analyzed by three researchers for repetition of information until no new categories emerged and saturation was reached. Constant comparison was used in analyzing similarities and differences in categories that emerged across focus groups (Strauss & Corbin, 1990). Relationships among categories were examined to generate the conceptual framework.

Focus groups allowed multiple students to interact in a nonthreatening environment. Through the use of query and interaction, with students providing examples of their experiences, multiple voices collectively create a narrative. Two diversity advisors, who provided support to diverse students in the graduate program, led the focus groups and were later interviewed to provide breadth and depth to the information gathered.

The research was conducted at a Midwestern university with 11 percent minority graduate enrollment in the college of nursing (CON). Thirty-six racially, ethnically, and culturally diverse graduate students were enrolled; all were invited via email to participate in the study. With the exception of direct-entry students (students with degrees in other disciplines pursuing an MSN), all participants were licensed RNs who had a minimum of a bachelor's degree in nursing. A total of 16 students, all women ranging in age from 23 to 49 years, participated in five focus groups during a year-long period; participants were African American ( $n = 8$ ), Asian ( $n = 2$ ), Latina ( $n = 2$ ), biracial ( $n = 3$ ), and East Indian ( $n = 1$ ). Twelve participants were employed full-time and 10 were married. Five students were pursuing doctoral degrees, four students were in the master's program, and seven were in the direct-entry master's program for non-nurses; all maintained the required grade point average) of 3.00. The 20 students who did not participate in the study cited work, family, or school obligations as reasons for not participating.

### **Procedure**

The study was approved by the University Institutional Review Board for the Protection of Human Subjects in Research and all participants gave informed consent. Two diversity advisers conducted the focus groups at times that were convenient for the participants; the groups took place in a location where privacy was ensured. Although participants had the option of taking part in more than one focus group (Indicated in the consent form), none did so. The focus groups ranged from three to five participants at any one session.

Focus group participants were asked to respond to questions such as: What led you to choose this graduate program? What have been your experiences since enrolling? What has gone well for you? What things have been impediments? To what extent have your experiences matched your expectations? The first questions were used as icebreakers. The diversity advisers who led the focus groups, both African American women, were later interviewed by the project director and asked to respond to the following questions: Tell me about your experiences working with our ethnically diverse graduate students. What is your impression of their concerns? These interviews served as a form of validation and helped determine the extent to which issues brought up in the focus groups were concerns of the larger minority student body.

### **Findings**

For the participants, stressors and moderators took place within the overarching context of a monolithic culture. These led to intermediate outcomes and eventually to the desired outcome of graduation (See Figure). The term *monolithic culture* refers to the values, perspectives, and beliefs that exist in a predominately white educational

institution where there is an absence of ethnically diverse students and faculty and an absence of diverse perspectives in the classroom and at social events.

Learning to balance stressors with moderators was the core process evident in the data; all participants reported on the need to develop and utilize skills that helped them move between academic, work, and family cultures. Doctoral students credited their previous education and life experiences with helping them learn how to maneuver between cultural groups and balance multiple stressors. Direct-entry masters students struggled to find this balance; they described difficulties within the clinical and classroom setting that often jeopardized their ability to persist academically and experienced confusion regarding the academic rigor of nursing school and the demonstration of clinical proficiency.

Finding a balance between stressors and moderators, or available resources, was critical to persistence. Students learned how to access resources and progress academically through an iterative process (identifying campus resources, participating in socialization activities, approaching faculty with concerns, and utilizing the services of the diversity advisor as a resource). If balance was not achieved, the potential for anxiety, decreased academic concentration, and limited socialization could lead to academic problems. Diversity advisors noted that students who had difficulty moving between cultures tended to have problems with their studies. One recruiter noted: “Students are good at picking up on environmental cues, and the way in which messages are sent can impede [them]. For instance, if people in the university say one thing, but their body language or tone of voice conveys a different message, students might not feel accepted.”

Parallel narrative findings were expressed in all five focus groups.. The students saw race as a significant factor that influenced how they were welcomed within the academic and clinical environments. Students felt the need to validate their worthiness to others, based on the fact that others readily recognized their differences as evidenced by skin tone or language. The monolithic culture affects the decisions students make, the resources they choose to use, and their psychological well-being.

### **Stressors**

The decision to return to graduate study led to multiple stressors, some anticipated but others that arose unexpectedly. Stressors were circumstances or events that caused students to feel anxious, lacking control. These emotions were most evident when students' felt isolated or invisible or when their needs were not addressed. Students felt they did not fully commit to their academic studies during these times. Three categories of stressors were apparent: a) not feeling connected to the College of Nursing (CON), b) existing within the cultural environment, and c) difficulty with utilizing technology.

#### **Not Feeling Connected**

Students told of having feelings of isolation and marginalization when the educational environment did not recognize the uniqueness of their cultural identity and its meaning in the context of communication and engaged learning. These feelings were evident in comments such as: "Things are geared towards the majority and so you can find yourself being more isolated." One student stated: "You have to be able to stand on your own and not necessarily need people that look like you."

Participants in four of the five groups spoke of not feeling connected and not feeling a part of the CON; they identified two contributing factors. First, they viewed undergraduates as the dominant voice in the college because they constituted the majority population. Second, the graduate students juggled work, family, and professional obligations, which made it difficult to attend extramural programs held during the day. Missed opportunities to socialize formally and informally outside the academic classroom led to unintentional stress, intensifying feelings of being disconnected from the CON.

### **Existing within the Cultural Environment**

Students perceived that they were physically present in the environment but not socially integrated or fully accepted. Several described feelings of isolation and rejection in previous academic and work environments. It is important to note previous experiences shaped the way these students scanned environments and responded to events that happened during their graduate studies.

The need for validation and acceptance by peers and faculty becomes labor intensive over time. When discussing the dissonance felt in the clinical environment, a student stated: “It is still very difficult to gain the respect of peers that have been nurses for a long time. They think you don’t know anything.” This theme was identified in all five focus groups.

### **Difficulty Utilizing Technology**

Students spoke of feelings of frustration when they had problems accessing web platforms, the electronic library, and registering for classes. Participants in four of the



five focus groups felt that returning to school after a hiatus created many technological challenges that increased their stress levels. One student, a graduate of the undergraduate program, stated: “I was familiar with the school but things changed. For example, library orientation was a bunch of pamphlets and handouts, but if you are more of a hands-on person you need a course to learn Endnote.” Despite advances with computerized clinical documentation, several students had not experienced current web platforms and were not familiar with online course registration. Students reported that university help lines often added to their confusion, particularly when accessed from home.

All returning students may experience similar anxiety, but for this group of student, anxiety compounded feelings of inadequacy and accentuated feelings of isolation. Participants reported that if they told faculty about feeling insecure, class time was allocated for technology demonstrations.

### **Moderators**

Factors that alleviated stress included institutional and peer support. Participants in all five groups spoke of the need for supportive services and the importance of developing a peer support network. These specific moderators decreased the impact of the stressors and reduced feelings of isolation. The process was dynamic; increasing available resources decreased stress and enabled students to persist academically.

### **Receiving Supportive Services**

All participants mentioned financial aid as a key service and consistently stated that the receipt of aid alleviated monetary worries; they did not describe finances as a

stressor. Typically, these students were resourceful in finding avenues for financial support. All of the PhD students and one MSN student were employed as teaching assistants or research assistants; both positions carry tuition waivers that offset the expense of graduate school. Students thought having information about the financial aid available prior to enrolling in school was vital. Undoubtedly, had students not been resourceful in obtaining financial aid, this lack of support would likely have contributed to their stress.

A number of supportive services provided moderated the students' level of stress and contributed to retention. These included a diversity advisor who arranged networking activities, such as lunch with the dean and social activities. The advisors also listened to student concerns and brought them to the attention of appropriate persons so that action could be taken. Additional institutional supports included: a) assignment of a faculty mentor on admission to the program, b) monthly doctoral student-faculty forums held during times when students were on campus, and c) assistance to students in forming a cohesive network that linked them to available resources early in the academic program.

Receiving supportive services contributed to having a holistic perspective of the educational experience. Students appreciated external referrals for support from ethnically diverse professional nursing organizations: "Having professionals here to relate to students of color was supportive and empowering."

### **Developing a Support Network**

Students developed a support network over time as they found other diverse students, became acquainted with faculty mentors, and became aware of the diversity

adviser services. They connected through interactions in the classroom environment and by introductions initiated by the diversity adviser. Support networks helped students moderate stress and maintain psychological, social, and academic well-being. Describing support from peers, a student stated: “You need support from those that are like you to keep moving. It brings a certain level of comfort.”

### **Intermediate Outcomes**

Two intermediate outcomes were identified as crucial elements of persistence: social integration and academic progression. Diverse students were more likely to report achieving these outcomes after the first year of graduate study. At this point, peer interactions were judged as genuine, students reported a level of comfort with faculty expectations, and they had evidence of successfully completing courses.

#### **Achieving Social Integration**

Participants in four of the five groups told of establishing relationships with peers within the same academic program and receiving validation from faculty. Evidence of the nature of peer relationships was apparent: “We’re a really tight knit cohort. So it’s our strength within ourselves and our own community that has been established.”

Validation within the CON for developing expertise in a specialized field was critical. Social integration was the fabric that held the community of scholars together; it provided a mechanism for attaining a certain level of trustworthiness among peers and between peers and faculty and provided opportunities to appreciate the uniqueness of others.

## **Academic Progression**

Academic progression was viewed as acquiring nursing knowledge and achieving a successful grade in the course, signifying that course objectives had been met and the student could proceed to the next course as planned. Several students spoke of resilience: “You have to get past that part [isolation] and work toward your academic goal.”

Participants in all groups told of their desire to achieve or progress academically. Social integration among peers, faculty, and other minority students in cohesive networks was seen as pivotal to achieving the desired final goal of graduation.

## **Desired Outcome**

Participants in three of the five focus groups spoke of the desired outcome of graduation. Overwhelmingly, they voiced the desire to graduate and persist in the program and graduate, despite obstacles in the way of this measure of success. Two PhD students who participated in the focus group were the first ethnically diverse students to graduate from the PhD program, and several direct-entry students completed the first 15 months of study, passed the nursing state licensure examination, advancing to their graduate specialty study area. The master’s-level students were progressing with coursework and doctoral graduates were beginning a new role as nurse researcher.

## **Discussion and Recommendations**

The conceptual framework of factors affecting academic persistence provides a multifaceted guide for meeting the academic and social needs of ethnically, racially, and

culturally diverse graduate nursing students. Awareness of stressors that students experience is critical to the promotion of academic progression.

Findings from this study concur with findings in studies of undergraduate students that reported family support, financial aid, and mentorship as critical factors influencing retention of minority students (Coleman, 2008, Brown & Marshall, 2008). Minority students have been shown to struggle with issues of social isolation and the desire for social integration with faculty and peers (Anders et al., 2007; Childs et al., 2004; Coleman; Mingo, 2008). The conceptual framework developed from this study suggests that social integration is an intermediate outcome, one that is necessary for retention and graduation. Awareness of students' perceptions of the monolithic culture and the environmental scanning in which they engage can help in the development of initiatives that create a welcoming environment for all students. A team approach encompassing faculty development, administrative action, and the development of student-focused resources is recommended.

### **Faculty Development**

Faculty development related to tone, approach, intercultural communication style, and body language may help promote a welcoming climate (Childs et al., 2004; Coleman, 2008). Xu and Davidhizar (2005, p. 215) noted that "personal and group communication patterns and styles are rooted in cultural backgrounds." Minority students are keen observers of body language; faculty may be unaware of the messages they convey. Body language that appears rushed or a stance in which the instructor does not face the student can be perceived as a distant and direct message that the faculty member is not interested

in the needs of the student (Ackerman-Barger, 2010). Previous experiences in monolithic environments have shaped the mental models that students bring to situations in which they are the minority. Faculty can shape new, positive mental models by demonstrating a welcoming approach toward their students.

The propensity for unrecognized or potential negative bias in the evaluation of student performance is an appropriate topic for faculty development; true cultural awareness training attempts to avoid generalizations. While faculty time is limited, the elements of personality, sincerity, and acknowledging student perseverance are vital to address when a student encounters academic obstacles. By working together with administration and students, faculty have the potential to become instrumental in promoting student success. The potential exist for faculty and student transformation through co-learning about ways in which communication styles enhances messages about the acceptance of others who may be from diverse backgrounds.

Interactions between faculty and students have enduring effects on learning and professional development. It is vital to create a safe learning environment in which students communicate in ways that respect diverse views and are appreciative of students as individuals.

### **Administrative Actions**

In-person orientation to technologies and campus resources is part of creating a hospitable environment. Such orientation provides a way to decrease anxiety and allows students to learn at a comfortable pace. In addition, hiring staff, such as the diversity recruiter-adviser to promote social integration, can be instrumental for student retention.

The diversity recruiter-adviser in the study site developed peer-to-peer mentorship programs, networking opportunities, and links between undergraduate and graduate nursing students; disseminated financial aid information specifically designed for diverse students; and provided professional opportunities with ethnic organizations. Graduate students who were not previously introduced to these organizations may underestimate their utility, but the opportunities they provide for mentorship, professional growth, and support can be invaluable.

Role models who can guide and coach students in their professional development and academic survival, early in their academic program, are vital to academic success (Gardner, 2005; Vaquera, 2007). The administration should actively recruit faculty who mirror the ethnic backgrounds of diverse students. Given the faculty shortage, recruitment could center on hiring graduates. Administrators also might seek funding for financial aid for graduate education; specifically targeted scholarships may help attract additional diverse students.

### **Student Resources**

Students in this study clearly indicated that having staffed professionals who act as cultural brokers and provide one-on-one time and academic support was important. “Cultural brokers act as mediators between diverse students and the institutional environment” (Evans & Greenberg, 2006, p. 302). If the diversity recruiter/adviser has a nursing background and clinical expertise there are greater benefits. A dual role, linking the characteristics of teacher, adviser, friend, mentor, and coach, can be particularly helpful.

## **Summary**

Creating and sustaining a welcoming environment are critical for the recruitment of diverse students. A multilevel approach supportive of student needs is necessary to promote retention and academic success among minority students. Building relationships with personnel and ethnic professional nursing communities is important for the sustainability of resources and potential future recruitment purposes.



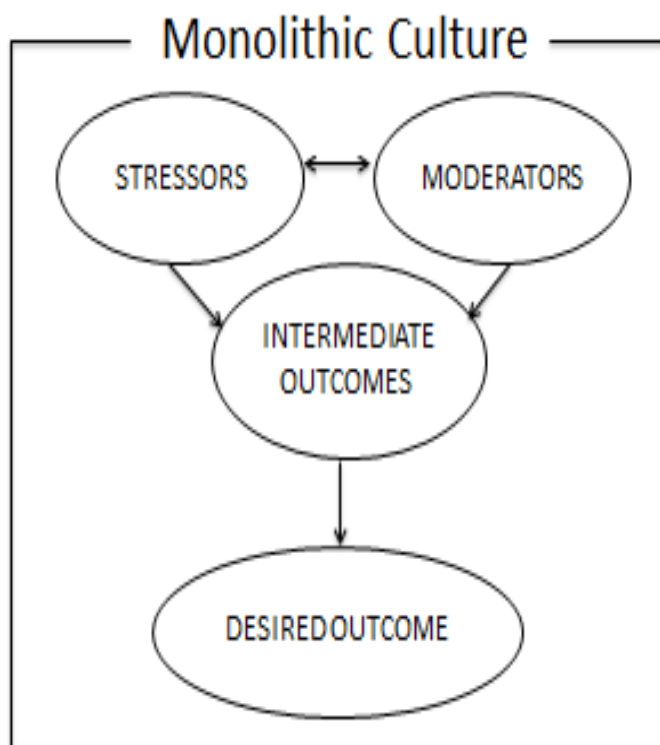
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Figure1. Conceptual Framework of Factors Affecting Academic Persistence



## CHAPTER 5

## Academic Success Factors Influencing Linguistically Diverse and Native English Speaking Associate Degree Nursing Students

**Abstract**

This descriptive cohort study examined the relationships and differences among the anatomy and physiology course grade, general self-efficacy, linguistic diversity, language acculturation, and the National League for Nursing pre-admission exam for Registered Nurses and first semester nursing course grades of linguistically diverse and native English speaking associate degree nursing (ADN) students. Descriptive statistics, ordinal logistic regression, independent sample *t* test, and the Mann Whitney *U* test were used to analyze the data. The PAX-RN composite score and the AP mean grade were related to first semester course grades for all students ( $p < .01$ ). Relationships exist among linguistically diverse students between English language acculturation and the pharmacology course grade. Differences existed in the academic success of the sample on the PAX-RN composite scores and the fundamentals course grades. Finally, relationships exist among general self efficacy and the nursing fundamentals and pharmacology course grades. Nurse educators can further explore admission criteria and academic supportive services which may be necessary for academic success among diverse populations.

**Keywords:** Linguistically diverse, nursing students, academic success, minority students

The projected national deficit of 260,000 nurses by year 2025 potentially threatens access, cost, and quality of care (Auerbach, Buerhaus, & Staiger, 2007). The percentage of minority nurses has risen; yet, these nurses are severely underrepresented (American Association of Colleges of Nursing [AACN], 2009a/2009b; National League for Nursing [NLN], 2012). Disproportionately fewer racially and ethnically diverse students are entering the nursing profession and ultimately those who enter are less likely than their Caucasian counterparts to successfully complete nursing programs (Gardner, 2005a; Seago & Spetz, 2005). Minority patients reported greater satisfaction and quality of care when there was ethnic and racial concordance between the healthcare provider and the patient (Cooper, Roter, Johnson, Ford, Steineachs & Powe, 2003) and there was decreased perception of bias (Johnson, Saha, & Arbelaez, 2004). To meet the nursing needs of healthcare consumers more ethnically, racially, and linguistically diverse nurses are needed.

### **Background and Significance**

The underrepresentation of minority students in nursing has been affected by admission criteria and inadequate retention efforts (Childs, Jones, Nugent, & Cook, 2004; Gardner, 2005b; Seago & Spetz, 2005). This significantly contributes to the lack of diversity in the nursing workforce. Nurse educators should evaluate educational preparedness and identify which factors influence a successive academic trajectory in nursing school.

### **Linguistic Diversity**

The paucity of literature on linguistically diverse students exists because reports overlap terms such as, English as a Second Language (ESL), English Language learners (ELL), ethnic minority, and nontraditional students. Prior research with linguistically diverse students occurred primarily among nursing students enrolled in baccalaureate programs. This does not account for the majority of minority students who begin a nursing career at vocational, practical, and associate degree nursing (ADN) programs (Brown & Marshall, 2008). ADN programs account for 61% of all registered nursing graduates (NLN, 2008) and these programs have been known to increase access to educational opportunities for nontraditional students (Orsolini-Hain & Waters, 2009). The need to identify this subset of students remains critical for the development of appropriate interventions.

## **Literature Review**

### **Attrition Factors**

Linguistically diverse students experience greater rates of depression, anxiety and learning difficulties, and they have lower academic achievement when compared to non ESL nursing students (Gudhe, 2003; Keane, 1993; Kurz, 1993; Malu & Figlear, 1998; Starr, 2009). These students are more likely to have higher failure rates during the first year of the nursing program (Femea, Gaines, Brathwaite & Abdur-Rahman, 1995; Zolla, 1998). Attrition may occur among minority students because of a lack of academic preparation (Brown & Marshall, 2008; Fisher, 2007) and a lack of understanding regarding college expectations and the rigor of academics (Abriam-Yago, 2002; Childs et

al., 2004; Evans, 2004; Gilchrist & Rector, 2007; Hurd, 2000; Villarruel, Canales, & Torres, 2001). Unfortunately, by the time the student seeks help, time for implementation of the best interventions may have passed (Hurd, 2000; Ofori & Charlton, 2002).

### **Retention**

Among nursing students, ( $N = 1,156$ ) emotional support from family and friends was the most frequently selected factor which influenced retention (Jeffreys, 2007). Of these students, 86% were from an associate degree nursing program and 40% identified that English was not their first language. Diverse students have indicated the importance of mentors, tutoring, supportive faculty, family, and peers (Bessent, 1997; Brown & Marshall, 2008; Fletcher et al., 2003, Higgins, 2004, Shelton, 2003). Minority students were retained (100%) through the integration of language partnerships, a mentoring network, minority support groups, and pre-nursing student outreach (Gardner, 2005b). Organized academic programs aimed at increasing minority student retention are common in the nursing literature. These programs are usually federally funded; however, attrition can occur if the academic institution does not build a sustainable supportive infrastructure for students.

### **Predictors of Academic Success**

In the nursing literature, there have been vicissitudes among which predictor variables best indicate academic success and ultimately lead to success on the licensure examination. The NCLEX-RN as a dependent variable may not provide the data which



is needed to identify students who may be at risk of academic failure early in their nursing careers. Understanding earlier predictors of academic success would help nurse educators to make more realistic admission and progression decisions as well as provide evidence based recommendations for prospective students.

### **Influence of Language**

Linguistically diverse learners experience more academic difficulty than native English speakers in multiple aspects of the learning milieu in nursing (Bellefleur, Bennett-Murray, Gulino, Liebert & Mirabito, 2009). Chacko and Huba (1991) studied the learning styles and cognitive ability of first semester nursing students ( $N = 134$ ) attending a community college. Academic achievement was measured by the course grade achieved in the nursing theory course. Language ability and reading ability accounted for 38% of the variance, self-efficacy 8% of the variance with academic achievement. Salamonson, Andrew, Clauson, and Cleary (2011) used a prospective longitudinal design to study entry level characteristics of nursing students ( $N = 352$ ) in a baccalaureate program in Australia. The most predictive factors for timely course completion were native English speaking ability and grade point average (GPA).

### **Science Coursework**

Philips, Spurling, and Armstrong (2002) reported the Biology GPA (including microbiology, anatomy and physiology) predicted student success in a baccalaureate nursing program. Science courses have been strongly correlated with student success (Campbell & Dickerson, 1996), particularly the anatomy and physiology (AP) course

grade with the first semester nursing courses (Potolsky, Cohen, & Saylor, 2003). Using prerequisite course grades, at the  $p < .05$  level, weak correlations were found for the anatomy and physiology II course ( $r = .15$ ), microbiology ( $r = .19$ ), and completion of the nursing program ( $N = 213$ ) at the associate degree level (Higgins, 2005). Within this same sample, the anatomy and physiology I course ( $r = .17$ ) positively correlated with passing the NCLEX-RN (Higgins, 2005). The predictor variables for admission and progression among nursing programs are important because they can assist in the early identification of necessary supportive programs.

### **Standardized Exams in Nursing**

The Pre-Admission Examination for Registered Nurses (PAX-RN) determines students' verbal, mathematics, and science abilities (NLN, 2003). Using an archival correlational design, Stuenkel (2006) reported the preadmission criteria (PAX-RN, grade point average, and scholastic achievement test total scores) accounted for 51% of the variation among students ( $n = 45$ ) and these same factors correctly identified 67% of the students who later failed the NCLEX-RN exam. Weatherby (2007) conducted a validity study with RN programs ( $N = 6,260$  nursing students;  $N = 66$  nursing programs) and found that the PAX-RN composite score was the best and most reliable predictor of completing the first year of the nursing program. Kirking (2004) reported that at program entry, qualified nursing students ( $N = 876$ ) perform well on the PAX-RN. The composite score on the PAX-RN exam was the best predictor of success in AP and it correlated with the successful course grades in an ADN program. In reviewing the literature, it remains

unclear whether the samples were reflective of minority students or if differences existed among student groups, since this was not included in the results.

Despite these findings, there are no studies which have used the PAX-RN exam as a predictor of academic success in associate degree nursing programs with linguistically diverse students. In light of the high attrition rate, retention efforts reflective of academic success should be addressed earlier in the nursing program, during the first semester.

### **Purpose**

The purpose was to determine the relationships and differences among the anatomy and physiology course grade, self-efficacy, linguistic diversity, language acculturation, and the National League for Nursing pre-admission exam (composite score) for Registered Nurses (PAX-RN) and first semester nursing course grades of linguistically diverse and native English speaking associate degree nursing students. The research questions were:

1. What are the relationships among the PAX-RN composite score, anatomy and physiology course grades, self-efficacy, linguistic diversity, and the first semester nursing course grades for linguistically diverse and native English speaking associate degree nursing students?
2. Are there differences in academic success by linguistic diversity in the nursing courses, anatomy and physiology course grades, and in the PAX-RN composite score?

3. What are the relationships among the PAX-RN composite score, self-efficacy, acculturation level and first semester nursing course grades among linguistically diverse students?

### **Conceptual Framework**

The Model of Nursing Undergraduate Retention and Success (NURS) (Jeffreys, 2004) is a comprehensive framework of factors which affect nontraditional and traditional nursing student retention and success. Figure 1 highlights several of the NURS theory constructs and key study variables. The student profile characteristics measured in the present study include linguistic diversity and language acculturation. The general self-efficacy tool was used to operationally define the affective and psychological aspects of being a nursing student that may contribute to academic success. Lastly, the academic factors in the Jeffrey's model were operationalized by the anatomy and physiology (anatomy and physiology) grade.

### **Methods**

#### **Study Design**

A prospective cohort quantitative design was used to identify the factors which predict academic success at the completion of first semester nursing school. Cohort designs are useful when analyzing subjects to identify associations between predictors and outcomes (Hulley, Cummings, Browner, Grady, & Newman, 2007).

## **Sample**

The convenience sample ( $N = 482$ ) of students was recruited from two ADN programs in a statewide system in the Midwestern region of the United States. Inclusion criteria included: a) currently enrolled in ADN program, b) completion of the PAX-RN exam, c) completion of two anatomy and physiology courses, d) currently enrolled or completion of semester one theory courses and e) completion of the research instruments.

## **Instruments**

### **General Self Efficacy Tool (GSE)**

A ten item tool measured perceived self-efficacy in regards to the predictive nature of coping with daily stressful life events and to predict coping as a measure of adaptation after experiencing stressful events (Jersalem & Schwarzer, 1992; Luszczynska, Scholz, & Schwarzer, 2005). The composite score ranges from 10-40, with no cut point score to indicate self-efficacy. The responses ranged from *not at all true (1)* to *exactly true (4)*. The alpha coefficients ranged from .76 to .90. In this study, alpha was .84 and the GSE scores ranged from 21 to 40 with a mean of 34,  $SD$  3.5.

### **English Language Acculturation Scale (ELAS)**

The ELAS scale was administered to linguistically diverse students to measure English language acculturation, with a five response format to each question a) *Only non-English language(s)*, b) *More non-English than English*, c) *Both non-English and English*

*equally*, d) *More English than non-English* and e) *Only English* (Salamonson, Everett, Andrew, & Davidson, 2008). Numerical values are assigned from 1 to 5 and the scores range from 5 to 25. The Kaiser-Meyer-Olkin sampling adequacy was 0.87, exploratory factor loading ranged from .70 to .86, and coefficient alpha ranged from .89 (Salamonson, Everett, Kock, Andrew, & Davidson, 2008) to .95 (Koch et al., 2011). The ELAS scale for this sub sample of linguistically diverse students ( $n = 71$ ) ranged from 8 to 25, mean of 17,  $SD$  3.9, and coefficient alpha was .84.

### **Linguistic Diversity**

In addition to language, linguistic diversity encompasses the attributes of communication, cultural identity, and the process of learning for students where English was not their native language. The operational definition of linguistic diversity included any student whose native (primary) grammar and language, either spoken or written, was not English. On the nursing student survey (demographic tool) students responded in a yes or no format to the question: Is your native (primary) language English? A yes response was coded as 0 (native English speaker) and a no response was coded as 1 (linguistically diverse). Subjects were asked whether ESL courses had been taken ( $n=39$ ) and they identified the language(s) spoken in the home.

### **Preadmission Factors (PAX-RN Score & Science Grade)**

This multiple-choice computer examination was composed of three sections: math (40 items), science (60 items), and verbal ability (60 items). The results include raw scores for each section and the weighted combination of all scores (composite) ranges

from 0 to 200. The verbal ability test measures word knowledge and reading comprehension, the math test measures the students' ability to solve basic arithmetic problems, and the science portion measures knowledge of general chemistry, physics, biology, and general science at the high school level. Reliability was shown with the internal consistency as measured by the Kuder-Richardson index of homogeneity which reflected, verbal ability (.82), math (.80) and science (.75) (NLN, 2003). In this study, PAX-RN composite scores ( $N = 482$ ) ranged from 62 to 179 with a normal distribution ( $M = 123, SD = 17.6$ ). The subscale standard deviations were: math ( $M = 28, SD = 6.3$ ), science ( $M = 40, SD = 6.9$ ), and reading ( $M = 41, SD = 8.5$ ).

The AP mean grades ( $N = 482$ ) comprised two AP courses which reflected a ( $M = 3.11, SD = .81$ ). The mean score reflects the above average letter grade of B which is necessary for admission to the nursing program.

### **Final Theory Course Grades**

Final course grades from nursing fundamentals, nursing skills, and nursing pharmacology comprised the outcome variables, obtained at the completion of the academic semester. Course letter grades were converted to numerical data (ordinal) using the 2008 college standards for health occupations grade point scale: A+ = 4.0, A = 3.75, B+ = 3.25, B = 3.0, B- = 2.75, C+ = 2.25, C = 2.0, U = 0. In this sample, the mean and standard deviations were fundamentals ( $M = 2.54, SD = 1.29$ ), skills ( $M = 2.52, SD = 1.24$ ) and pharmacology ( $M = 2.48, SD = 1.30$ ).

## **Procedure**

After approval was received from the Institutional Review Board at the researcher's university as well as participating schools, nursing students were recruited in person during the clinical orientation sessions held on campus. The principal investigator discussed the research, explained the consent form and allowed time for questions. A trained research assistant then assisted with instrument completion. Written informed consent was obtained from all participants who agreed to participate. Students provided consent to release their academic records in accordance with the Family Educational Rights and Privacy Act (FERPA) regulations.

## **Data Analysis**

Version 19.0 of the Statistical Package for the Social Sciences (SPSS) software was used for data analysis. Ordinal logistic regression analysis was performed to describe the associations among science grades, PAX-RN composite scores, GSE, linguistic diversity and final course grades. Ordinal logistic regression methods are robust to the distribution assumptions and are recommended for data analysis to determine the relationships between the predictor and ordinal ranked variables (Norusis, 2012).

Independent sample *t* tests and the Mann Whitney *U* test were used to analyze differences in the final course grades among linguistically diverse and native English speaking students. Based on a two tailed, t-test analysis (Bonferroni adjusted  $\alpha = .013$ ),



medium effect size of .50, and power of .80, 128 total participants were determined to be sufficient. The adjusted alpha level reduced the risk of a Type I error (Pallant, 2010).

## **Results**

### **Sample**

A total of 482 nursing students (411 native English speaking; 71 linguistically diverse) participated of which 84% were females ( $n = 403$ ) and 16% were males ( $n = 79$ ). Semester one nursing students had the largest enrollment ( $n = 318$ , 66%), semester two ( $n = 92$ , 16%) and semester three ( $n = 68$ , 14%). The majority of students maintained employment ( $n = 378$ , 78%) while enrolled and ( $n = 197$ , 41%) held prior degrees. The ages ranged from 18-30 years (56%), 31-50 years (42%) and 51-60 years (.02%). The race/ethnicity data is summarized in Table 1. In the home, linguistically diverse students reported speaking Spanish, Hmong, Yoruba, Tagalog, and Russian. Of these students, 55% completed ESL courses.

### **Relationships among predictors for Academic Success**

#### **Nursing Skills Course**

There was a relationship among the PAX-RN composite score, and AP mean grade with the Nursing Skills course grade, when the total sample was analyzed (Table 2). For each one unit increase in the PAX RN composite score ( $p < .001$ ) and the AP mean grade ( $p < .001$ ), there was a 5% and 92% respective increase in the predicted odds

of performing well in the nursing skills course, given the other variables in the model remained constant. The proportional odds assumption was met because the significance of the Chi-Square statistic was 0.99,  $p > .05$ .

### **Nursing Pharmacology Course**

There was a relationship among the PAX-RN composite score, and AP mean grade, language diversity, and general self-efficacy with the Nursing Pharmacology grade for the total sample (Table 2). As the general self-efficacy score ( $p < .05$ ) decreased, the student had a decreased likelihood of being within a passing grade range, given that the other variables remained constant. A one-unit decrease in the general self-efficacy score was associated with a 5% decrease in the predicted odds of performing well in the pharmacology course. Students who spoke English the least ( $p < .05$ ) had a decreased likelihood of achieving a higher grade, given that the other variables remained constant. Having a primary language other than English was associated with a 65% increase in the predicted odds of performing well in the pharmacology course. As the PAX-RN composite score increased ( $p < .001$ ) the student increased the likelihood of achieving a higher grade, given that the other variables remained constant. A one-unit increase in the PAX-RN composite score was associated with a 4% increase in the predicted odds of performing well in the pharmacology course. As the AP mean science grade increased ( $p < .001$ ) students had an increased probability of achieving a higher course grade. An increase in the AP mean grade was associated with a 162% increase in the predicted odds of performing well in the pharmacology course. The proportional odds assumption was met because the significance of the Chi-Square was 0.64,  $p > .05$ .

## **Nursing Fundamentals Course**

There was a relationship among the PAX-RN composite score, and AP mean grade, language diversity, and general self-efficacy with the Nursing Fundamentals course grade for the total sample (Table 2). As the general self-efficacy score ( $p < .05$ ) decreased, the student has a decreased likelihood of being in a higher grade range, given the other variables remained constant. A one-unit decrease in the general self-efficacy score was associated with a 39% decrease in the predicted odds of performing well in the fundamentals course grade. Students who spoke English the least ( $p < .001$ ) had an increased likelihood of achieving a higher fundamentals course grade, given that the other variables remained constant. Having a primary language other than English was associated with a 107% increase in the predicted odds of performing well in the course. As the PAX-RN composite score increased ( $p < .001$ ) students had an increased likelihood of achieving a higher course grade, given the other variables remained constant. A one-unit increase in the PAX-RN composite score was associated with a 5% increase in the predicted odds of performing well in the fundamentals course. As the AP mean science grade increased ( $p < .001$ ) the student had an increased likelihood of achieving a higher fundamentals course grade, given the other variables remained constant. The proportional odds assumptions was met, the significance of the Chi-Square was .98,  $p > .05$ .

## **Differences in Academic Success by Linguistic Diversity**

## Theory Courses

A Mann Whitney U test revealed no significant difference in academic success of linguistically diverse students in the nursing skills course ( $Mdn = 2.75, n = 71$ ) as compared with native English speaking nursing students ( $Mdn = 3.00, n = 411$ ),  $U = 12111, z = -2.34, p > .05,$

$r = -.1$ . A Mann Whitney U test revealed no significant difference in academic success for linguistically diverse students in the nursing pharmacology course grade ( $Mdn = 3.00, n = 71$ ) as compared with native English speaking nursing students ( $Mdn = 3.00, n = 411$ ),  $U = 143707,$

$z = -.27, p > .05, r = -.01$ . In the fundamentals course, the Mann Whitney U test revealed a statistically significant difference in academic success of linguistically diverse students ( $Mdn = 2.75, n = 71$ ) as compared with native English speaking nursing students ( $Mdn = 3.00, n = 411$ ),  $U = 10177, z = -4.18, p < .001, r = -.2$ .

## AP Mean Grade and PAX Composite Score

A Mann Whitney U test revealed no significant difference in academic success for linguistically diverse students on the AP mean course grade ( $Mdn = 3.38, n = 71$ ) as compared with native English speaking nursing students ( $Mdn = 3.13, n = 411$ ),  $U = 12663, z = -1.79,$

$p > .05, r = -.08$ . An independent-sample  $t$  test revealed a statistically significant difference in academic success of linguistically diverse students in the PAX-RN

composite scores ( $M = 113$ ,  $SD = 19.94$ ) as compared with native English speaking nursing students ( $M = 125$ ,  $SD = 16.53$ );

$t(87.406) = -4.89$ ,  $p < .001$ , two tailed). The magnitude of the differences in the means (mean difference =  $-12.25$ , 95% CI:  $-17.23$  to  $-7.28$ ) was a large effect (eta squared =  $0.46$ ).

## **Predictors of Academic Success among Linguistically Diverse Students**

### **Theory Courses**

There was a relationship among the PAX-RN composite score with the nursing skills, nursing pharmacology and nursing fundamentals course grades for linguistically diverse students (Table 2). Linguistically diverse students, who scored higher on the PAX-RN composite, scored higher in all three theory courses. For each one unit increase in the PAX-RN composite score, the skills course grade was associated with a 6% increase in the predicted odds of performing well in the course ( $p < .001$ ) while the other variables in the model were held constant. The proportional odds assumptions were met because the significance of the Chi-Square statistic was  $.33$ ,  $p > .05$ . For each one unit increase in the PAX-RN composite score, there was a 5% increase in the predicted odds of performing well in the pharmacology course ( $p < .001$ ) while the other variables in the model were held constant. For each one unit increase in the PAX-RN composite score, there was a 9% increase in the predicted odds of performing well in the fundamentals course ( $p < .001$ ) while the other variables in the model were held constant. The significance of the Chi-Square statistic was  $0.44$ ,  $p > .05$ .

### **English Language Acculturation**

Lower English language acculturation was associated with an 11% decrease in the predicted odds of performing well in the pharmacology course ( $p < .05$ ) given that the other variables remained constant. The significance of the Chi-Square statistic was 0.88,  $p > .05$ .

## **Discussion**

The sample characteristics reflect diversity among ethnicity, marital status, and age ranges, which is usual for the students enrolled at a community college. The GSE scores reflected a slightly more efficacious population, regarding their ability to deal with adverse or complex situations. The two GSE factors with the highest means scores were a) *Thanks to my resourcefulness, I know how to handle unforeseen situations* and b) *If I am in trouble, I can usually think of a solution*. Self-efficacy has been linked to positive persistence behaviors and motivation to learn new tasks (Bandura, 1986, Jeffreys, 2004). These same researchers, indicate caution with students perceptions of “over confidence” because this could lead to an underestimate of weakness and ultimately under preparation for coursework. For the total sample, GSE was associated with academic success in the fundamentals and the pharmacology courses.

The ELAS mean score of the linguistically diverse students reflected language acculturation at the medium level. Thirteen student’s scores fell within the lower level, thirty-two students score fell within the medium level, and twenty six of the students’ scores fell within the highest level for English language acculturation. Many nursing studies have indicated that English proficiency has an effect on academic performance

(Gudhe, 2003; Klish, 2000; Newman & Williams, 2003). In this study, lower language acculturation was negatively related to academic success in the pharmacology course, but was not statistically significant for the nursing skills or fundamentals course. The lack of significance for two courses may be attributed to the smaller sample size of the linguistically diverse students. No studies were reported in an extensive review of the literature in which English language acculturation was measured using the ELAS tool examining academic success in nursing at the associate degree level. Further research with a larger sample certainly is warranted.

For associate degree nursing students, there was a relationship among the AP mean grade and the PAX-RN composite score for all three nursing theory courses (skills, fundamentals and pharmacology), which is similar to previous literature findings. Anatomy and physiology courses have been found to be an accurate predictor of academic success in nursing school (Philips, Spurling & Armstrong 2002). The AP grade had a positive correlation with first semester academic success and the pharmacology course grade (Potolsky, Cohen, & Saylor, 2003). In addition, higher anatomy and physiology I course grades have been predictive of first time NCLEX success (Higgins, 2005; Yin & Burger, 2003). The core concepts taught in the AP classes are utilized when learning the basic physical assessment examination and applying this knowledge when developing a nursing plan of care based on the assessment findings.

The findings of the current study provide new insights regarding the composite score of the PAX-RN exam as a predictor because few previous studies have included this exam with a linguistically diverse population. The current findings support the research of Kirling (2004) and Weatherby (2007) regarding the predictive nature of the

PAX-RN composite score to academic success and program progression. Similarly, standardized preadmission exams have been used to identify cognitive ability and the results have been predictive of early academic success in nursing school and first time NCLEX success (Crow, Handley, Morrison & Shelton, 2004; Newton, Smith & Moore, 2007; Stuenkel, 2006).

Native English speakers scored significantly better in the PAX-RN composite score and nursing fundamentals course, as compared to those who were linguistically diverse. No previous studies have reported differences on a standardized nursing entrance exam. English language proficiency has a cumulative effect on academic success and performance in the clinical setting (Gudhe, 2003; Klish, 2000; Newman & Williams, 2003).

Among linguistically diverse students alone, there was a positive relationship among the preadmission PAX-RN score and all three first semester nursing courses (fundamentals, skills, and pharmacology). These findings have not been noted in previous research. It is interesting to note that a significant linguistic diversity difference was noted in only one of the three nursing theory courses, nursing pharmacology. The pharmacology course entails a significant amount of memorization. The pharmacology course grades were not significantly different when native English speakers were compared as a group with linguistically diverse students. However, the degree of English language acculturation was a significant predictor of students' pharmacology grade. It may be that the pharmacology entails memorization of new words for all learners, so being linguistically diverse was an asset.



## **Limitations**

The tools to assess self-efficacy and English language acculturation were administered at the beginning of the semester. It is possible that these scores could have changed as the semester progressed as the student was more accustomed to the course requirements for nursing. The fact that course grades were on a scale that was not equal intervals required that non parametric statistics be used. There can be loss of statistical power (Field, 2009) which may have resulted in some analyses not reaching significance because of this limitation in the grade scale data.

## **Implications for Nurse Educators**

It is important for those making admissions decisions to acknowledge that linguistically diverse students had significantly lower PAX-RN composite scores and that these composite scores were significantly predictive of success in first semester nursing courses. ELAS scores also were negatively related to nursing course grades (though only the relationship to the pharmacology course grade was statistically significant). This may mean that linguistically diverse students should be advised to complete ESL courses before taking admission tests or enrolling in nursing courses. Future research may investigate the need for better ways to prepare learners for nursing standardized exams. Nursing schools have a rigid time window, if any, for repeat performance on the standardized exams for admission to nursing.

Acculturation is believed to occur across different domains: cognitive, behavioral, and affective (Cuellar, Arnold, & Maldonado, 1995). The absence of culturally sensitive

language acquisition and communications models in the literature seems particularly precarious since understanding Standard English and the significance of acculturation is important when attempting to understand the needs of linguistically diverse nursing students. In addition, length of time in country as a measure of acculturation among linguistically diverse students should be studied. Nurse educators need to continue to examine learning activities that foster development of student self-efficacy and foster the success of linguistically diverse learners. Active learning strategies using contextually rich information provide helpful skill development opportunities.

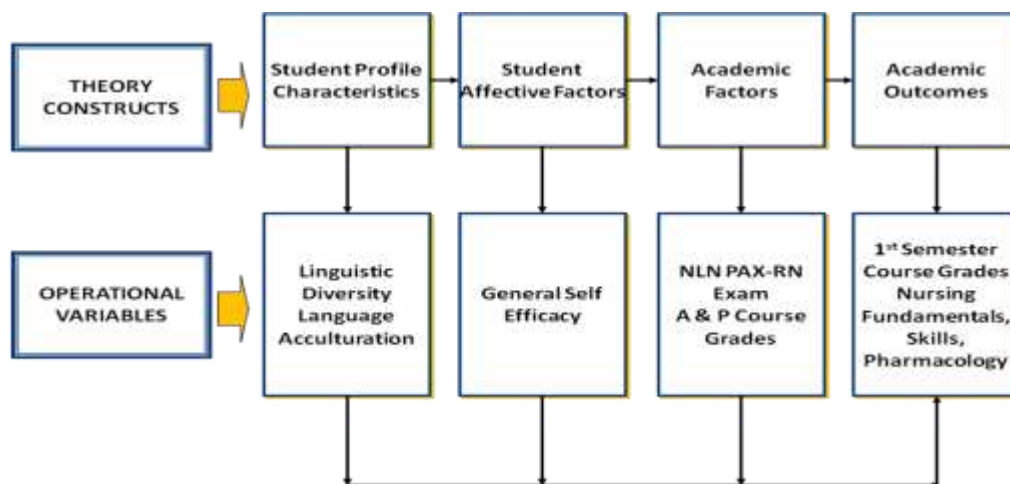
Linguistically diverse students may need a customized course to prepare them to synthesize the specialized language and culturally imbedded cues needed for client care planning. Furthermore, the language of nursing is a new taxonomy in addition to comprehending the English language. Linguistically diverse students may need negotiation skills to acquire balance between the language of nursing and the utilization of appropriate resources which facilitate academic success. Innovative nursing software and cultural cue resources may also facilitate the continual acquisition of these skills. The ability to use the software at the student's leisure may alleviate the time management issues that college students experience.

Schools should be strongly encouraged to use equal interval grade scales to permit the use of robust statistical analyses, so that factors important to academic success can be better elucidated. Further studies with larger samples of linguistically diverse students are needed.

## **Conclusions**

Within the major goal of providing an effective, diverse nursing workforce there are many sub-goals. One goal is to provide organized support to linguistically diverse students early in their program of study. The support services may address English language acquisition, conversational skills, test taking strategies, cognition building within a nursing context, and the development of supportive student-peer relationships. Nurse educators and administration should be clearly defining the admission criteria and working to strengthen student's level of preparation for entry and progression. It is important to continuously assess the rates of program retention and first time NCLEX-RN pass rate to improve the quality of nursing programs, enhance curriculum course offerings, and provide the necessary support for those seeking to enter the profession.

Figure1. Factors Affecting Academic Outcomes



Note: Theory Constructs from Jeffreys (2004) NURS Model, A & P: Anatomy and Physiology

Table 1

*Sample Characteristics*

Characteristic	<i>n</i> (%)
Race/Ethnicity	
White	366 (76)
African American	52 (11)
Asian	24 (.05)
Hispanic	26 (.05)
American Indian/Alaskan native	3 (.01)
Other/Missing Data	11 (.02)

Note: *N* = 482

Table 2

*Ordinal Regression Results for Predictors of Nursing Skills, Pharmacology, and Fundamentals Course Grades*

	Total Sample (N = 482)				Linguistically Diverse Students (n = 71)			
	B	P	OR	% change	B	p	OR	% change
<b>Nursing Skills</b>								
General Self Efficacy	-.032	.175			-.037	.565		
PAX RN Composite	.050	.000***	1.05	5	.055	.000***	1.06	6
AP Mean Grade	.654	.000***	1.92	92				
Linguistically Diverse Native English Speaking	.211	.386						
English Language Acculturation					-.036	.510		
<b>Nursing Pharmacology</b>								
General Self Efficacy	-.054	.024*	.95	-5	-.042	.508		
PAX RN Composite	.042	.000***	1.04	4	.052	.000***	1.05	5
AP Mean Grade	.964	.000***	2.62	162				
Linguistically Diverse Native English Speaking	-.498	.040*	1.65	65				
English Language Acculturation					-.121	.031*	.89	-11
<b>Nursing Fundamentals</b>								
General Self Efficacy	-.50	.036*	0.607	-39.3	-.001	.982		
PAX RN Composite	.053	.000***	1.054	5.4	.082	.000***	1.09	9
AP Mean Grade	.837	.000***	2.309	131				
Linguistically Diverse Native English Speaking	.727	.004**	2.07	107				
English Language Acculturation					-.072	.203		

Note. AP = Anatomy and physiology, OR = Odds Ratio, PAX RN = Preadmission Examination for Registered Nurses, \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .00$

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## Appendix A

### Glossary of Terms

*Academic Success:* At the completion of the first sixteen weeks of the nursing program, the student academic outcomes reflect a percentage allocation of 80% or higher and a letter grade of C+ or higher in the Nursing Fundamentals (NRSAD-101), Nursing Skills (NRSAD-102), and Nursing Pharmacology (NRSAD- 103) courses.

*Preadmission Variables:* These are academic variables which are completed prior to admission to the associate degree nursing program. For this study, the selected variables include the anatomy and physiology courses and the scores on the PAX-RN exam (verbal ability, math, science).

*Anatomy and Physiology Grade:* Grade received in the college level anatomy and physiology I and the college level anatomy and physiology II course.

*Associate Degree Nursing Program (ADN):* The ADN program requires 70 total credits for completion, with 38 of these credits being derived from nursing theory and clinical courses. The program is comprised of four semesters which are sixteen weeks in length.

*Attrition:* A letter grade of U (unsatisfactory) in two or more nursing courses. This student program ineligible (nursing program attrition) and will need to apply for readmission. Attrition is also inclusive of student initiated withdrawals (course attrition).

*Linguistically Diverse:* The students' native (primary) grammar and/or language, either spoken or written, is not English. Linguistically diverse learners in the academic setting encounter issues related to communication, cultural identity, and the process of learning.

**Appendix B**

## MARQUETTE UNIVERSITY

## AGREEMENT OF CONSENT FOR RESEARCH PARTICIPANTS

Academic Success Factors Influencing Linguistically Diverse and Native English Speaking  
Associate Degree Nursing Students

Josie Veal

College of Nursing

You have been invited to participate in this research study. Before you agree to participate, it is important that you read and understand the following information. Participation is completely voluntary. Please ask questions about anything you do not understand before deciding whether or not to participate. Whether or not you choose to participate in this study will have no impact on your grades or standing at \_\_\_\_\_ Technical College. The researcher will not know whether or not you have chosen to participate, and will not have access to this form or your surveys, until the end of the semester, after all final grades have been posted.

**PURPOSE:** The purpose of this research study is to determine the relationships and differences among the scores on different parts of the National League of Nursing pre-admission exam (PAX-RN), course grades, self-efficacy and acculturation on academic success. You will be one of approximately 140 participants in this research study.

**PROCEDURES:** You will be asked to complete a demographic survey and a self-efficacy survey. If English is not your native language you will be asked to complete an English language acculturation survey. The researcher will also obtain your PAX-RN scores and gather information from your college transcript, including your course grades (nursing fundamentals, skills, and pharmacology). This information will only be gathered with your permission.

**DURATION:** Your participation will consist of two to three surveys. Each survey takes approximately 5-10 minutes to complete. Your total participation will total approximately 15-20 minutes.

**RISKS:** There is a risk that you may feel uncomfortable answering certain questions on the surveys. You may skip any questions you are uncomfortable answering. You may also withdraw from the study at any time. There is also a small risk that your personal academic information could be compromised. The researcher will make all efforts to ensure that your academic information and survey responses are kept confidential.

**BENEFITS:** There are no direct benefits to you for participating in this study. The information gathered for this study may assist nursing educators and administration in the development of better admission policies for nursing school.

**CONFIDENTIALITY:** The researcher will not know whether or not you have chosen to participate, and will not have access to this form or your surveys, until the end of the semester, after all final grades have been posted.

All information you reveal in this study will be kept confidential. All your data will be assigned an arbitrary code number rather than using your name or other information that could identify you as an individual. When the results of the study are published, you will not be identified by name. The data will be maintained indefinitely and may be used for future research purposes. Your research records may be inspected by the Marquette University Institutional Review Board or its designees, the \_\_\_\_\_ Technical College Office of Institutional Research, and (as allowable by law) state and federal agencies.

**VOLUNTARY NATURE OF PARTICIPATION:** Participating in this study is completely voluntary and you may withdraw from the study and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

**CONTACT INFORMATION:** If you have any questions about this research project, you can contact Josie Veal, MSN, RN at 414-297-6659 or [josie.veal@mu.edu](mailto:josie.veal@mu.edu). If you have questions or concerns about your rights as a research participant, you can contact Marquette University's Office of Research Compliance at (414) 288-7570 or [orc@mu.edu](mailto:orc@mu.edu) or the \_\_\_\_\_ Technical College Office of Institutional Research at (414) 297-7003.

**I HAVE HAD THE OPPORTUNITY TO READ THIS CONSENT FORM, ASK QUESTIONS ABOUT THE RESEARCH PROJECT AND AM PREPARED TO PARTICIPATE IN THIS PROJECT.**

---

 Participant's Signature

---

 Date

---

 Participant's Name

---

 Student ID Number

---

 Researcher's Signature

---

 Dat

## Appendix C

### Nursing Student Survey

Please answer each of the following questions.

Study Code # \_\_\_\_\_

1. Age \_\_\_\_\_
  2. Gender \_\_\_\_\_ Male \_\_\_\_\_ Female
  3. Race/Ethnicity  
 \_\_\_ Non-Hispanic White    \_\_\_ Black/African American    \_\_\_ Asian  
 \_\_\_ Native American/Alaska Native    \_\_\_ Hispanic/Latino  
 \_\_\_ Other \_\_\_\_\_
  4. Select your highest level of education completed:  
 \_\_\_\_\_ High School Diploma        \_\_\_\_\_ GED  
 \_\_\_\_\_ College/University Degree, Type \_\_\_\_\_  
 \_\_\_\_\_ Graduate Degree, Type \_\_\_\_\_
  5. Marital Status: \_\_\_\_\_ Married \_\_\_\_\_ Single \_\_\_\_\_ Divorced \_\_\_\_\_ Other
  6. Current Employment Status: \_\_\_\_\_ Unemployed  
 \_\_\_\_\_ Fulltime    \_\_\_\_\_ Hours per week  
 \_\_\_\_\_ Part-time    \_\_\_\_\_ Hours per week
  7. Is your native (primary) language English? \_\_\_\_\_ Yes    \_\_\_\_\_ No
- If you responded No to question 7, please complete questions 8-10.**
- If you responded Yes to question 7, you DO NOT need to complete questions 8-10.**
8. What is the primary or native language(s) you speak at home?  
 \_\_\_\_\_
  9. Have you taken any English-As-Second Language (ESL) Courses? \_\_\_\_\_ No    \_\_\_\_\_ Yes
  10. Please complete the English Language Acculturation Survey.

## Appendix D

### General Self Efficacy Scale (GSE)

Directions: Please circle a numerical response to each question.

	Not True at All	Hardly True	Moderately True	Exactly True
1. I can always manage to solve difficult problems if I try hard enough.	1	2	3	4
2. Is someone opposes me, I can find the means and ways to get what I want.	1	2	3	4
3. It is easy for me to stick to my aims and accomplish my goals.	1	2	3	4
4. I am confident that I could deal efficiently with unexpected events.	1	2	3	4
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	1	2	3	4
6. I can solve most problems if I invest the necessary effort.	1	2	3	4
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	1	2	3	4
8. When I am confronted with a problem, I can usually find several solutions.	1	2	3	4
9. If I am in trouble, I can usually think of a solution.	1	2	3	4
10. I can usually handle whatever comes my way.	1	2	3	4

*Note:* Adopted from Jerusalem, M. & Schwarzer, R. (1979). *The general self-efficacy scale*. Retrieved from <http://userpage.fu-berlin.de/~health/engscal.htm>.

Study Code # \_\_\_\_\_

## Appendix E

### English Language Acculturation Scale (ELAS)

Instructions: Please indicate how descriptive each statement is of you by circling the number corresponding to your response.

		Only non-English language(s)	More non-English than English	Both non-English and English equally	More English than non-English	Only English
1.	In general, what language(s) do you speak?	1	2	3	4	5
2.	In general, what language(s) do you read?	1	2	3	4	5
3.	What language(s) do you usually speak at home?	1	2	3	4	5
4.	In which language(s) do you usually think?	1	2	3	4	5
5.	What language(s) do you usually speak with your friends?	1	2	3	4	5

Salamonson, Y., Everett, B., Koch, J., Andrew, S., & Davidson, P. M. (2008). English-language acculturation predicts academic performance in nursing students who speak English as a second language. *Research in Nursing & Health, 31*(1), 86-94.

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Permission is granted for research and educational use of the scale. Further permission must be obtained before any modification or revision of the scale can be made.

Study Code # \_\_\_\_\_