SELF-EFFICACY OF LPNs: RELATION TO ATTAINING RN LICENSURE

By

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To the faculty of Washington State University:

The members of the Committee appointed to examine the dissertation of COLLEEN CLAIRE DOHERTY find it satisfactory and recommend that it be accepted.

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SELF-EFFICACY OF LPNs: RELATION TO ATTAINING RN LICENSURE

Abstract

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Health care in Washington state is experiencing a growing critical shortage of Registered Nurses (RN). This looming shortage impacts the quality of and accessibility to health care for the State’s citizens. One strategy to ease the nursing shortage would be to advance the education of Licensed Practical Nurses (LPN) to attain RN licensure. Approximately 20% of Washington state RNs began their nursing careers as LPNs, yet no literature exists regarding self-efficacy as a predictive indicator for LPNs likely to attain RN licensure. Building on the knowledge of self-efficacy and career decision self-efficacy may be useful in understanding and predicting educational mobility behaviors of LPNs. Self-efficacy was measured through the use of the General Self-Efficacy (GSE) and the Career Decision Self-Efficacy – Short Form © (CDSE-SF©) survey tools. This study used a descriptive cross-sectional correlational design to explore self-efficacy scores of LPNs and LPNs who had attained RN licensure. A total of 75 LPN participants and 107 LPN-to-RN participants completed a demographic survey and the GSE and CDSE-SF© scales. The mean CDSE-SF© total score ($M=97.61$, $SD=15.618$, $p<.05$) and subscale category scores (SA: $M=4.08$, $SD=.6577$, $p<.05$; OI: $M=4.06$, $SD=.677$, $p<.05$; GP: $M=4.01$, $SD=.711$, $p<.05$; P: $M=3.90$, $SD=.676$, $p<.05$; PS: $M=3.76$, $SD=.760$, $p<.05$) for the LPN respondents were lower than the mean CDSE-SF© total score ($M=103.34$, $SD=18.643$, ...
and subscale category scores (SA: $M=4.30$, $SD=.537$, $p<.05$; OI: $M=4.36$, $SD=.571$, $p,.05$;
GP: $M=4.24$, $SD=.613$, $p<.05$; P: $M=4.25$, $SD=.598$, $p<.05$; PS: $M=4.09$, $SD=.645$, $p<.05$) for
the LPNs who had attained RN licensure indicating that career decision self-efficacy was higher
for RNs. Logistic regression identified moderate accuracy (65.9%) in the classification of
respondents. The strongest predictor for an LPN to attain RN licensure was “planning”. The odds
of attaining RN licensure is 2.38 times higher for those who planned compared to those who did
not. This research represents a unique resource and a step toward improving seamless transitions
between levels and schools of nursing. This enhanced picture of nursing and career decision
self-efficacy is a necessary foundation for the discussions of nursing education, politics, health
reform, and other work that is required to create seamless educational mobility opportunities for
LPNs.
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Dedication

This study is dedicated to Dad & Mom for their honest interest, encouragement and enthusiasm for my education, to Brandon, beloved nephew and fellow WSU student who died during my journey, and to David, brother extraordinaire who also died before he witnessed me complete this journey. This study is also dedicated to all LPNs and to any individual who wishes to pursue seamless career/educational mobility within professional nursing.
CHAPTER ONE
INTRODUCTION

Statement of the Problem, Significance and Rationale

Health care services in the state of Washington are experiencing a growing critical shortage of Registered Nurses (RN). Such a deficit has the potential to negatively impact the quality of and accessibility to health care for the state’s citizens, fueled further by an aging population. When the predicted number of Washington citizens over the age of 65 reaches 1.2 million in the year 2020, an additional 24,000 full time RN equivalencies (FTE) will be required to meet health care needs (Washington State Healthcare Personnel Shortage Taskforce, 2005). If the number of RN graduates in the state increased by 400 per year, the supply of practicing RNs could meet the estimated demands for RNs by 2025 (WWAMI, 2007). One strategy to raise the number of RN graduates in the State is to educate more Licensed Practical Nurses (LPN) as RNs. However, the multitude of factors that influence the decision by LPNs to advance their professional education is poorly understood. One factor that is conceptually unelaborated in the LPN population is the concept of self-efficacy. Exploring the concept of self-efficacy in the Pierce County LPN population as a predictive measure for the attainment of RN licensure may be a useful strategy to ease the RN shortage.

Approximately 20% of American RNs began their nursing careers as LPNs (Biviano, Fritz, Spencer, & Dall, 2004). Approximately 14,210 Washington state RNs were originally licensed as LPNs (Washington State Registered Nurse Supply and Demand Projections: 2006-2025, 2007). No available research addresses the experiences of LPN-to-RN graduates in Washington state or explores self-efficacy as an identifiable predictive measure for LPNs attainment of RN licensure.
The mission of the Washington Center for Nursing is “to contribute to the health and wellness of Washington State residents by ensuring that there is an adequate nursing workforce to meet the current and future healthcare needs of the citizens of the state of Washington” (Washington Center for Nursing webpage, Mission Statement, 2009, p.1). Washington state’s nursing shortages are severe and are projected to worsen as the general population and the nursing workforce age. When the predicted number of Washington state citizens over the age of 65 reaches 1.2 million in the year 2020, more working nurses will be required at the same time that many nurses are retiring (Washington State Healthcare Personnel Shortage Taskforce, 2005). In view of these statistics, exploring self-efficacy as a predictive measure contributing to LPNs’ successful attainment of RN licensure is warranted.

Employment patterns in today’s work world are unlikely to follow the traditional linear model of career development: education; employment; and subsequently retirement (Brown, 2000; Kerka, 1991). Leach and Chakiris (1988) postulated that in today’s culture, less than one third of individuals in careers follow this traditional model. It is apparent in the literature that a linear, straight-line approach is no longer the preferred choice for today’s work force (Stacy, 2003). With this trend facing today’s current and future nursing professionals, who will soon be entering the nursing workforce, there is an important question to ask: “What will equip these individuals to manage a new trajectory of educational and career mobility?” Many career counseling researchers have successfully approached this paradigm shift using the social cognitive theory of self-efficacy (Bandura, 1977, 1986; Hackett & Betz, 1987; Lent, Brown & Hackett, 1995, 1996; Stacy 2003).

One of the most theoretical and practically useful concepts conceived in modern psychology is Albert Bandura’s (1977, 1986, 1997) concept of self-efficacy expectations. Self-
efficacy expectations are beliefs in one’s capability to perform successfully a given behavior or class of behaviors (Betz & Taylor, 2006). Evidence indicates that efficacy expectations influence behavioral decisions, performance, and persistence in goal attainment (Betz & Taylor, 2006). Stated differently, self-efficacy expectations refer to a person’s beliefs concerning their ability to successfully perform a given task or behavior. Bandura (1977) postulated that self-efficacy is a major mediator of behavior and behavior change. Low self-efficacy expectations regarding a behavior or behavioral domain lead to the avoidance of those behaviors. Increases in self-efficacy expectations theoretically increase the frequency of approach behavior while minimizing avoidance behavior. Self-efficacy can be scientifically useful in understanding and predicting behavior (Betz & Taylor, 2006). Betz and Taylor (2006) add an important modification to generalized self-efficacy theory by demonstrating the importance of specific domains of self-efficacy, in this case, self-efficacy related to career decision-making and occupational choice. Research suggests that career decision self-efficacy is strongly related to implementing career decisions. Accordingly, many researchers have suggested that self-efficacy theory be used as the basis for the design of career interventions.

National and Washington state statistics report greater gender and ethnic diversity among the LPN workforce compared to the RN workforce. The LPN workforce is minimally studied as a part of the nursing profession research, including a paucity of information related to LPNs transitioning into the RN role. A review of the literature from 1998 to 2008, concerning LPN-to-RN career ladder education programs, reveals a remarkable similarity for descriptions of barriers that prevent LPNs return to school to attain RN licensure. Some of these barriers are financial cost, work schedules, and family impact. No research that identifies variables that contribute to LPNs probability or interest in attaining RN licensure was located.
Several factors have overshadowed any serious efforts to articulate an efficient and effective educational ladder for LPN-to-RN education pathways as a plausible strategy to address the RN shortage (Brewer & Kovner, 2006). The existing literature reflects that little is known about LPNs transitioning into an RN role. Less is known about the nursing utility of LPN-to-RN educational ladders. The largest gap in the literature is the absence of elaboration of factors that assist LPNs in returning to school to earn a degree leading to RN licensure.

Studies of self-efficacy have been used in academic settings, however studies of how self-efficacy affects educational mobility in nursing are absent. Additionally, studies of how general self-efficacy and career decision self-efficacy affect educational mobility in nursing are also unavailable. Unknown is the potential relationship between general self-efficacy and career decision self-efficacy as a factor that may predict LPNs more likely to attain RN licensure.

Specific Aims

Transitions in life are not always easy. The change in one’s life when adding academic pursuits to a busy work and family schedule can be tumultuous (Stacy, 2003). In order to gain a better understanding of which LPNs will succeed in their attainment of RN licensure, this study will explore if general self-efficacy and career decision self-efficacy can predict which LPNs attain RN licensure and which LPNs do not attain RN licensure. The two predictor variables will be measured by the General Self-Efficacy (GSE) scale (Jerusalem & Schwarzer, 1979) and the Career Decision Self-Efficacy – Short Form © (CDSE-SF) scale (Betz & Taylor, 2006). The specific aims of the study are:

- Specific Aim 1: To describe the demographic characteristics of LPNs and LPNs who have attained RN licensure.
• Specific Aim 2: To compare the scores on the General Self-Efficacy scale and the Career Decision Self-Efficacy – Short Form scale reported by LPNs with the scores from LPNs who have attained RN licensure.
  o Research hypothesis 2.1: LPNs who have attained RN licensure will have higher GSE scores when compared to LPNs who do not attain RN licensure.
  o Statistical null hypothesis 2.1: There is no statistically significant difference between GSE scores for LPNs who have attained RN licensure and LPNs who do not attain RN licensure.
  o Research hypothesis 2.2: LPNs who have attained RN licensure will have higher CDSE-SF © scores when compared to LPNs who do not attain RN licensure.
  o Statistical null hypothesis 2.2: There is no statistically significant difference between CDSE-SF© scores for LPNs who have attained RN licensure and LPNs who do not attain RN licensure.

• Specific Aim 3: To determine if GSE and CDSE-SF scores can predict which LPNs attain RN licensure and which LPNs do not attain RN licensure.

Statement of the Purpose

Arathuzik and Aber (1998) found significant correlations between success on the National Council Licensing Examination (NCLEX-RN) and cumulative undergraduate nursing program grade point averages (GPA). Campbell and Dixon (1996) cited science courses as predictive of NCLEX-RN performance. Furthermore, Campbell and Dickson (1996) suggest that those students who are likely to get lower grades in science courses are not as likely to have evidence of passing the NCLEX-RN. Science courses identified by Campbell and Dickson (1996) included anatomy, physiology, biology, inorganic and organic chemistry, and
microbiology. Although there was success in using science grades to select nursing applicants, areas for improvement have been identified and pursued (Kamber & Biggs, 2004; Scanlan & Care, 2004).

First, the admission decision process based solely on grades did not support increasing diversity in the professional nurse population. Second, higher admission GPA scores have not increased RN graduation and NCLEX-RN pass rates. For example, one Pierce County, Washington, Associate Degree of Nursing (ADN) program uses the GPA ranking of six pre-requisite classes as the only variable to determine admission into the school of nursing. The program reported that NCLEX-RN pass rates of the graduates have dropped from 94% to 70% over a two year period of time between 2006 and 2008 despite candidate entry GPA scores all near a 4.0 (TCC Advisory Board Report, 2009). Pre-requisite GPA as the sole predictor of admission into United States schools of nursing may be necessary but not sufficient to predict attainment of graduation requirements and RN licensure.

Another predictor that may add explanatory power for the attainment of RN licensure is the self-efficacy scores of LPNs. Improvements in the ability to accurately predict successful attainment of RN licensure by LPNs may increase the number of LPNs attaining RN licensure in addition to increasing diversity in the field of professional nursing.

The purpose of this study was to advance the science of nursing education by documenting the ability of two theoretical constructs, general self-efficacy and career decision self-efficacy, to differentiate between LPNs who graduated and obtained RN licensure and LPNs who did not pursue RN education. The findings may advance the understanding of why some LPNs pursue RN licensure while others do not. Therefore, the findings may inform the
development of strategies tailored to address LPN’s who do not pursue RN education due to low self-efficacy. Increasing the pool of LPNs who successfully obtain RN licensure would help mitigate the nursing shortage. Moreover, the findings could serve as a tool for nurse educators to develop admission criteria and nursing curricula that are tied to formal inter-institutional progression agreements, thereby contributing to a seamless transition between schools and levels of nursing education.

**Definition of Terms**

- **Self-Efficacy**: Belief in one’s capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1997).

- **General Self-Efficacy (GSE) Scale**: A measurement tool that identifies the ordinal value of perceived self efficacy. It is comprised of ten items that measure successful coping and internal-stable attribution for success (Schwarzer, 1992).

- **Career Decision Self-Efficacy**: An individual’s degree of belief that he/she can successfully complete tasks necessary to make decisions (Taylor & Betz, 1983).

- **Career Decision Self-Efficacy Scale – Short Form ©**: An instrument developed by Betz and Taylor to measure occupational self-efficacy. It is comprised of 25 items that measure self-efficacy expectations in relation to making decisions about career related issues (Betz & Taylor, 2001).

- **Registered Nurse (RN)**: A graduate of an accredited school of nursing who passed the NCLEX-RN examination.
• Licensed Practical Nurse (LPN): A graduate of an accredited school of nursing who passed the NCLEX-PN examination.

• Nursing Shortage: The demand for RNs greater than the supply of RNs.

• Educational Mobility: Application of previous learning in a new and different way to achieve different levels of education or competency (Ellis & Hartley, 1995; Harrington, Smith & Spratt, 1996).

• Grade Point Average (GPA): Mean value of cumulative grades earned for completed college coursework utilizing a 1.0 (low) to 4.0 (high) scale.

• Career Related Activities: For purposes of this study, participants will indicate their time (years) spent working with a LPN license.

In summary, factors contributing to and influencing LPNs’ engagement in attaining RN licensure have not been readily or thoroughly identified. The value of developing a better understanding of general self-efficacy and career decision self-efficacy between LPNs who attained RN licensure and LPNs who did not pursue RN education included an analysis of several steps using Albert Bandura’s Social Cognitive Theory as the theoretical framework. First, the concepts of nursing, nursing shortage, educational mobility, self-efficacy, and career decision self-efficacy were defined in the literature review. These concepts were integrated with Bandura’s Social Cognitive Theory. Second, strategies that facilitated LPNs’ engagement in opportunities for educational mobility were identified via a critical review of the literature. Third, a mixed method non-experimental design was used to address the specific aims. Without learning about predictive factors that contribute to LPNs successfully enrolling in and completing RN education programs, LPNs may continue to under-utilize educational mobility
opportunities for career advancement towards the goal of attaining RN licensure. To prepare a professional community that will be competent for the 21st century, Washington state nurses and nursing students must be able to pursue their education through multiple pathways and with a strengthened collaborative effort among the various types of nursing programs. Barriers to a seamless transition through the nursing school system must be eliminated (Padgett, 2008). Determining if general self-efficacy scores and/or career decision self-efficacy scores can predict the likelihood of LPNs’ successful attainment of RN licensure through career laddering could increase both the number and diversity of RNs in Washington state.
CHAPTER TWO
REVIEW OF LITERATURE

Search Strategies

Initial literature searches of CINAHL, ERIC, Google Scholar, PubMed, PsycINFO, and Social Sciences Index examined the concept of self-efficacy (Bandura, 1997) and educational mobility within the context of nursing education (Claywell 2003; Evans, Forney & Guido-DiBrito 1998; Hardie 2006; Meleis 2007; Schlossberg 1981). In addition, the cultural context and universality of concepts were explored in a variety of academic applications (Giuliana, Tyer-Viola & Lopez 2005; Madrid 1997; Meleis 2007; Newman 2003; Polifroni 1999; Reed, Shearer & Nicol 2003; Winters & Ballou 2003).

This review of related literature is divided into six sections. The first section discusses Bandura’s Social Cognitive Theory chosen as this study’s theoretical framework. The second section addresses the concept of nursing, while section three describes the current worldwide, United States, and Washington state nursing shortages. The fourth section surveys major concepts of educational mobility and career laddering with special attention given to those studies that incorporated the concept of self-efficacy. The concept of self-efficacy in the educational realm is elaborated in section five. The final section explores decision making self-efficacy in relation to occupational and vocational choices.

Theoretical Framework

Albert Bandura (1977, 1986) proposed a model of social learning theory where self-efficacy is defined as the cognitive structure of cumulative learning experiences that leads to the
belief or expectation that one can successfully complete a task or activity (Sullivan & Mahalik, 2000; Stacy 2003). Bandura’s (1986, 1997) social cognitive theory is a theory of human functioning that subscribes to the notion that humans regulate their own behavior. Individuals internalize a belief system that enables them to exercise control over their thoughts, feelings, and actions. According to Bandura, “what people think, believe, and feel affects how they behave” (Bandura, 1986, p. 25). At the core of Bandura’s (1986) theory is the focus of “triadic reciprocality,” the interplay between personal, behavioral, and environmental influences on people’s behavior. Consequences of a behavior are used to form expectations of future behavior. Therefore, Bandura postulated that individuals make choices and choose their course of action, self-examine the competency of their behavior and interpret the outcomes and consequences, develop enhanced beliefs about their capabilities, and mentally store this information to be used as a guide for future behavior choices. Bandura considered the practice of self-reflection to be the most influential contributor to human behaviors. Through this process of reflective self-examination, individuals evaluate the competency of their thoughts, behavior, and motivation and change their thinking and subsequent behavior accordingly.

How then is self-efficacy evidenced in people’s everyday life? Rather than being in an unsafe position people will generally choose to get involved in activities and behave confidently when they judge themselves competent in managing situations that would otherwise be intimidating (Bandura, 1977). Simply put, when people fear and tend to avoid threatening situations they believe their coping skills have been exceeded (Bandura, 1977). Bandura described dimensions and major sources of information that drive the expectations of personal efficacy (Stacy, 2003).
Social cognitive theory stresses the influential role of personal self-efficacy beliefs on human behavior and choice. Beliefs of personal self-efficacy are not dependent on one’s abilities, but instead, on what one believes might be accomplished with their personal skill set. Thus, self-efficacy beliefs are often better predictors of success than are self concept, self esteem, prior accomplishments, skills, or knowledge (Bandura, 1997). Personal self-efficacy beliefs influence individuals’ pursued courses of action, effort expended in given endeavors, persistence in the confrontation of obstacles, and resilience to adversity. Self-efficacious individuals approach challenges with the intention and anticipation of mastery, intensifying their efforts and persistence accordingly. Self-efficacious individuals rapidly recover their lowered sense of efficacy after enduring failure or difficulty, and attribute failure to insufficient effort or deficient knowledge. According to Bandura (1986), people’s beliefs of personal efficacy “affect almost everything they do; how they think, motivate themselves, feel, and behave” (p.19).

The evolution of the theory of self-efficacy has been given extensive attention in related literature (Betz & Hackett, 1987). Empirical research has measured perceived self-efficacy and performance in a myriad of behavioral domains including snake phobias (Bandura & Adams, 1977; Bandura et al., 1977) mathematics abilities (Pajares & Miller, 1995) computer usage (Decker, 1998) and tennis performance (Barling & Able, 1983). Although the work of Bandura and his colleagues focused primarily on the role of self-efficacy expectations in regards to the treatment of clinical syndromes (Bandura, Adams & Beyer, 1977), the concept has been broadened to include career-related behaviors (Hackett & Betz, 1981) and has been determined to have reliable and predictable utility for the understanding and development of career decision making. Researchers have further expanded the applications of career self-efficacy theory to studies of students in science and engineering (Lent, Brown & Larkin 1984, 1986; Hackett, Betz,
Casas & Rocha-Singe, 1992) and to students representing racial and ethnic minority groups (Hacket et al., 1992). The literature indicated another domain that is quite prevalent: the process of career decision making. Lent and Hackett (1987) found that career related self-efficacy aids in clarifying how mediating cognitive processes created by early learning experiences temper later vocational choices and behaviors.

Other researchers have successfully used Bandura’s Social Cognitive theory in nursing. Examples of the utility of Bandura’s theory for practice, research, education, and administration are numerous (Baron, Dutil, Berkson, Lander & Becker 1987; Beckham, Rice, Talton, Helms & Young 1994; Clark 1988; DeBusk, Kraemer & Nash 1983; Fries 1989; Jeffreys 1998; Lazarus & Folkman 1984; Liaw 2003; Pisanti, Lombardo, Lucidi, Lazzari & Bertini 2008; Schiaffino & Revenson 1992; Taal, Rasker, Seydel & Wiegman 1992). Bandura’s theory, operationalized for educational programs, may be applied effectively in nursing education. Evidence suggests that the theory provides a conceptual framework for curricula and curriculum development (Jeffreys 1993; Pisanti, Lombardo, Lucidi, Lazzari & Bertini 2008).

With regard to the theory of self-efficacy and the process of educational mobility, the current study evaluated the predictive value of general self efficacy scores and career decision self efficacy scores for LPNs likely to attain RN licensure. Noteworthy, the review of the related literature (Bergeron & Roman 1994; Betz & Hackett 1981; Brake 2001; Hackett & Betz 1981, 1989; Lent, Brown & Larkin 1984, 1986; Luzzo, 1993, 1996; Peterson 1993; Stickell & Bonnett 1991; Sullivan & Mahalik 2000) indicated that several background variables influenced individuals’ general self-efficacy scores including gender, age, ethnicity, cumulative college grade point average, and participation in career related activities. These data points may be important as increasing diversity in the RN population is explored.
Nursing

The International Council of Nursing’s (ICN) (2007) definition summarized that nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well, and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles (ICN, 2007).

Modern definitions of nursing describe nursing as a science and an art that focuses on promoting quality of life as defined by populations, communities, families, and individuals throughout their life experiences from birth through the end of life (ICN, 2007). Nursing theorists Patricia Benner, Imogene King, Afaf Meleis, Florence Nightingale, and Drothea Orem, among other nursing theorists, spent their professional lives trying to describe and define nursing, yet no one definitive and succinct statement exists that suits all nurses, in all specialties and levels of educational preparedness. Although nursing is a complex occupation to classify, nursing as a profession does exist. People choose nursing as a career, and undergo educational preparation to qualify for the role and title of a nurse. In the United States of America, to represent oneself as a registered nurse requires not only prescribed education, but also recognition and regulation by a state licensing authority.

In order to work in the nursing profession, all nurses hold one or more credentials depending on their scope of practice and education. A RN provides scientific, psychological,
and technological knowledge in the care of patients and families in many health care settings. A LPN practices under the direction and supervision of either an RN, a medical or osteopathic doctor, or a dentist.

**Registered Nurse.** A registered nurse (RN) is a patient care professional responsible for implementing the practice of nursing through the use of the nursing process in concert with other health care professionals. Registered nurses work as patient advocates for the care and recovery of the sick and maintenance of their health. In their work as advocates for the patient, RNs use the nursing process to assess, plan, implement, and evaluate nursing care of the sick and injured. RNs have more education than licensed practical nurses. The scope of practice for a registered nurse is broader than for an LPN. Scope of practice is defined by the level and content of education as well as by the various Nurse Practice Acts that stipulate the respective role of each.

In Washington state there are three routes to initial licensure as a registered nurse. The shortest path is the two year Associate of Science in Nursing, a two year community college degree referred to as an Associate Degree in Nursing (ADN). The second method is to obtain a Bachelor of Science in Nursing (BSN), a four year degree that also prepares nurses for leadership positions as well as graduate level education. The third method, the Masters Entry RN (MERN), is a relatively new educational option. This program combines the state Board of Registered Nursing education requirements to obtain an RN with the education necessary to receive a Master of Nursing degree (MN). Candidates for the MERN must have completed a Bachelor Degree in another academic discipline from an accredited college or university. Completion of any of these three educational routes allows a graduate to take the NCELX-RN, the test for licensure as a registered nurse accepted by every state in the United States as an indicator of minimum competency for a new graduate.
**Licensed Practical Nurse.** The RN shortage during World War II (WWII) created the development of the LPN. The job expectation was for the LPN to assume care of lower acuity patients, thus freeing up time for the RN to provide care to higher acuity patients. The role of the LPN was expected to become obsolete when the RN workforce returned from the war. In the short tenure of WWII, the LPN proved to be an invaluable member of the American health care delivery system. Legislation was enacted to change the temporary role of the LPN to a permanent role in the American health care delivery system. Today, LPNs perform simple as well as complex medical procedures, but must operate under the direct supervision of either an RN or a physician, depending on state laws. LPNs work in a variety of health care settings. They are often found working under the supervision of physicians or RNs in clinics and hospitals, in private home health care, or in dental offices. In long term care facilities, they often supervise certified nursing assistants and orderlies.

LPNs must have graduated from high school or have a Graduate Equivalency Diploma (GED). In Washington State, education may be vocational college or community college based, and can vary from nine months to two years in time. Completion of this educational route allows a graduate of either of these programs to take the NCLEX-PN, the test for licensure as a licensed practical nurse, and is accepted by every state in the Nation as an adequate indicator of minimum competency for a new practical nurse graduate.

**Nursing Diversity.** In 2002 and 2003, a comprehensive national survey, *Supply, Demand, and Use of Licensed Practical Nurses*, reported that RNs and LPNs are similar in age and tend to have similar numbers of children, but racial and ethnic minorities, particularly African-Americans, and those who are single, widowed, divorced, or separated are more frequently represented among LPNs than among RNs (Seago, Spetz, Chapman & Dyer, 2006).
Indeed, expanding LPN educational career ladder programs might draw more individuals from diverse backgrounds into nursing (Seago, Spetz, Chapman & Dyer, 2006). Washington state LPN statistics also include gender as a diversity variable. In 1999, Washington state reported 8.5% of the LPN population as being male. By 2006, 11.6% of LPNs in Washington state were male, well above the national average of 5.0% (Washington Center for Nursing, 2006).

Research supports that while the projected nursing shortages are startling, adequate numbers alone will not provide quality care. Underrepresented nurses of color and gender must be recruited, supported and encouraged in order to provide a nursing workforce that represents and can best provide care for the citizens of Washington state (Washington Center for Nursing, 2007). Given that the current ethnic/racial/gender diversity of the nursing workforce does not mirror the diversity of the current population, research is needed to identify and describe predictive measures that may increase underrepresented male LPNs and LPNs of color enrollment in LPN-to-RN educational mobility ladder programs. Among the small number of studies describing LPN-to-RN educational mobility, no studies were found describing this experience for underrepresented male nurses or nurses of color. Self efficacy of male LPNs and LPNs of color may not be similar to those self efficacy scores presented by white female students in nursing. The challenge of successfully transitioning from an LPN to an RN role is difficult for all LPNs (Gallimore 1987; Dorsey 1991; Pricer 1995; Adelman 2002; Claywell 2003: Jones 2005; Gyurko 2006). Underrepresented male LPNs and LPNs of color may face additional, as yet unidentified, challenges. Research purports in order to meet the needs of the citizens of Washington State for a culturally diverse and plentiful workforce, strategies must be found to ensure LPN-to-RN success (WCN, Master Plan for Nursing Education, 2008).
Table 2.1.

*Demographic characteristics of age, gender, ethnicity and diversity percentages for RNs and LPNs (WCN, 2007)*

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>USA: Overall population</th>
<th>WA: Overall population</th>
<th>RN (USA)</th>
<th>RN (WA)</th>
<th>LPN (USA)</th>
<th>LPN (WA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age</td>
<td>36.7 yrs</td>
<td>36.2 yrs</td>
<td>46.8 yrs</td>
<td>48.4 yrs</td>
<td>Unknown</td>
<td>47.1 yrs</td>
</tr>
<tr>
<td>Male gender</td>
<td>50%</td>
<td>50%</td>
<td>5.8%</td>
<td>8.2%</td>
<td>5.0%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Ethnicity: Hispanic</td>
<td>13.7%</td>
<td>8.9%</td>
<td>1.7%</td>
<td>1.9%</td>
<td>3.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>12.2%</td>
<td>3.4%</td>
<td>4.2%</td>
<td>0.8%</td>
<td>26.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>American &amp; Alaskan Indian</td>
<td>0.7%</td>
<td>1.4%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>Unknown</td>
<td>1.1%</td>
</tr>
<tr>
<td>Asian &amp; Pacific Islander</td>
<td>4.1%</td>
<td>6.8%</td>
<td>3.1%</td>
<td>4.0%</td>
<td>3.0%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.5%</td>
</tr>
<tr>
<td>Multi-race</td>
<td>1.3%</td>
<td>Unknown</td>
<td>1.4%</td>
<td>Unknown</td>
<td>Unknown</td>
<td>3.4%</td>
</tr>
<tr>
<td>White</td>
<td></td>
<td>89.0%</td>
<td>92.0%</td>
<td>67.0%</td>
<td>79.2%</td>
<td></td>
</tr>
<tr>
<td>Total population (Number of nurses per 100,000 people)</td>
<td>307,212,000</td>
<td>6,488,000</td>
<td>2,600,000</td>
<td>71,048</td>
<td>700,000</td>
<td>14,446</td>
</tr>
<tr>
<td>Total diversity</td>
<td>32.0%</td>
<td>20.5%</td>
<td>11.0%</td>
<td></td>
<td>32.0%</td>
<td></td>
</tr>
</tbody>
</table>
**Nursing Shortage**

The nursing shortage refers to a situation where the demand for registered nurses is greater than the supply. The current nursing shortage is not unique to the United States of America, in fact the shortage of RNs is being felt both nationally and internationally.

**Nursing Shortage Worldwide.** Internationally, there is a serious shortage of nurses (Coomber & Barriball, 2007). Reasons cited for this shortage are due to the work environment, the challenging educational pathways, shortages of nursing faculty, shortages of clinical placement slots, and the need for multiple priority management skills in which nurses must consistently demonstrate to maintain safe practice.

In a recent review of the empirical human factors and ergonomic literature specific to nursing performance, nurses were found to work in generally poor environmental conditions. Coomber and Barriball’s (2007) literature review regarding the nursing shortage concluded that the profession of nursing as a whole is overloaded because there is a nursing shortage. Individual nurses are overloaded. They are overloaded by the number of patients they oversee and by the number of tasks they perform (Coomber & Barriball, 2007). Nurses work under cognitive overload, engaging in multitasking and encountering frequent interruptions. They work under perceptual overload due to medical devices that do not meet perceptual requirements, insufficient lighting, illegible handwriting, and poor labeling designs. Nurses also work under physical overload due to long work hours and patient handling demands. In short, the nursing work system often exceeds the limits and capabilities of human performance (Coomber & Barriball, 2007).
Nursing Shortage in United States. The RN shortage currently facing the United States differs from any on record (Claywell, 2003). In the past, nursing shortages have been less pervasive and responded in a relatively quick manner to the strategies employed to curb the trend. In contrast, the current shortage is not likely to be resolved soon; rather research suggests that the shortage will continue to worsen through 2025 (Claywell, 2003). As a result, the healthcare industry has begun to look to the LPN as a viable answer to the shortage of RNs across the United States (Claywell, 2003). Research reveals a paucity of existing data regarding the LPN-to-RN transitioning student. Research has not focused on the experience of this most unique group of adult learners to support better the returning LPN during continued professional nursing education (Claywell, 2003).

Among the many cited causes for the nursing shortage in the USA is the lack of qualified doctoral or Master’s degree prepared faculty for collegiate RN programs. Students cannot be admitted to school if there are inadequate numbers of faculty to teach. Furthermore, there is evidence that faculty positions for RN programs do not command equivalent salaries to those of their peers in other academic departments or community agencies (Brown & Matthews 2003; Harrigan, Golin & Casken 2003; Padgett 2008).

Another factor affecting the nursing shortage is that after completing their education, many RNs do not remain long in the profession, especially those working in more traditional hospital health care roles. The two primary reasons given for leaving the profession are poor working conditions and salaries which are not commensurate with the responsibilities of the profession (Leach & Zepke, 2005). Other factors such as a high index of accountability (Hemsley-Brown & Fosket 1999; Larsen, McGill & Palmer 2003), role limited autonomy (Leach & Zepke 2005; Muldoon & Reilly 2002), and the physical labor demanded of clinical positions
(Beck 2000; Rognstad 2002; Rognstad, Aasland & Granu 2004) are also identified as deterrents to
career decisions for professional nursing or staying in the profession. As well, many systems
and practices in nursing are heavily oriented toward the social and gender patterns and practices
of women, which can hinder consideration of nursing as a profession by men (Muldoon &
Reilly, 2002). Finally, the hierarchical nature of health care in the USA places physicians in a
‘power-over’ position in relation to the status of RNs, limiting the services of the profession,
despite the growing number of advanced practice nurses or extensive clinical and professional
knowledge, skills, and abilities of nursing staff (Muldoon & Reilly, 2002).

The US population is projected to grow at least 18% over two decades in the 21st century,
while the population of those sixty five and older is expected to increase at three times that rate,
predictably needing more and more health care services. The paucity of nurses is projected at
over one million by the year 2020 (Brush, Sochalsk & Berger, 2004).

**Nursing Shortage in Washington State.** The Center for Health Workforce Studies at the
University of Washington recently estimated that the RN shortfall in Washington State, without
changes in health and education policy and practices, would reach nearly 25,000 RNs by 2020.
To meet the predicted demand for RNs under the current system, the RN graduation rates in
Washington State need to increase by 400 per year each year for the next 15 years (Skillman,
Andrilla, & Hart, 2007).

**Educational Mobility**

Career ladder is a metaphor used to denote vertical job promotion. In human resource
management, the ladder typically describes the progression from entry level positions to higher
levels of pay, skill, responsibility, or authority. The ladder does not provide for lateral
movement, it is assumed to be a singular track with the greatest benefits at the top. This metaphor is spatially oriented, and frequently used to denote upward mobility within nursing education.

Education mobility is a term used to denote vertical educational attainment. The educational system in America is considered the most effective and equal process for improving individual’s economic standing. Nursing education mobility allows qualified individuals to reach their nursing career goals. For the purposes of this research undertaking, career ladder and educational mobility will have the same meaning, and be used interchangeably.

Nursing literature regarding educational mobility is scarce. One dissertation identified qualitative data on six LPNs’ experiences through an RN program (Claywell, 2003). The LPNs in this study sought RN licensure as a means to fulfill an original dream and to obtain greater independence, both financially and in practice. These students prepared for entry by engaging in self-talk, and by making multiple changes in the organization of their lives. Scant data were found that discussed motivation factors for educational mobility of LPNs returning to school to attain RN licensure (Ikeda, Inoue & Kamibeppo 2008; Gyurko 2006; Jones 2005; Adelman, 2002; White 2001; Wendel 1998). The transition experience of LPNs becoming RNs was also identified as a factor (Stedman 2007; Pricer 1995; Dorsey 1991). Very little scientific knowledge exists about educational mobility for nurses and nursing students, yet Washington state is ready to enact action toward increasing educational mobility opportunities for nursing students through LPN-to-RN career ladders (A Master Plan for Nursing Education in Washington State, 2008).
In the face of the current nursing shortage several states, including Washington State, are encouraging educational mobility opportunities to increase the number of working RNs. In 2008, WCN presented *A Master Plan for Nursing Education in Washington State* to the Washington State Department of Health. The report states: “To prepare a professional community that will be competent for the 21st century, Washington nurses and nursing students must be able to pursue their education through the baccalaureate degree and above, through multiple pathways and with a strengthened collaborative effort among the various types of programs. Barriers to a seamless transition through the educational system must be eliminated” (A Master Plan for Nursing Education in Washington State, 2008, p. 1).

This comprehensive document also addresses increasing diversity among Washington State RNs. “A sustained commitment to best practices in the recruitment and retention of minority students is required to increase the diversity of the nursing community and establish a professional membership that more closely reflects the racial, ethnic, and cultural richness of the population of the state” (A Master Plan for Nursing Education in Washington State, 2008, p.1). This plan is intended to provide a framework for comprehensive transformation of the nursing education system in Washington state. The four global recommendations with a sample of the objectives that are pertinent to this research study are:

1. Assuring the continued competency of nursing professions
   a. Strengthen articulation agreements among LPN, ADN, and BSN programs
   b. Encourage development of LPN-to-BSN programs
   c. Identify opportunities to decrease steps in progression toward BSN and graduate degrees

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d. Increase support for the recruitment and retention of students from minority and underserved populations, incumbent healthcare workers (Certified Nursing Assistant, LPN, Medical Assistant), and students residing in rural and underserved areas

e. Support and expand non-traditional programs, e.g. LPN-to-BSN, fused models for BSN, dual enrollment

2. Assuring an adequate supply of nursing professionals

3. Promoting a more diverse profession

4. Enhancing educational access throughout Washington State

   a. Create new access points and networks in areas with identified deficits

The primary focus of the Master Plan for Nursing Education in Washington State is on the nursing education system across the spectrum of practice and education levels, with the goal of increasing the quantity of nurses entering practice. “We must design a system that will enable students to become the best nurses they are capable of being and to receive the education they need in order to develop their minds, their hands, and their hearts, to make the transition from school to practice as smoothly as possible and to continue to develop their knowledge and skills as they make the journey from novices to experts” (A Master Plan for Nursing Education in Washington State, 2008, p.14).

Self-Efficacy

A robust theoretical model of self-efficacy has emerged during the last 45+ years to explain how peoples’ expectation that they can achieve a desired outcome in their lives is influenced by personal beliefs, attitudes, motivations, emotions, and behaviors. The chronological evolution of this concept is now explored.
**General Self-Efficacy.** In 1963, Bandura and Walters wrote *Social Learning and Personality Development*, broadening the paradigm of social learning with the educational principles of observational learning and vicarious reinforcement. In 1977, Bandura published the text “Self-efficacy: Toward a Unifying Theory of Behavioral Change,” identifying self-efficacy as the missing element from past social learning theories. Individuals develop self-efficacy beliefs by interpreting information from four primary sources. The most influential source is the interpreted result of one’s previous performance and mastery of experience. The vicarious experience of observing others perform tasks, social persuasions received from others, and somatic and emotional states also influence people’s self-efficacy beliefs.

With the publication of *Social Foundations of Thought and Action: A Social Cognitive Theory*, Bandura (1986) advanced a view of human functioning that accords a paramount role to cognitive, vicarious, self-regulatory, and self-reflective processes in human adaptation and change. Human functioning is viewed as the triadic reciprocal determinism of personal, behavioral, and environmental influences. At the core of social cognitive theory are self-efficacy beliefs, “…people’s judgments of their capabilities to organize and execute course of action required to attain designated types of performances…” (Bandura, 1986, p. 391). Self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment. Unless people believe that their actions can produce the outcomes they desire, they have little incentive to act or to persevere during challenging experiences. Self-efficacy beliefs touch every aspect of people’s lives. Self-efficacy is also a critical determinant of self regulation (Stacy, 2003).

Self regulatory factors are defined by Zimmerman (2002) as “…the self-directive process by which learners transform their mental abilities into academic skills…” (Zimmerman, 2002,
Gender differences in students’ self-efficacy for self regulated learning typically favor female students (Pajares, 2002). Studies reveal that females display more goal setting and planning strategies, kept records, self monitored more frequently than males did, and structured their environment for optimal learning (Betz & Fitzgerald 1987; Betz & Hackett 1981; Bonnett 1994; Bright 1996; Post-Kammer & Smith 1985; Stickel & Bonnett 1991; Sullivan & Mahalik 2000; Zimmerman & Martinez-Pons, 1990).

Figure 2.1

*Depicts a model of the reciprocal interplay of the variables necessary for an LPN to attain RN licensure*

Self-efficacy studies in academic genres support the premise that higher self-efficacy scores enhance human accomplishment (Richard, Diefendorff & Martin, 2006). Self-efficacy beliefs influence the choices people make and the courses of action they pursue. Individuals tend
to select tasks and activities in which they feel competent and confident and avoid those in which they do not. Self-efficacy beliefs also help determine how much effort people will expend on an activity, how long they will persevere when confronting obstacles, and how resilient they will be in the face of adverse situations. The higher the sense of self-efficacy, the greater the effort, persistence, and resilience (Bores-Rangel, Church, Szendre & Reeves, 1990; Stacy 2003).

“Efficacy beliefs play an influential meditational role in academic attainment. The extent to which such factors as level of cognitive ability, prior educational preparation and attainment, gender, and attitudes toward academic activities influence academic performance is partly dependent on how much they affect efficacy beliefs. The more they alter efficacy beliefs, the greater the impact they have on academic attainments” (Bandura, 1997, p. 216).

The unique contribution of beliefs of cognitive efficacy to academic performance is highly replicable in analyses of the direct and mediated effect between the diverse types of determinants including cognitive ability, prior educational preparation and attainment, gender, and attitudes toward academic activities (Hackett, 1985; Pajares & Kranzler, 1995; Pajares & Miller, 1994; Pajares, Urdan & Dixon, 1995; Randhawa, Beamer & Lundberg, 1993).

Self-efficacy beliefs also influence an individual’s thought patterns and emotional reactions (Cervone & Peake, 1986). High self-efficacy helps create feelings of serenity in approaching difficult tasks and activities. Consequently, self-efficacy beliefs can powerfully influence the level of accomplishment that one ultimately achieves (Phillips & Gully, 1997).

**Self-Efficacy Among Adult Learners.** Self-efficacy beliefs are even more crucial at advanced levels of cognitive functioning where academic pursuits are complex and demand a
high level of self-directedness. Self-efficacy for self regulation is one’s perceived ability to use the appropriate strategies to plan, monitor, and complete a task (Bandura, 1997). The term refers to the degree that individuals are metacognitively, motivationally, and behaviorally active participants in their own learning process (Zimmerman, Bandura & Martinez-Pons, 1992). The more efficacious self regulators are able to self monitor and appraise their own behavior and employ the appropriate strategies to achieve academic success (Zimmerman, Bandura & Martinez-Pons, 1992). The more efficacious self regulators often implement more learning strategies and perform better academically (Zimmerman, Bandura & Martines-Pons, 1992).

Those with less self regulatory skills, conversely, often employ fewer learning strategies and set fewer proximal goals, resulting in lower academic achievement (Bandura, Zimmerman & Bandura, 1994).

College students choose which educational directions to pursue and assume major responsibility for their own learning. Research findings for female, ethnically diverse, and returning to school later in life college students who had a high sense of self-efficacy were more successful in regulating their own learning and did better academically than those college students who were uncertain about their academic capabilities (Betz & Hackett, 1986; Brown, 2000; Lent, Brown & Hackett, 1995; Cutierrez, 1990; Graham, 1994; Luzzo, 1996; Pintrich & Schrauben, 1992; Wood & Locke, 1987).

“Considerable research reveals that perceived academic efficacy plays an influential role in career choice and development” (Bandura, 1997, p. 239). Self-efficacy predicts academic grades, the range of career options considered, and persistence and success in chosen fields (Betz & Hackett, 1986; Lent & Hackett, 1987). Perceived self-efficacy accounted for variations in different intellectual aspects of occupational and vocational pursuits when past academic
achievement, scholastic ability, and occupational interests were controlled (Lent et al. 1986, 1987). When differences in self-efficacy beliefs were controlled, students’ capabilities did not account for course planning, course selection, or academic grades, suggesting that a students’ belief in their academic efficacy mediates the relationship between capability and educational pursuits and attainment (Lent et al, 1993). “By influencing preparatory development and occupational choices, efficacy beliefs partly shape the courses that lives take” (Bandura, 1997, p. 239).

Students with a strong sense of academic self-efficacy willingly undertake challenging tasks, expend greater effort, show increased persistence in the presence of obstacles, demonstrate lower anxiety levels, display flexibility in the use of learning strategies, demonstrate accurate self evaluation of their academic performance and greater intrinsic interest in scholastic matters, and self regulate better than other students (Mills, Pajares & Herron, 2007). As a consequence, they attain higher intellectual achievement (Bandura, 1997; Pajares & Urdan, 2006). Conversely, students with low self-efficacy prefer to complete only uncomplicated academic tasks to which they apply minimal effort and limited persistence or they might choose to entirely avoid the completion of an academic assignment. For these reasons, self-efficacy beliefs are often said to be better predictors of academic success than are actual abilities (Bandura, 1997).

Since Bandura first introduced the construct of self-efficacy in 1977, research has been successful in substantiating that individuals’ self-efficacy beliefs powerfully influence their attainments in diverse fields. In his 1997 publication, Self-Efficacy: The Exercise of Control, Bandura set forth the cornerstone of his theory of self-efficacy and its application to fields as diverse as life-course development, education, health, psychopathology, athletics, business, and international affairs (Pajares, 2008). Self-efficacy has been especially prominent in studies of
educational constructs such as academic achievement, attributions of success and failure, goal setting, social comparisons, memory, problem solving, and career development. Researchers have demonstrated that self-efficacy beliefs, behavior changes, and positive outcomes are highly correlated and that self-efficacy can be an accurate predictor of behavior. Graham and Weiner (1996) concluded that self-efficacy has proven to be a more consistent predictor of behavioral outcomes than have any other motivational constructs. It is not a matter of how capable one is, but of how capable one believes oneself to be (Graham & Weiner, 1996).

In clarifying the relationship of self-efficacy and performance, perceptions of self-efficacy do serve as behavioral predictors (Bandura, 1986). Individuals avoid tasks perceived as exceeding their capabilities and undertake tasks they perceive they are capable of handling. Wood and Bandura (1989) concluded that individuals who demonstrate strong self-efficacy are more likely to undertake challenging tasks, persist longer, and perform more successfully than those with lower self-efficacy beliefs.

Self-efficacy beliefs have been found to have a relationship to the academic achievement of both men and women. In a meta-analysis of self-efficacy research published between 1977 and 1988, Multon, Brown, and Lent (1991) found a positive relationship between self-efficacy beliefs and academic achievement. Graham and Weiner’s (1996) review of motivational research revealed similar results with their finding that self-efficacy more consistently predicted academic performance than other motivational constructs. Such research findings indicate the strong influence of students’ perceptions of academic self-efficacy on academic behaviors and performance (Mills, Pajares & Herron, 2007).
Perceived value of education refers to an individual’s perception of the importance, interest, and enjoyment involved in learning about the subject matter. In several academic domains, conceptualizations of value have been found to be associated with academic performance (Britner & Pajares, 2001; Pajares & Graham, 1999; Pajares & Valiante, 2001). Social cognitive theory suggests, however, that because one’s self-efficacy identity partially determines the perceived value of academic activities, perceptions of value are unlikely to independently predict one’s behavior when controlling for self-efficacy identity (Bandura, 1986).

The positive effect of past performance on self-efficacy is widely accepted (Stajkovic & Luthans, 1998). Bandura (1997) noted that past performance is a major determinant of a person’s self-efficacy; successful performance of a task leads to increased self-efficacy, and failure of a task leads to decreased self-efficacy. Several studies have found that past performance is a significant predictor of future self-efficacy (Mitchell, 1997; Mitchell, Hopper, Daniels, George-Falvy & James, 1994).

Bandura (1997) noted that self-efficacy positively impacts subsequent performance; however, this effect has been subject to critical scrutiny. Specifically, high self-efficacy is thought to cause individuals to set higher goals, thus improving subsequent performance (Bandura, 1997; Bandura & Wood, 1989; Bouffard-Bouchard, 1990). Goal setting literature has argued that self-efficacy increases goal commitment, which has a positive effect on performance (Locke & Latham, 1990). Other researchers have suggested that self-efficacy improves performance by controlling distractions and disruptive thoughts, thereby focusing the individual’s attention on the task at hand (Ackerman, Kanfer & Goff, 1995; Kanfer & Ackerman, 1996). Self-efficacy has also been found to lead to greater persistence in the face of obstacles or failure (Cervone & Peake, 1986; Jacobs, Prentice-Dunn & Rogers, 1984) and better use of
strategies (Bandura & Wood, 1989; Bouffard-Bouchard, 1990). Whether self-efficacy improving academic performance carries greater predictive value over positive past academic performance improving self-efficacy does not alter the scientific findings that consistently identify self-efficacy as a predictive measure for academic success.

Researchers have argued that self-efficacy might simply be a reflection of past performance, rather than a generative motivational belief impacting future performance (Mitchell, 1997). Individuals make judgments of their own efficacy based primarily on past performance levels (Mitchell, 1997). Research in support of this position has shown that self-efficacy does not predict future performance when the effects of ability or past performance are sifted out (Ackerman et al., 1995; Heggestad & Kanfer, 2005; Mitchell et al., 1994). Thus, an important question remains: Does high self-efficacy result in greater motivation and increased performance, or is it primarily a reflection of high past performance? Most research on this topic has been inconclusive because of the use of cross-sectional design studies completed in laboratory settings where self-efficacy was intentionally manipulated as the independent variable.

Motivation constructs other than self-efficacy, such as self concept, anxiety, perceived value, and self-efficacy for self regulation, have also been found to predict academic performance. Despite the role of these motivational constructs in the prediction of academic performance, social cognitive theorists still maintain that self-efficacy has been shown to have stronger direct effects on performance than the motivational variables of self concept, anxiety, perceived value, and self-efficacy for self regulation (Bandura, 1997: Pajares & Urdan, 2006).
According to Bandura (1997), self-efficacy is imposed, selected and created in relation with others throughout the life cycle. Self-efficacy development is influenced by the triadic reciprocal determinism of families, peers, biological changes, and environmental demands. Although self-efficacy is a self referent concept, not all self referent thoughts pertain to self-efficacy. Self-efficacy differs from both self concept and self esteem. Self concept is a person’s combined view of one’s self (Bandura, 1997; Zimmerman, 1995). It is not very predictive of a behavior because people tend to hold varying views of parts of their selves. Self-efficacy beliefs are much more predictive of behavior (Bandura, 1997). Self esteem is a person’s assessment of self worth. Self-efficacy is not about worth, but rather about the person’s perception of ability (Baldwin, Baldwin & Ewald, 2006).

In academic settings, high self-efficacy scores correlate to higher academic achievement. Increased levels of self esteem do not necessarily lead to higher academic achievement (Baldwin et al, 2006). Baldwin, Baldwin and Ewald (2006) concluded that improvement in academic achievement could be more effective by addressing self-efficacy issues rather than self esteem. Self-efficacy is predictive of a person’s goals and performance; self esteem is not. Self esteem can come from one’s abilities or attributes. Attributes can be linked to social status rather than performance ability (Baldwin et al, 2006).

Additionally, self-efficacy differs from outcome expectancy. Self-efficacy belief is about whether a person has the ability to perform an action. It does not indicate whether the action will actually create a particular outcome. If people believe the outcomes are dependent on their actions, and they believe they can adequately perform the action, they will have a sense of causative power. Positive self-efficacy, coupled with positive outcome expectancy, will create a situation of optimism to put energy into action. Outcomes are the result of action. People’s self-
efficacy beliefs will affect their expectations of outcome, but the performance is separate from the outcome results.

**Self-Efficacy Among Nursing Students.** Strength of self-efficacy in research has been measured by obtaining ratings of confidence in an individual’s capability to perform those occupations for which a high self-efficacy score was given. To distinguish level and strength of self-efficacy as formulated by Bandura (1977) nursing researchers need to devise a means for specifying hierarchical level or ordering in the nursing domain (Bores-Rangel, Church, Szendre & Reeves, 1990). One possible basis for such an ordering would be the educational level needed to perform the next level of nursing practice. An initial step toward determining whether educational mobility can be used to assess individual differences in level of self-efficacy is to investigate the extent to which individuals, in making self-efficacy judgments, take into account the educational level required for various levels of nursing (Bores-Rangel et al., 1990). An additional necessary step is to determine if self-efficacy can be used as a predictive measure to identify LPNs likely to attain RN licensure.

Nursing has traditionally been viewed as an appropriate occupation for women. Although young people report admiration for the work undertaken by nurses, this expressed admiration is rarely matched by a desire to become a nurse (Hemsley-Brown & Foskett, 1999). The ongoing contemporary debate over the professional status of nurse in relation to that of doctor, coupled with the ambivalent status that arises from nursing being viewed as gendered work, contributes to ongoing recruitment and retention problems for the nursing profession (Muldoon & Reilly, 2002).
In relation to women, Hackett and Betz (1981) noted that self-efficacy may be especially relevant to explaining the career behavior of minority individuals, many who have had limited exposure to occupational and academic experiences that lead to strong self-efficacy (Bores-Rangel et al., 1990). Self-efficacy beliefs about sex-typed careers may provide a fuller explanatory framework for understanding these effects (Bandura et al., 2001). Efficacy expectations can be related to the domination of an occupation by one gender or another (Betz & Hackett, 1998). Women in female dominated occupations have considerably stronger efficacy expectations than women in non-female dominated fields of work (Muldoon & Reilly, 2002).

Career aspirations are not shaped solely by job related factors, and have been linked to individual differences, such as gender role orientation (Muldoon & Reilly, 2002). Archer (1989) posits that an individual’s gender role orientation affects occupational choice. It is likely that gender role orientation may be more central to career choice than gender itself (Archer, 1989). Mulroon & Reilly (2002) reported that although self-efficacy scores were higher among male nurses than female nurses, there was no evidence of gender differences in self-efficacy scores when efficacy was examined separately in relation to gender neutral nursing careers, female nursing careers, and highly female sex-typed nursing careers.

In addition to the paucity of literature on self-efficacy for male and female nurses, individual self-efficacy is emerging as a research focus. The majority of nursing research discusses the self-efficacy of patients with specific diagnoses receiving nursing care. Patient condom use, smoking cessation, physical activity adherence, and medical marijuana effectiveness in relation to self-efficacy have also been documented in nursing research. Self-efficacy of RNs is another emerging area of nursing research. Several doctoral dissertations have investigated the self-efficacy of registered nurses working in hospital settings (Becker
and self-efficacy have been undertaken by nursing doctoral candidates as well as others (Hagman 2006; Kelley 1994; Yao 1997). Studies of RN students reflect that nursing students with high self-efficacy scores have increased graduation and NCLEX-RN pass rates (Cantrell 2001; Jeffreys 1998; Ku, Sheu & Kuo 2005; Schug 2000).

Self-efficacy research on LPNs is rare and is limited to the effects of education and teaching strategies (Ruiz, Smith, van Zuilen, Williams, & Mintzer 2006; Smith 2004; Wahtera 1991). No literature could be found that investigated self-efficacy in relationship to advancing nursing education among LPNs pursuing RN licensure.

**Career Decision Self-Efficacy**

The concept of self-efficacy expectations has been vigorously studied and is now widely used in general psychology, but it was first applied to career psychology and counseling by Hackett and Betz (1981). A substantial body of research supports that beliefs of personal self-efficacy play a key role in career development and pursuit (Betz 2000; Betz & Hackett 1981; Betz & Hackett 1983; Foltz 1993; Krumboltz, Mitchell & Jones 1976; Lent, Brown & Hackett 1994; Lent, Brown & Larkin 1984). Assessment of career self-efficacy now encompasses numerous specific domains of behavior (Betz, 2000; Betz & Rottinghaus, 2006). These include occupational and vocational self-efficacy (Betz & Hackett, 1981), task-specific occupational self-efficacy (TSOSS; Rooney & Osipow, 1989; Osipow, Temple & Rooney, 1993), and mathematics self-efficacy (Betz & Hackett, 1983).

The higher the perceived self-efficacy a person embodies to fulfill educational requirements and job functions, the wider the range of career options they seriously consider
pursuing and the greater interest they have in those career pursuits (Betz & Hackett, 1981; Lent et al. 1986; Matsui, Ikeda & Ohnishi, 1989). Self-efficacy beliefs open options for serious occupational and vocational decision-making. People eliminate from consideration entire occupational and vocational pursuits based on self-efficacy beliefs. “Efficacy beliefs predict the range of career options people consider viable for themselves when variations in actual ability, prior level of academic achievement, and vocational interest are controlled” (Bandara, 1997, p. 423).

Some researchers have suggested that perceived occupational efficacy should be measured in relation to the types of skills the occupations require. People act on their conceptions, or misconceptions, of specific skill subsets when considering occupational and vocational pursuits. For example, many people do not pursue careers in nursing because of the belief that nursing requires advanced mathematical competency as a subset skill. To target self-efficacy to isolated skill subsets of occupations can lower the predictive value of self-efficacy beliefs for the occupations people choose to pursue (Bandura, 1997). “It is not perceived efficacy for isolated subskills but perceived efficacy to use them together under varying demands that predicts the choices people make and their performance accomplishments” (Bandura, 1997, p. 423).

People act on their beliefs of occupational and vocational efficacy as well as their knowledge about potential career choices. Self-efficacy to master scientific knowledge predicts successful academic course work and perseverance in scientific fields of study (Lent, Brown & Larkin, 1984). Career development includes mastery of learning along the way. Including more opportunities to heighten self-efficacy among student learners increases the predictive power of successful attainment of an occupational or vocational pursuit. Self-efficacy can also contribute
to career pursuits through the development of occupational or vocational interests. Lent and his colleagues corroborate this relationship for occupational or vocational interests (Lent et al. 1989).

“The higher the perceived efficacy to fulfill the educational requirements of various science and engineering fields, the stronger the interest in those occupations as measured by standardized inventories of vocational interest. Evidence that efficacy beliefs relate to interest in a selective rather than an indiscriminate way adds to the significance of the findings. Thus, a high sense of efficacy for engineering specialties is accompanied by interest in technical activities, whereas high perceived efficacy for science specialties is accompanied by interest in more theoretical abstract activities” (Bandura, 1997, p. 424).

Self-efficacy beliefs account for interest across a variety of educational pursuits (Lapan, Boggs & Morrill, 1989; Lent et al. 1991) and specialization within a occupational or vocational career (Bieschke, Bishop & Garcia, 1996).

Social cognitive theory posits a reciprocal relationship between perceived self-efficacy and occupational interest, with perceived self-efficacy beliefs playing the dominant determinant role (Bandura, 1997). Perceived self-efficacy creates interest through engrossment in activities and the self-satisfaction derived from fulfilling personal challenges that lead to progressive mastery of occupational or vocational activities. Interest fosters further engagement in academic activities which enhances personal self-efficacy. It is one thing to select a occupational or vocational career choice but quite another to persist with it when the academic undertaking is fraught with difficulties. High self-efficacy perceptions are likely to promote steadfastness to an occupational or vocational undertaking through motivational, cognitive, and affective processes.
Current research suggests that career decision self-efficacy is strongly related to both statements of and actual difficulties in making and implementing career decisions. Additionally, many researchers have encouraged that the self-efficacy theory be used as the basis for the design of career interventions (Betz, 1992; Betz 2000; Betz & Hackett 1981; Betz & Hackett 1983; Foltz 1993; Krumboltz, Mitchell & Jones 1976; Lent, Brown & Hackett 1994; Lent, Brown & Larkin 1984) and further, that the Career Decision Self-Efficacy – Short Form© CDSE-SF be used as a pre or post dependent measure of the effectiveness of those career development interventions (Bergeron & Romani, 1994; Betz 1992; Betz & Luzzo 1996; McAuliffe 1991; Peterson, 1993). As a result, there has now been considerable research using self-efficacy theory as the basis for the design and/or evaluation of career interventions (Betz 2000; Betz & Hackett 1981; Betz & Hackett 1983; Foltz 1993; Krumboltz, Mitchell & Jones 1976; Lent, Brown & Hackett 1994; Lent, Brown & Larkin 1984). Although past research has suggested the utility of several different types of interventions to increase career decision self-efficacy, there is a need for additional research targeted at specific occupational and vocational career pursuits.

**Summary**

Health care services in Washington state are experiencing a growing critical shortage of RNs. One strategy to raise the number of RN graduates in Washington state is to educate more LPNs as RNs. However, the multitude of factors that influence the decision by LPNs to advance their professional education is poorly understood. Factors contributing to and influencing LPNs’ engagement in attaining RN licensure have not been readily or thoroughly identified. Additionally, factors that might predict which LPNs are more likely to attain RN licensure are
absent in the literature. One factor that is conceptually unelaborated in the LPN population is the concept of self-efficacy.

Studies of self-efficacy have been used in academic settings; however studies of how self-efficacy affects educational mobility in nursing are absent. Additionally, studies of how general self-efficacy and career decision self-efficacy affect educational mobility in nursing are also unavailable. Unknown is the potential relationship between general self-efficacy and career decision self-efficacy as factors that may predict LPNs more likely to attain RN licensure.

Investigating this gap is essential and innovative. The findings may advance the understanding of why some LPNs pursue RN licensure while others do not, ultimately leading to the design of interventions tailored to improve the career decision making efficacy of LPNs, thereby increasing the pool of LPN-to-RN graduates to mitigate the nursing shortage. The findings could also serve as a tool for nurse educators to develop admission criteria and nursing curricula that are tied to inter-institutional progression agreements; thereby contributing to a seamless transition between schools and levels of nursing education.
CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Study Design

This study employed a descriptive cross-sectional correlational design utilizing a random selection sampling plan. The aims of this research project were threefold:

- **Specific Aim 1:** To describe the demographic characteristics of LPNs who graduate from RN programs and LPNs who do not pursue RN education.

- **Specific Aim 2:** To compare the scores on the General Self-Efficacy (GSE) scale and the Career Decision Self-Efficacy – Short Form © 2001 (CDSE-SF) scale reported by LPNs who have attained RN licensure with the scores from LPNs who have not pursued RN education.
  - Research hypothesis 2.1: LPNs who have attained RN licensure will have higher GSE scores when compared to LPNs who have not pursued RN education.
  - Null hypothesis 2.1: There is no statistically significant difference between GSE scores for LPNs who attain RN licensure and LPNs who do not pursue RN education.
  - Research hypothesis 2.2: LPNs who have attained RN licensure will have higher CDSE-SF© scores when compared to LPNs who have not pursued RN education.
  - Null hypothesis 2.2: There is no statistically significant difference between CDSE-SF© scores for LPNs who attain RN licensure and LPNs who do not pursue RN education.

- **Specific Aim 3:** To determine if GSE and CDSE-SF scores can predict which LPNs attain RN licensure and which LPNs do not pursue RN education.
Sample

LPNs who have attained RN licensure and LPNs who have not attained RN licensure formed the non-probability sampling pool. Participants were recruited using The Washington State Department of Health list serve for the subscale category of Provider Licensing Credentials for RNs and LPNs. Currently 5,416 nurses residing in Pierce County are LPNs who attained RN licensure and 2,840 are LPNs only (Workforce Development Area Strategic Plans, 2008). The sample consisted of two non-equivalent groups. The category designated as the LPN-to-RN group consisted of 107 survey participants and the category designated as the LPN group consisted of 75 survey participants.

Inclusion criteria for this sample population were actively licensed RNs with either inactive or expired LPN licenses residing in Pierce County and actively licensed LPNs residing in Pierce County, both genders, and 18+ years of age. The Washington State Department of Health website subscale category of Provider Licensing Credentials confirmed the RN and LPN sample populations. The NCLEX-PN and NCLEX-RN are written in English, so an assumption was made that all research participants would speak and read English fluently. Inclusion of diversity that matches the Pierce County statistics for gender was attempted to be replicated in the sample population using the “gender option” selection on the Request for Lists/Labels form DOH 630-118. An option for ethnicity/race did not exist on the Request for Lists/Labels form DOH 630-118, so the sampling pools’ individual responses to ethnicity/race were compared with ethnicity/race statistics provided by the 2008 Workforce Development Area Strategic Plan for Pierce County. There were no exclusion factors for this research study.
A sample size range of 75 to 100 study participants per group was determined to be appropriate using the web resource of www.statpages.org. The sub-category of Power/Sample size – Paired t test was operationalized and the researcher chose to use the Two-sample t test tool template. Sliding the red bar over the number of participants axis/line predicted that a population range of 75 to 100 subjects per group with an alpha score of .05 would elicit a power of .9404, with 198 degrees of freedom, and a true mean difference of 0.5.

From the population of 5,416 nurses in the LPN-to-RN group and 2,840 nurses in the LPN group database, a random sample of 950 nurses was selected. Random selection was achieved by selecting every 10th LPN-to-RN name (n=475) and every 5th LPN name (n=475) from the alphabetized Provider Licensing Credentials list serve provided by The Washington State Department of Health. Random selection was stopped when 475 names were drawn for each group. Surveys were mailed to 475 actively licensed LPN-to-RNs who met the inclusion criteria for the study and to 475 LPNs who met inclusion criteria. A 15.8% return rate of 75 surveys per group would meet the appropriate minimum sample size determined by the power estimate.

Study Methods

Participant Recruitment. The recruitment process of this research was composed of several specific steps, including: (1) identifying eligible LPN and LPN-to-RN sample participants through the Washington State Department of Health website subscale category of Provider Licensing Credentials, (2) obtaining informed consent; defined in the introductory letter and implied through the return of the survey tools, (3) maintaining ethical standards, (4) employing every reasonable attempt to retain participant involvement until the research study
was completed, and (5) minimizing the cost-benefit ratio for the participants (Blanton, Morris, Prettyman, McCulloch, Redmond, Light, & Wolf, 2006).

The mailing included an introductory letter, the survey tools, and a self addressed stamped envelope. The introductory letter described the study, guaranteed confidentiality, explained informed consent, and included an invitation to be included on the mailing list to obtain a copy of the findings. Return of the survey tools provided implied consent from the study participants. Data was collected over a three month period of time.

Data collection challenges did occur. The return of 75 surveys in each study group for a 15.8% return rate was not guaranteed. It proved more difficult to fulfill the 75 participants in the LPN study group. After a four week waiting period, the LPN group returned 68 survey tools (14.3%) compared to 107 returned survey tools from the LPN-to-RN group (22.5%). Additional survey packet material was mailed to 60 additional LPNs chosen from the Washington State Department of Health website subscale category of Provider Licensing Credentials. Packets of study materials were mailed to the prospective new study participants as described previously. Seven of the additional 60 potential study participants returned the survey tools (11.7%). Participant recruitment was halted after the second mailing to the LPN group because the season had changed from summer to fall and it was felt any additional LPN respondents would skew the homogeneity of the primary and secondary LPN respondents. The final LPN sample size was 75 respondents (14.0%). Survey packets from both study groups returned to this researcher as ‘undeliverable’ and ‘moved and left no forwarding address’ numbered 34 (3.4%). LPN and LPNs who had attained RN licensure study participants who returned incomplete surveys comprised less than 5% of study respondents. The partial data provided on these incomplete surveys were included in the data analysis.
**Participant Retention.** Retention was less of an obstacle because the cross-sectional design only required the study participants to complete one survey mailing. Steps were taken to maximize the benefit and minimize the burden to participants. It was expected that the study participants would want to hear about the outcomes of the research study, so everyone was given the option of providing contact information so a summary of the study could be mailed or emailed to them. Providing personalized feedback and attention to the study participants and communicating clearly, honestly and unhurried at all times were strategies utilized in this research undertaking.

**Instrumentation Description, Reliability, and Validity Psychometric Properties of Instruments.** This study used a descriptive cross-sectional correlational design. For specific aim 1, a demographic questionnaire was designed by the investigator and evaluated for content validity by a literature review of similar demographic questions and by an expert panel review composed of members of the dissertation committee. The categorical scaling for the items consists of (1) gender (male or female), (2) age (years), (3) ethnicity (White, Black, Hispanic, American/Alaskan Indian, Asian & Pacific Islander, or all other races), and (4) years employed as an LPN (years worked under an LPN license). Gender, age, and ethnicity were elicited to compare study participants’ answers against Pierce County statistics for gender, age, and ethnicity. Years worked as an LPN was chosen to compare study participants’ answers against national statistics that report LPNs work and average of seven years before pursuing RN licensure (Goodwin-Esola & Gallagher-Ford, 2009).

Two questionnaires were needed to answer specific aim 2. These instruments are now described.
**General Self-Efficacy Scale.** The General Self-Efficacy Scale (GSE) measures the ordinal value of perceived self-efficacy. The scale was designed for the general adult population. Ten items were designed to tap the construct of perceived self-efficacy. Each item refers to successful coping and implies an internal-stable attribution of success (Schwarzer, 1992). The scale is usually self-administered. It requires an average of 4 minutes to complete. Scored responses are made on a 4 point Likert-type scale. Summing the responses to all 10 items yields the final composite score with a range from 10 to 40. There is no reversal of items. The higher the scored result, the better perceived self-efficacy the respondent possesses.

The GSE is both valid and reliable. In samples from 23 countries, Cronbach’s alpha’s range from 0.76 to 0.90, with the majority in the high 0.80s. An alpha of 0.60 is considered acceptable for a standardized questionnaire (Portney & Watkins, 2000). The scale is unidimensional (Schwarzer, 1992). Criterion-related validity is documented in numerous correlation studies where positive co-efficients were found with favorable emotions, dispositional optimism and work satisfaction. Negative co-efficients were found with depression, anxiety, stress, burnout and health complaints (Schwarzer, 1992).

The GSE has strengths and weaknesses. The measure has been used internationally with success for two decades. It is suitable for a broad range of applications. It can be taken to predict adaptation after life changes, but it is also suitable as an indicator of quality of life at any point in time (Schwarzer, 1992). This could be applicable for the LPN returning to school to pursue RN licensure. On the other hand, as a general measurement instrument, the GSE does not tap specific behavior changes. Therefore, in most applications it would be necessary to add a few items to cover the particular data content of the survey or intervention. In this research study
a second self-efficacy scale was administered to tap career decision self-efficacy and academic confidence factors.

**Career Decision-Making Self-Efficacy Scale.** Betz and Taylor developed the Career Decision Making Self-Efficacy Scale during 1983-1984. However, due to the trademarking of the term “Career Decision Making” by Harrington and O’Shea and their firm, Career Planning Associates, Inc., that term can no longer be use (Betz & Taylor, 2001). Therefore, the scale described here is now known as the Career Decision Self-Efficacy Scale (CDSE). This instrument measures “an individual’s degree of belief that he/she can successfully complete tasks necessary to making career decision,” (Betz & Taylor, 2006, p.6).

“The scale was developed for group administration to college students, and has as its foundation Bandura’s sources of information regarding the concept of self-efficacy expectation.” (Benish, 1999, p.27). The 50 item scale measures self-efficacy utilizing Crites’s (1978) Career Choice Competencies as subscales (Self appraisal, Occupational information, Goal selection, Planning, and Problem solving).

In the original version, self-efficacy expectations with regard to career decision tasks were assessed by requesting the respondent indicate their ability to successfully complete each task. The CDSE was initially standardized with the administration of the instrument to 346 Midwest college students; 128 males and 218 females. Internal consistency reliability coefficient alpha ranged from .86 to .89 for the subscales and .97 for the total score (Taylor & Betz, 1983). Luzzo (1993) reported comparable levels of internal consistency with a total scale alpha of .93. Reliability and validity of the instrument scores, including factor analysis are reported by Benish (1999). Research indicates that career decision making self-efficacy is
related to other indices of adaptive career decision making. For example, there is ample evidence that career decision making self-efficacy is inversely related to career indecision (e.g., Bergeron & Romano, 1994; Betz, Klein, & Taylor, 1996; Taylor & Popma, 1990). Career decision making self-efficacy has also been shown to be related to high versus low vocational identity (Robbins, 1985), more adaptive career beliefs (Luzzo & Day, 1999), fear of career commitment (Betz & Serling, 1993), and career exploratory behavior (Blustein, 1989). Peterson (1993a, 1993b) found that career decision making self-efficacy was related to academic persistence versus dropout in under-prepared college students and that it surpassed all other variables as a predictor of academic and social integration of college students. Other studies have suggested that career decision making self-efficacy can be increased through verbal persuasion, one of Bandura's postulated four sources of efficacy information (Luzzo & Taylor, 1994) and through attributional retraining (Luzzo, Funk, & Strang, 1996).

“Because the original CDSE was 50 items, a shorter version which could be easily used in counseling assessment and as a pre-post measure for the evaluation of career interventions was thought to be desirable” (Betz & Taylor, 2006, p.8). For the purpose of this study, the 25 item Career Decision Self-Efficacy – Short Form (CDSE-SF) was utilized. The CDSE-SF was created from the 50 item CDSE by eliminating five of the ten items meeting the fewest criteria from each of the five CDSE subscales. The subscales are labeled as self appraisal (items 5, 9, 14, 18, 22), occupational information (items 1, 10, 15, 19, 23), goal selection (items 2, 6, 11, 16, 20), planning (items 3, 7, 12 21, 24), and problem solving (items 4, 8, 13, 17, 25).

The CDSE-SF has a response scale using a 5 level confidence continuum, ranging from 1 (no confidence at all) to 5 (complete confidence). Subscale mean scores are computed by summing the responses to each scale’s items, ranging from 5 to 25 and dividing by the number of
statements. The total mean score is the sum of the five subscale scores, ranging from 25 to 125 and dividing by the number of statements. The current study used the five subscale mean scores to examine the specific aims and only reported the total mean score as a means to compare this value with other psychometric reports in the literature. The internal consistency reliability of the subscales and total instrument were also examined using Cronbach’s alpha.

The initial empirical trial of the CDSE-SF provided coefficient alpha values for the subscales of .73 (Self Appraisal), .78 (Occupational Information), .83 (Goal Selection), .81 (Planning), and .75 (Problem Solving) (Betz, et al., 1996). The coefficient alpha value for the total scale was .94, almost as high as the .97 value on the 50 item scale. A test-retest reliability coefficient at six months was reported to be .83 (Betz & Taylor, 2001). In a subsequent study, CDSE-SF reliabilities ranged from .69 (Problem Solving) to .83 (Goal Selection) for the subscales and .93 for the total score (Betz & Klein Voyten, 1997).

There is evidence that the five-level response continuum provides reliable assessment. Values of alpha in two studies which used the five point continuum (Paulsen 2001; Smith 2001) were: Self-Appraisal (.81 and 81), Occupational Information (.82 and .82), Goal Selection (.84 and .87), Planning (.82 and .84), and Problem Solving (.80 and .81). The total 25 item alpha was .95.

For the purposes of this study, the confidence levels, 1, 2, 3, 4, and 5, are clarified as follows: (1) No Confidence At All – None; (2) Very Little Confidence – Feel slightly better than no confidence; (3) Moderate Confidence – Feel fair about my ability, but don’t have any overwhelming strong or weak feelings; (4) Much Confidence – Feel pretty good about my ability, and; (5) Complete Confidence – Feel totally assured in my ability. These definitions will
be provided to study participants on the questionnaire prior to the beginning of the CDSE-SF in order to assist respondents in formulating their answers. The descriptions for the confidence levels were developed using commonly accepted definitions provided in a dictionary and a thesaurus (Barnhart & Barnhart, 1979; Chapman, 1977).

Evidence of concurrent validity was provided by significant correlations with Osipow, Carney, and Barak’s (1976; Osipow 1987) Career Decision Scale (CDS). In the original study (Taylor & Bets, 1983), statistically significant correlations of the CDSE with the CDS ranged from -.29 with the Problem Solving subscale to -.48 with Goal Selection; the correlations between the total CDSE and CDS scores was -.40. Robbins (1985) also reported statistically significant correlations between CDSE scores and scores on Holland, Daiger and Power’s (1980) My Vocational Situation (MVS) questionnaire; values ranged from .28 (Planning) to .40 (Goal Setting).

The GSE scale and CDSE-SF© were also used to address specific aim 3. Several studies have shown CDSE scores to be related to behavioral indicators of educational and career adjustment (Betz & Taylor, 2006). Taylor and Popma (1990) reported that the CDSE significantly differentiated three groups of students categorized on the basis of college major status: declared majors; tentative major choices; and undecided major choices.

Research by Blustein (1989) also provided evidence of the relationship between career decision self-efficacy and career exploration behavior. Results suggested that career decision self-efficacy emerged as a prominent predictor of exploratory career activity. Peterson (1993) examined CDSE as a predictor of academic and social integration which were postulated to be related to academic persistence (retention) versus departure. Using a sample of 678 under-
prepared college students, Peterson reported that CDSE scores surpassed all other variables as predictors of overall and academic integration, explaining 18% of the variance of each. Because of the strength of her findings, Peterson (1993) suggested that interventions designed to increase career decision self-efficacy should be strongly considered in programs to increase student retention.

**Data Analysis**

Three months was allocated for organizing the data and entering it into the Statistical Package for the Social Science (SPSS) Graduate Pack 16.0 system (SPSS, Chicago, IL). A plan was developed to set aside six months to analyze the data, interpret the findings, and finalize the writing of the dissertation. There were three specific aims that guided this study and the analysis of the findings

**Specific Aim 1.** To describe the demographic characteristics of LPNs who graduate from RN programs and LPNs who do not pursue RN education. The descriptive statistics of frequencies, percentages, means, and standard deviations were used to describe the demographic variables of the survey respondents. Additionally, multiple regression was expected to be used to establish the predictive relationship between demographic variables and self-efficacy scores.

**Specific Aim 2.** To compare the scores on the General Self-Efficacy (GSE) scale and the Career Decision Self-Efficacy – Short Form © 2001 (CDSE-SF) scale reported by LPNs who have attained RN licensure with the scores from LPNs who have not pursued RN education. The GSE scores were calculated by summing the total score and determining the mean for each group. The scores for the CDSE-SF© were calculated by summing the score for each particular subscale and determining the mean scores for the subscales for each group. The following scale
(Betz, 2006) was used as a guide for the interpretation of the mean responses in this study to coincide with the five response categories provided to the respondents:

- **1.00 - 1.50** No confidence
- **1.51 - 2.50** Very little confidence
- **2.51 - 3.50** Moderate confidence
- **3.51 - 4.50** Much confidence
- **4.51 - 5.00** Complete confidence

The research hypotheses stated LPNs who have attained RN licensure would have higher GSE and CDSE-SF scores when compared to LPNs who had not attained RN licensure. The null hypotheses that were statistically tested for this study were that there was no statistically significant difference between GSE and CDSE-SF scores for LPNs who attain RN licensure and LPNs who did not attain RN licensure.

The analysis was completed by utilizing an independent *t*-test, the *chi-square* test and Spearman’s *rho* correlation co-efficient. A scale first proposed by Davis in 1971 and reported by Hinkle, Wiersma and Jurs (1988), was used to evaluate the strength of the correlations and positive or negative direction of the relationship (p.118). The scale is as follows:

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>± 0.90 to ± 1.00</td>
<td>Very high positive (negative) correlation</td>
</tr>
<tr>
<td>± 0.70 to ± 0.90</td>
<td>High positive (negative) correlation</td>
</tr>
<tr>
<td>± 0.50 to ± 0.70</td>
<td>Moderate positive (negative) correlation</td>
</tr>
</tbody>
</table>
Low positive (negative) correlation

Little, if any correlation

Specific Aim 3. To determine if GSE and CDSE-SF scores can predict which LPNs attain RN licensure and which LPNs do not attain RN licensure, logistic regression analysis was used to determine which, if any, self-efficacy scores predicted LPNs’ attainment of RN licensure or choice not to pursue RN education. The likelihood of the predicted outcome was based on the odds that general self-efficacy and career decision self-efficacy determined an LPNs attainment of RN licensure where \( Z \) was the mean self-efficacy score, \( a \) was the regression constant, and \( b \) were the regression coefficients of the GSE summed total score and the CDSE-SF© subscale categories of Self Appraisal, Occupation Information, Goal Selection, Planning and Problem Solving of the study respondents.

Human Subjects Review

Applications to the Institutional Review Board (IRB) were submitted to Washington State University (WSU). The risk to study participants was minimal; the probability and magnitude of harm or discomfort anticipated in the proposed research was not greater than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. Dr. Margaret Bruya was the primary investigator. Risks to research participants were minimized by using procedures which were consistent with sound research design and which did not unnecessarily expose the research participants to risk. There were no direct benefits to study participants. However, the participants that choose to receive a report of the study findings eventually learned about the role that self-efficacy expectancies play in career progression. Society could benefit by the knowledge to be gained.
Study participants were provided full disclosure of the research purpose. Return of the survey tools provided implied consent from the study participants. Study participants anonymously completed the GSE and CDSE-SF© scales. The survey questions did not address sensitive, illicit, or illegal behaviors. Demographic variables of gender, age, ethnicity, and years employed as an LPN were included on each GSE and CDSE-SF© survey forms. Each study participant was given the option of providing contact information so a summary of the study could be mailed or emailed to them.
CHAPTER FOUR

RESULTS

Introduction

Studies of general self-efficacy and career decision self-efficacy have been used successfully in the academic settings of mathematics, engineering, science and computer usage (Decker 1998; Pajares & Miller 1995; Hackett, Betz, Casas & Rocha-Singe 1993; Lent, Brown & Larkin 1984, 1986). However, studies of how general self-efficacy and career decision self-efficacy affect educational mobility in nursing are absent. Also unknown is the potential relationship between general self-efficacy and career decisions self-efficacy as a factor that may predict LPNs more likely to attain RN licensure. This research study examined the General Self-Efficacy scores and Career Decision Self-Efficacy scores among licensed LPNs and LPNs who have attained RN licensure residing in Pierce County, Washington. By illuminating the relationship between self-efficacy of LPNs and the attainment of RN licensure, it may be possible to predict which LPNs are more likely to attain RN licensure. Improvements in the ability to accurately predict successful attainment of RN licensure by LPNs may increase the number of LPNs attaining RN licensure. This could be a useful strategy to ease the RN shortage.

Sample Description

The GSE and CDSE-SF© survey tools were mailed to LPNs and LPNs who had attained RN licensure residing in Pierce County, Washington. After an initial mailing to 475 LPNs and a second mailing to 60 LPNs, a sum total of 75 LPN surveys were returned from the total mailing of 535 surveys (14%). A total of 107 surveys from LPNs who had attained RN licensure were returned to from the initial mailing of 475 survey tools (22.5%). Although some returned surveys
were not fully completed, they were included in the data analysis because they comprised less than five percent of the total response percentage. Data collection was completed in ten weeks.

**Instrument Reliability**

Instrument reliability for the GSE scale was established for this study. The reliability analysis yielded a Cronbach Coefficient Alpha of .857 for the LPN respondents and .836 for the LPNs who attained RN licensure group. This is comparable to the Cronbach Coefficient Alphas of .760 to .900 obtained from the preliminary psychometric analysis of the GSE scale (Schwarzer, 1992).

Instrument reliability for the CDSE-SF© was also established for this study. The reliability analysis of the LPNs provided a Cronbach Coefficient Alpha for the total score and for each of the subscale categories. The total scale revealed an alpha value of .950, slightly higher than the alpha value of .940 found in the Betz, Klein and Taylor (1996) empirical trial of the instrument. For the Self Appraisal subscale, an alpha value .827 was found slightly higher than the alpha of .78 found by Betz, Klein and Taylor (1996). The Occupation Information subscale for this study was calculated at .777 in comparison to .73 (Betz et al., 1996). For the Goal Selection subscale, an alpha value of .804 was similar to the .83 reported by Betz and colleagues (1996). The Planning subscale provided an alpha coefficient of .775, lower than the .81 found by Betz et al. (1996), The Problem Solving subscale provided a higher alpha value, .817, than the .75 reported by Betz et al (1996).

The reliability analysis of the LPNs who had attained RN licensure provided a Cronbach Coefficient Alpha for the total score and for each of the subscale categories. The total scale revealed an alpha value of .942, similar to the alpha value of .940 found in the Betz, Klein and
Taylor (1996) empirical trial of the instrument. For the **Self Appraisal** subscale, an alpha value .770 was found to be similar to the alpha value .78, found by Betz, Klein and Taylor’s (1996).

The **Occupation Information** subscale for this study was calculated at .778 in comparison to .73 (Betz et al., 1996). For the **Goal Selection** subscale, an alpha value of .778, lower the .83 reported by Betz and colleagues (1996). The **Planning** subscale provided an alpha coefficient of .781, lower than the .81 found by Betz et al. (1996). The **Problem Solving** subscale provided a higher alpha value, .817 than the .75 reported by Betz et al (1996).

**Quantitative Findings**

**Specific Aim 1. To describe the demographic characteristics of LPNs who graduate from RN programs and LPNs who do not pursue RN education.**

The demographic variables of age, gender, ethnicity and years worked as an LPN were explored for both study groups. For each demographic variable, the number of participants who identified themselves as belonging to each group is described.

**Gender.** The majority (n=62 or 82.7%) of the respondents in the LPN group were female. Four respondents were male and one identified themselves as transgender. Eight respondents did not indicate gender. The majority (n=95 or 88.8%) of the respondents in the LPNs who had attained RN licensure group were also female. Nine respondents were male and three respondents did not indicate gender.

**Age.** Table 4.1 indicates the age reported by the respondents. Years of age for the LPN group ranged from 28 to 65 ($M = 44.52$, $SD = 10.08$, $Mdn = 46.0$). The majority of the LPNs (n = 25 or 33.3%) indicated that they were 40 to 49 years of age. Years of age for the LPNs who had attained RN licensure group ranged from 25 to 67 ($M = 47.38$, $SD = 10.309$, $Mdn = 50.0$).
The majority of the LPNs who had attained RN licensure (n = 47 or 44.0%) indicated that they were 50 to 59 years of age.

Table 4.1

*Age group categories for study respondents (LPN=75; LPNs who attained RN licensure=107)*

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPN 20 – 29 years</td>
<td>2</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>LPN-to-RN 20 – 29 years</td>
<td>8</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>LPN 30 – 39 years</td>
<td>21</td>
<td>29.3</td>
<td>32.0</td>
</tr>
<tr>
<td>LPN-to-RN 30 – 39 years</td>
<td>18</td>
<td>16.8</td>
<td>24.3</td>
</tr>
<tr>
<td>LPN 40 – 49 years</td>
<td>25</td>
<td>33.3</td>
<td>65.3</td>
</tr>
<tr>
<td>LPN-to-RN 40 – 49 years</td>
<td>24</td>
<td>22.4</td>
<td>46.7</td>
</tr>
<tr>
<td>LPN 50 – 59 years</td>
<td>22</td>
<td>29.4</td>
<td>94.7</td>
</tr>
<tr>
<td>LPN-to-RN 50 – 59 years</td>
<td>47</td>
<td>44.0</td>
<td>90.7</td>
</tr>
</tbody>
</table>

**Ethnicity.** The ethnic composition of the LPN respondent group was predominantly white (n = 59 or 78.7%). Black respondents accounted for seven or 9.3% of respondents. The remaining respondents (n = 8 or 10.6%) were distributed across American/Alaskan Native (n = 1 or 1.3%), Asian & Pacific Islander (n = 1 or 1.3%) and All Other Races (n = 6 or 8.0%). There were no LPN respondents who identified themselves as Hispanic. One respondent did not indicate ethnicity. The ethnic composition of the LPNs who had attained RN licensure group
was also predominantly white (n = 91 or 85.0%). Black respondents accounted for eight or 7.5% of respondents. The remaining respondents (n = 7 or 6.6%) were distributed across Hispanic (n = 1 or .9%), American/Alaskan Native (n = 1 or .9%) and Asian & Pacific Islander (n = 5 or 4.7%). There were no LPNs who had attained RN licensure who identified themselves as All Other Races. One respondent did not indicate ethnicity. The distribution of ethnicity of the study respondents is compared to national percentages and Washington state percentages and is displayed on the following page in Table 4.2.
Table 4.2

Ethnicity of study participants (LPN=75; LPN who attained RN licensure=107) and comparisons with national and State data

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Study Percent</th>
<th>National Percent</th>
<th>Washington Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPN</td>
<td>White</td>
<td>78.7</td>
<td>67.0</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>White</td>
<td>85.0</td>
<td>89.0</td>
</tr>
<tr>
<td>LPN</td>
<td>Black</td>
<td>9.3</td>
<td>26.0</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Black</td>
<td>7.5</td>
<td>4.2</td>
</tr>
<tr>
<td>LPN</td>
<td>Hispanic</td>
<td>0.0</td>
<td>3.0</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Hispanic</td>
<td>0.9</td>
<td>1.7</td>
</tr>
<tr>
<td>LPN</td>
<td>American/Alaskan Native</td>
<td>1.3</td>
<td>Unknown</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>American/Alaskan Native</td>
<td>0.9</td>
<td>0.3</td>
</tr>
<tr>
<td>LPN</td>
<td>Asian &amp; Pacific Islander</td>
<td>1.3</td>
<td>3.0</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Asian &amp; Pacific Islander</td>
<td>4.7</td>
<td>3.1</td>
</tr>
<tr>
<td>LPN</td>
<td>All other races</td>
<td>8.0</td>
<td>Unknown</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>All other races</td>
<td>0.0</td>
<td>1.4</td>
</tr>
<tr>
<td>LPN</td>
<td>Missing/Did not identify</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Missing/Did not identify</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>
Years Worked as an LPN. Years worked as an LPN ranged from zero to 44 ($M = 18.59$, SD 9.802, $Mdn = 17.0$). There was no missing data. The years worked by LPNs who had attained RN licensure ranged from zero to 44 ($M = 5.69$, SD 5.845, $Mdn = 4.0$). There was no missing data. Table 4.3 on the following page indicates the number of years worked as an LPN.
Table 4.3
*Years worked as an LPN categories for study respondents (LPN=75; LPNs who attained RN licensure=107)*

<table>
<thead>
<tr>
<th>Years Worked Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPN 0 - 5 years</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>LPN-to-RN 0 – 5 years</td>
<td>69</td>
<td>64.5</td>
</tr>
<tr>
<td>LPN 6 – 10 years</td>
<td>14</td>
<td>18.6</td>
</tr>
<tr>
<td>LPN-to-RN 6 – 10 years</td>
<td>21</td>
<td>19.6</td>
</tr>
<tr>
<td>LPN 11 – 15 years</td>
<td>13</td>
<td>17.4</td>
</tr>
<tr>
<td>LPN-to-RN 11 – 15 years</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>LPN 16 – 20 years</td>
<td>13</td>
<td>17.4</td>
</tr>
<tr>
<td>LPN-to-RN 16 – 20 years</td>
<td>6</td>
<td>5.7</td>
</tr>
<tr>
<td>LPN 21 – 25 years</td>
<td>9</td>
<td>12.0</td>
</tr>
<tr>
<td>LPN-to-RN 21 – 25 years</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>LPN 26 – 30 years</td>
<td>13</td>
<td>17.4</td>
</tr>
<tr>
<td>LPN-to-RN 26 – 30 years</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>LPN &gt; 30 years</td>
<td>8</td>
<td>10.5</td>
</tr>
<tr>
<td>LPN-to-RN &gt; 30 years</td>
<td>2</td>
<td>1.8</td>
</tr>
</tbody>
</table>
Specific Aim 2. To compare the scores on the General Self-Efficacy (GSE) scale and the Career Decision Self-Efficacy – Short Form© (CDSE-SF©) scale reported by LPNs who have attained RN licensure with the scores from LPNs who have not pursued RN education.

The second aim of this study was to determine and compare the GSE scores and the CDSE-SF© scores of LPNs and LPNs who had attained RN licensure residing in Pierce County, Washington. The GSE scores were calculated by summing the ten item responses. Final composite scores of the LPN group ranged from 22 to 40 ($M = 33.69, SD = 3.691, Mdn = 34.00$). Final composite scores for the LPN group who attained RN licensure ranged from 25 to 40 ($M = 34.38, SD = 3.698, Mdn = 34.00$). Table 4.4 describes the $M$ for the ten individual questions of the GSE scale for both the LPN group and the LPNs who have attained RN licensure group participants.

Table 4.4

Mean scores for individual questions on the GSE by study participants (LPN=75; LPN who attained RN licensure=107)

<table>
<thead>
<tr>
<th>GSE Question Number</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPN</td>
<td>1</td>
<td>3.53</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>1</td>
<td>3.53</td>
</tr>
<tr>
<td>LPN</td>
<td>2</td>
<td>2.87</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>2</td>
<td>2.90</td>
</tr>
<tr>
<td>LPN</td>
<td>3</td>
<td>3.16</td>
</tr>
<tr>
<td>--------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>3</td>
<td>3.37</td>
</tr>
<tr>
<td>LPN</td>
<td>4</td>
<td>3.35</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>4</td>
<td>3.47</td>
</tr>
<tr>
<td>LPN</td>
<td>5</td>
<td>3.40</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>5</td>
<td>3.43</td>
</tr>
<tr>
<td>LPN</td>
<td>6</td>
<td>3.61</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>6</td>
<td>3.71</td>
</tr>
<tr>
<td>LPN</td>
<td>7</td>
<td>3.40</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>7</td>
<td>3.50</td>
</tr>
<tr>
<td>LPN</td>
<td>8</td>
<td>3.41</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>8</td>
<td>3.46</td>
</tr>
<tr>
<td>LPN</td>
<td>9</td>
<td>3.41</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>9</td>
<td>3.54</td>
</tr>
<tr>
<td>LPN</td>
<td>10</td>
<td>3.55</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>10</td>
<td>3.53</td>
</tr>
</tbody>
</table>

An independent-samples *t* test was calculated comparing the mean GSE total score of the participants who identified themselves as LPNs to the mean GSE total score of participants who
identified themselves as LPNs who had attained RN licensure. No significant difference was found ($t(180) = -1.204$, $p > .05$). The mean of the LPNs ($M = 33.69$, $SD = 3.691$) was not significantly different from the mean of the LPNs who had attained RN licensure ($M = 34.36$, $SD = 3.687$). The $p$ value for the independent-samples $t$ test was .230, indicating that 23% of the variation in GSE total mean scores between LPN respondents and LPNs who had attained RN licensure respondents could be attributed to chance.

The CDSE-SF© scores were calculated by summing the 25 item responses to obtain a total score and by independently summing the scores on the five subscales. Final total scores for the CDSE-SF© for the LPN group ranged from 53 to 125 ($M = 97.61$, $SD = 15.618$, $Mdn = 100.00$). Final composite scores for the LPNs who attained RN licensure group ranged from 75 to 125 ($M = 103.48$, $SD = 18.734$ and $Mdn = 107.00$).

An independent-samples $t$ test was calculated comparing the mean CDSE-SF© total score of the participants who identified themselves as LPNs to the mean CDSE-SF© total score of participants who identified themselves as LPNs who had attained RN licensure and found a significant difference between the means of the two groups ($t(180) = -2.176$, $p < .05$). The mean of the LPNs ($M = 97.61$, $SD = 15.618$) was significantly lower than the mean of the LPNs who had attained RN licensure ($M = 103.34$, $SD = 18.643$). The $p$ value for the independent-samples $t$ test was .031, indicating that 3% of the variation in CDSE-SF© total mean scores between LPN respondents and LPNs who had attained RN licensure respondents could be attributed to chance.

The following scale (Betz, 2006) was used as a guide for interpretation of the responses in this study to coincide with the five response categories provided to the respondents:
Overall mean scores on the individual subscales of the CDSE-SF© scale for the LPN group are as follows: Self appraisal ($M = 4.09$, $SD = .65777$, Much confidence), Occupational information ($M = 4.06$, $SD = .67700$, Much confidence), Goal selection ($M = 4.01$, $SD = .71119$, Much confidence), Planning ($M = 3.90$, $SD = .67679$, Much confidence) and Problem solving ($M = 3.77$, $SD .76046$, Much confidence). Overall mean scores on the combined subscales for the LPNs was 3.96 (Much confidence). Overall mean scores on the individual subscales of the LPNs who attained RN licensure group are as follows: Self appraisal ($M = 4.31$, $SD = .53749$, Much confidence), Occupational information ($M = 4.37$, $SD = .57149$, Much confidence), Goal selection ($M = 4.27$, $SD = .61312$, Much confidence), Planning ($M = 4.25$, $SD = .59830$, Much confidence) and Problem solving ($M = 4.09$, $SD = .645.72$, Much confidence). Overall mean scores on the combined subscales for the LPNs who attained RN licensure group was 4.26 (Much confidence). The mean total subscale scores for both the LPNs and the LPNs who attained RN licensure respondents in this study each indicated that they had ‘much confidence’ in their abilities to make career related decisions, although the LPN respondents overall mean score was 0.3 points lower than the LPNs who attained RN licensure respondents. Mean scores for each subscale category on the CDSE-SF© for LPN respondents and LPNs who attained RN licensure respondents are presented on the following page in Table 4.5.
Table 4.5

*Mean scores for each subscale category on the CDSE-SF© and independent samples t test p values for the study participants (LPN=75; LPN who attained RN licensure=107)*

<table>
<thead>
<tr>
<th>CDSE-SF© Subscale category</th>
<th>Mean</th>
<th>SD</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPN Self Appraisal</td>
<td>4.09</td>
<td>.65777</td>
<td>.016</td>
</tr>
<tr>
<td>LPN-to-RN Self Appraisal</td>
<td>4.31</td>
<td>.53749</td>
<td>.016</td>
</tr>
<tr>
<td>LPN Occupational Information</td>
<td>4.06</td>
<td>.67700</td>
<td>.001</td>
</tr>
<tr>
<td>LPN-to-RN Occupational Information</td>
<td>4.37</td>
<td>.57149</td>
<td>.001</td>
</tr>
<tr>
<td>LPN Goal Selection</td>
<td>4.01</td>
<td>.71119</td>
<td>.019</td>
</tr>
<tr>
<td>LPN-to-RN Goal Selection</td>
<td>4.27</td>
<td>.61312</td>
<td>.019</td>
</tr>
<tr>
<td>LPN Planning</td>
<td>3.90</td>
<td>.67679</td>
<td>.000</td>
</tr>
<tr>
<td>LPN-to-RN Planning</td>
<td>4.25</td>
<td>.59830</td>
<td>.000</td>
</tr>
<tr>
<td>LPN Problem Solving</td>
<td>3.77</td>
<td>.76046</td>
<td>.002</td>
</tr>
<tr>
<td>LPN-to-RN Problem Solving</td>
<td>4.09</td>
<td>.64572</td>
<td>.002</td>
</tr>
</tbody>
</table>
Given the relative small number of study participants, gender diversity numbers were not large enough to be able to determine if a relationship existed between the GSE total summed scores and the CDSE-SF© totaled summed and subscale scores and the respondents’ gender.

Table 4.6 presents the results of gender and the total summed scores of the GSE and the CDSE-SF© scales for LPNs and LPNs who attained RN licensure.

Table 4.6

*Mean summed scores of the GSE and CDSE-SF© scales for gender categories of study participants (LPN=75; LPN who attained RN licensure-107)*

<table>
<thead>
<tr>
<th>Number</th>
<th>Gender</th>
<th>GSE Mean</th>
<th>GSE SD</th>
<th>CDSE-SF© Mean</th>
<th>CDSE-SF© SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPN</td>
<td>62</td>
<td>33.73</td>
<td>3.773</td>
<td>98.26</td>
<td>15.773</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>95</td>
<td>34.23</td>
<td>3.655</td>
<td>103.09</td>
<td>19.436</td>
</tr>
<tr>
<td>LPN</td>
<td>4</td>
<td>34.25</td>
<td>1.78</td>
<td>91.00</td>
<td>13.540</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>9</td>
<td>36.56</td>
<td>2.506</td>
<td>107.44</td>
<td>10.690</td>
</tr>
</tbody>
</table>

Given the relative small number of study participants, ethnicity diversity numbers were not large enough to be able to determine if a relationship existed between the GSE total summed scores and the CDSE-SF© totaled summed and subscale scores and the respondents’ ethnicity.

Table 4.7 presents the results of ethnicity and the total summed scores of the GSE and the CDSE-SF© scales for LPNs and LPNs who attained RN licensure.
Table 4.7

*Mean summed total scores of the GSE and CDSE-SF© scales for ethnicity categories of study participants (LPN=75; LPN who attained RN licensure=107)*

<table>
<thead>
<tr>
<th>Number</th>
<th>Ethnicity</th>
<th>GSE Mean</th>
<th>GSE SD</th>
<th>CDSE-SF© Mean</th>
<th>CDSE-SF© SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPN</td>
<td>White</td>
<td>33.63</td>
<td>3.939</td>
<td>96.73</td>
<td>16.479</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>White</td>
<td>34.37</td>
<td>3.764</td>
<td>103.28</td>
<td>19.500</td>
</tr>
<tr>
<td>LPN</td>
<td>Black</td>
<td>34.57</td>
<td>3.101</td>
<td>103.00</td>
<td>15.210</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Black</td>
<td>33.00</td>
<td>3.381</td>
<td>101.12</td>
<td>13.902</td>
</tr>
<tr>
<td>LPN</td>
<td>Hispanic</td>
<td>39.00</td>
<td>119.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Hispanic</td>
<td>33.00</td>
<td>3.381</td>
<td>101.12</td>
<td>13.902</td>
</tr>
<tr>
<td>LPN</td>
<td>Am/AK Native</td>
<td>30.00</td>
<td>110.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Am/AK Native</td>
<td>33.00</td>
<td>99.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPN</td>
<td>Asia/Pac Islander</td>
<td>33.00</td>
<td>107.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>Asia/Pac Islander</td>
<td>35.60</td>
<td>108.75</td>
<td>10.905</td>
<td></td>
</tr>
<tr>
<td>LPN</td>
<td>All other races</td>
<td>33.83</td>
<td>2.401</td>
<td>94.83</td>
<td>7.574</td>
</tr>
<tr>
<td>LPN-to-RN</td>
<td>All other races</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Spearman correlation coefficients were computed to determine the strength of the relationship between the five subscale categories of the CDSE-SF© scale. An interpretive scale first proposed by Davis in 1971 and reported by Hinkle, Wiersma and Jurs (1988), was used to evaluate the strength of the correlations and positive or negative direction of the relationship (p.118). The scale is as follows:

<table>
<thead>
<tr>
<th>Correlation:</th>
<th>Interpretation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>± 0.90 to ± 1.00</td>
<td>Very high positive (negative) correlation</td>
</tr>
<tr>
<td>± 0.70 to ± 0.90</td>
<td>High positive (negative) correlation</td>
</tr>
<tr>
<td>± 0.50 to ± 0.70</td>
<td>Moderate positive (negative) correlation</td>
</tr>
<tr>
<td>±0.30 to ± 0.50</td>
<td>Low positive (negative) correlation</td>
</tr>
<tr>
<td>±0.00 to ± 0.30</td>
<td>Little, if any correlation</td>
</tr>
</tbody>
</table>

Table 4.8 on the following page illustrates Spearman rho correlation coefficients for the five subscale category findings for the CDSE-SF© results of the study participants.
Table 4.8

Spearman rho correlation coefficients for the CDSE-SF© subscale categories of the study participants: Self appraisal (SA), Occupational Information (OI), Goal Planning (GP), Planning (P), Problem Solving (PS) (LPN=75; LPN who had attained RN licensure=107)

<table>
<thead>
<tr>
<th>Subscale category &amp; Participant</th>
<th>SA</th>
<th>OI</th>
<th>GP</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA LPN</td>
<td>.668</td>
<td>.873</td>
<td>.707</td>
<td>.798</td>
</tr>
<tr>
<td>SA RN</td>
<td>.607</td>
<td>.762</td>
<td>.676</td>
<td>.668</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>OI LPN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OI RN</td>
<td>.603</td>
<td>.621</td>
<td>.648</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>GP LPN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP RN</td>
<td>.651</td>
<td>.672</td>
<td></td>
<td></td>
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<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P LPN</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>P RN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

71
A Spearman rho correlation coefficient was calculated for the relationship between the CDSE-SF© subscale categories for LPN participants. Correlations were significant at the .01 level (2-tailed). High positive correlations were found between Self Appraisal and Goal Planning ($\rho(73) = .873$, $p < .01$), Self Appraisal and Planning ($\rho(73) = .707$, $p < .01$), Self Appraisal and Problem Solving ($\rho(73) = .798$, $p < .01$), Occupational Information and Goal Planning ($\rho(73) = .701$, $p < .01$), Goal Planning and Problem Solving ($\rho(73) = .780$, $p < .01$), and Planning and Problem Solving ($\rho(73) = .729$, $p < .01$). Moderate positive correlations were found between Self Appraisal and Occupational Information ($\rho(73) = .668$, $p < .01$), Occupational Information and Planning ($\rho(73) = .695$, $p < .01$), Occupational Information and Problem Solving ($\rho(73) = .663$, $p < .01$), and Goal Planning and Planning ($\rho(73) = .696$, $p < .01$).

A Spearman rho correlation coefficient was calculated for the relationship between the CDSE-SF© subscale categories for LPNs who had attained RN licensure participants. Correlations were significant at the .01 level (2-tailed). High positive correlations were found between Self Appraisal and Goal Planning ($\rho(105) = .762$, $p < .01$) and Planning Problem Solving ($\rho(105) = .720$, $p < .01$). Moderate positive correlations were found between Self Appraisal and Occupational Information ($\rho(105) = .607$, $p < .01$), Self Appraisal and Planning ($\rho(105) = .676$, $p < .01$), Self Appraisal and Problem Solving ($\rho(105) = .668$, $p < .01$), Occupational Information and Goal Planning ($\rho(105) = .603$, $p < .01$), Occupational Information and Planning ($\rho(105) = .621$, $p < .01$), Occupational Information and Problem Solving ($\rho(105) = .648$, $p < .01$), Goal Planning and Planning ($\rho(105) = .651$, $p < .01$), and Goal Planning and Problem Solving ($\rho(105) = .672$, $p < .01$).
Research hypothesis 2.1: LPNs who have attained RN licensure will have higher GSE scores when compared to LPNs who have not attained RN licensure was proven in this study. The summed GSE scores of the LPNs (33.69) were lower than the LPNs who had attained RN licensure (34.38).

Statistical null hypothesis 2.1: There is no statistically significant difference between GSE and scores for LPNs who attain RN licensure and LPNs who do not attain RN licensure was rejected in this study. The p-value of the GSE total score (.230) was greater than an alpha of .05, so the null hypothesis related to GSE total scores failed to be rejected.

Research hypothesis 2.2: LPNs who have attained RN licensure will have higher CDSE-SF© scores when compared to LPNs who have not attained RN licensure was proven in this study. The total CDSE-SF© scores of the LPNs (97.61) were lower than the LPNs who had attained RN licensure (103.48). Additionally, the mean score for each of the CDSE-SF© subscale categories for the LPNs were lower than the LPNs who had attained RN licensure. Refer to table 4.5 for CDSE-SF© subscale category mean results.

Statistical null hypothesis 2.2: There is statistically significant difference between CDSE-SF© scores for LPNs who attain RN licensure and LPNs who do not attain RN licensure was rejected in this study. The p-value of the CDSE-SF© total score (.031) and subscale categories (Self appraisal, .016; Occupational information, .001; Goal selection, .019; Planning, .000; Problem solving, .002) were all less than an alpha of .05. Since the probability of error is <.05 this research rejects the null hypothesis of no difference and conclude there is a significant difference between mean CDSE-SF© total and subscale category scores of LPNs and LPNs who have attained RN licensure.
Specific Aim 3. To determine if GSE and CDSE-SF© scores can predict which LPNs attain RN licensure and which LPNs do not pursue RN education.

The dichotomous dependent variable of nursing licensure was coded as a 0 if the respondent identified their nursing licensure as LPN and a 1 if the respondent identified their nursing licensure as RN. The logistic regression model was used to estimate the factors which influence LPNs’ attainment of RN licensure. Logistic regression determines the impact of multiple independent variables presented simultaneously to predict membership of one or other of the dichotomous dependent variables. Overall evaluation for the utility of the logistic regression model for this study indicated that all four requirements were satisfied (overall model; goodness-of-fit; statistical tests on each predictor; validations of predicted probabilities).

Forward and Backward logistic regression were conducted to determine which individual variables (self-appraisal; occupational information; goal selection; planning; problem solving) were predictors of LPNs attaining RN licensure. Stem-and-Leaf Plots diagrams identified the following extreme values for each subscale category of the CDSE-SF©: self-appraisal (1), occupational information (2), goal selection (2), planning (2), and problem solving (0). A preliminary multiple regression was conducted to calculate Mahalanobis distance and examine multicollinearity among the five predictors. Data screening did not necessitate the need to eliminate outliers. Multicollinearity is problematic when independent variables are very highly correlated (tolerance > .80) with each other. Table 4.9 on the following page illustrates coefficient tolerance for the five subscale categories of the CDSE-SF©.
Table 4.9

Coefficient tolerance for all variables exceeds 0.1; multicollinearity is not a problem (LPN=75; LPN who attained RN licensure=107)

<table>
<thead>
<tr>
<th>CDSE-SF© Subscale category</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Appraisal</td>
<td>.243</td>
</tr>
<tr>
<td>Occupational Information</td>
<td>.400</td>
</tr>
<tr>
<td>Goal Selection</td>
<td>.285</td>
</tr>
<tr>
<td>Planning</td>
<td>.320</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>.311</td>
</tr>
</tbody>
</table>

Regression results indicated the overall model fit of four variables (self-appraisal, occupational information, goal selection and problem solving) were questionable (-2 LogLikelihood = 233.585) but were statistically reliable in distinguishing planning (-2 LogLikelihood = 123.325, Goodness of Fit = 13.064) as a predictive variable for LPNs likely to attain RN licensure. The model containing all predictor variables was statistically significant, (5, N=182, p < .05) indicating that the model was able to distinguish between respondents who
reported LPN licensure and respondents who reported RN licensure. Independent $t$-test values for the five predictor variables are reported in Table 4.10.

Table 4.10

*Independent $t$-test for Equality of Means for the five subscale categories of the CDSE-SF© (LPN=75; LPN who had attained RN licensure=107)*

<table>
<thead>
<tr>
<th>CDSE-SF© Subscale category</th>
<th>df</th>
<th>Sig</th>
<th>Mean</th>
<th>Std.Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Appraisal</td>
<td>180</td>
<td>.016</td>
<td>4.2158</td>
<td>.04431</td>
</tr>
<tr>
<td>Occupational Information</td>
<td>180</td>
<td>.001</td>
<td>4.2416</td>
<td>.04694</td>
</tr>
<tr>
<td>Goal Selection</td>
<td>180</td>
<td>.019</td>
<td>4.1522</td>
<td>.04918</td>
</tr>
<tr>
<td>Planning</td>
<td>180</td>
<td>.000</td>
<td>4.1081</td>
<td>.04844</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>180</td>
<td>.002</td>
<td>3.9634</td>
<td>.05279</td>
</tr>
</tbody>
</table>

The model as a whole explained between .069 (Cox and Snell R Square) and .093 (Nagelkerke R Square) of the variance in licensure, and correctly classified 65.9% of all cases indicating moderate accuracy in the classification of respondents. Accurate classification for LPNs was only fair (40.0%). Accurate classification for LPNs who had attained RN licensure was high (84.1%). Only one of the independent variables made a unique statistically significant contribution to the model (planning). The strongest predictor for an LPN to attain RN licensure
was planning, recording an odds ratio of 2.38. The odds of attaining RN licensure is 2.38 times higher for those who planned compared to those who did not. Regression coefficients for all variables in the equation are presented in Table 4.11.

Table 4.11

*Variables in the Equation (LPN=75; LPN who had attained RN licensure=107)*

<table>
<thead>
<tr>
<th>CDSE-SF© Subscale category</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig</th>
<th>Exp(B)/Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Appraisal</td>
<td>-.314</td>
<td>.536</td>
<td>.343</td>
<td>1</td>
<td>.558</td>
<td>.731</td>
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<tr>
<td>Occupational Information</td>
<td>.391</td>
<td>.388</td>
<td>1.019</td>
<td>1</td>
<td>.313</td>
<td>1.479</td>
</tr>
<tr>
<td>Goal Selection</td>
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<td>.451</td>
<td>.006</td>
<td>1</td>
<td>.941</td>
<td>.967</td>
</tr>
<tr>
<td>Planning</td>
<td>.867</td>
<td>.251</td>
<td>11.915</td>
<td>1</td>
<td>.001</td>
<td>2.380</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>.182</td>
<td>.395</td>
<td>.213</td>
<td>1</td>
<td>.645</td>
<td>1.200</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.354</td>
<td>1.246</td>
<td>7.247</td>
<td>1</td>
<td>.007</td>
<td>.035</td>
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</table>
CHAPTER FIVE

DISCUSSION

Introduction

The purposes of this study were: (1) to describe the demographic characteristics of LPNs who graduate from RN programs and LPNs who do not pursue RN education, (2) to compare the scores on the GSE scale and the CDSE-SF© scale reported by PNs who have attained RN licensure with the scores from LPNs who have not pursued RN education, and (3) to determine if GSE and CDSE-SF© scores can predict which LPNs attain RN licensure and which LPNs do not attain RN licensure. This study included LPNs and LPNs who had attained RN licensure residing in Pierce County, Washington.

Discussion of Results

Quantitative Data

Aim 1. Describe the demographic characteristics of LPNs and LPNs who attained RN licensure.

This study resulted in a 14.0% response rate from the LPN group and a 22.5% response rate from the LPN who had attained RN licensure group. Of the 75 responding LPNs, 82.7% were female and there was fairly equal distribution between the ages of 30 and 39 years (29.3%), 40 and 49 years (33.3%), and 50 and 59 years (29.4%). The ethnic composition of the LPN respondent group was predominantly white (78.7%) which is very similar to Washington State white ethnicity statistics (79.2%) for LPNs. Black LPN respondents (9.3%) exceeded Washington State statistics for black LPNs (5.0%).
Of the 107 responding LPNs who had attained RN licensure, 88.8% were female and 44.0% reported their age between 50 and 59 years. The ethnic composition of the LPNs who had attained RN licensure respondent group was predominantly white (85.0%) which was slightly less than Washington State white ethnicity statistics (92.0%) for RNs. Black LPNs who had attained RN licensure respondents (7.5%) greatly surpassed Washington State statistics for black RNs (0.8%). Perhaps this significant percentile difference in Black LPNs and Black LPNs who had attained RN licensure suggests an increased interest in assisting other ethnically diverse LPNs to achieve RN licensure.

The number of years worked as an LPN reported by the LPN respondents was fairly evenly distributed between 0 and > 30 years. The number of years worked as an LPN reported by the LPN who had attained RN licensure respondents was 0 to 5 years (64.5%) followed by 19.6% respondents who reported working 6 to 10 years as an LPN prior to attaining RN licensure. The number of LPNs who had attained RN licensure decreased with increased years worked as an LPN: 11 to 15 years (7.5%), 16 to 20 years (5.7%), 21 to 30 years (0.9%), and greater than 30 years (1.8%).

Although 15.9% of LPN respondents who had attained RN licensure worked as an LPN for greater than 11 years before attaining RN licensure, the majority (84.1%) had worked less than 10 years in the role of LPN. It seems prudent to indentify LPNs more likely to attain RN licensure early in their careers to initiate and facilitate their pursuit of RN education.

The average age in years of the respondents was similar for both groups: LPN respondents ($M=44.52$, $SD=10.08$); LPN who had attained RN licensures ($M=47.38$, $SD=10.309$). Older nurses completed and returned the survey tools in greater numbers than their
younger colleagues did. Survey respondents in the LPN group reflected 68.0% were older than 40 years of age. Survey respondents in the LPN who had attained RN licensure group reported 75.7% were older than 40 years of age.

Perhaps this significant finding is based on several factors, but this study can only speculate as to why the majority of respondents were over 40 years of age. Reasons may include that more survey tools were mailed to potential participants who were older than 40 years of age, older respondents may have increased discretionary time as the responsibilities of managing a young family may be decreased, or that nurses improve in their practice and confidence as they continue to work in the nursing profession (Benner, 1984). As nurses grow in their confidence and experiences as a professional nurse they may believe they have more to contribute towards building the state of the science of nursing.

Also significant is the response rate from the LPN group (14.0%) that was much less than the response rate from the LPN who had attained RN licensure group (22.5%). Again, this study can only speculate as to why more LPNs who had attained RN licensure respondents chose to participate in the study when compared to LPNs who did not pursue RN education. Perhaps LPNs who have attained RN licensure believe they have more to contribute towards building the state of the science of nursing. Clearly additional research is needed to better understand the LPN profession.

**Aim 2.** Compare the scores on the General Self-Efficacy (GSE) scale and the Career Decision Self-Efficacy-Short Form© (CDSE-SF©) scale reported by LPNs with the scores from LPNs who have attained RN licensure.
The reliability analysis of the GSE scale for this study provided a Cronbach Coefficient Alpha of .857 for the LPNs and .836 for the LPNs who had attained RN. This is comparable to the Cronbach Coefficient Alpha range from .760 to .900 for the empirical trials for the GSE (Schwarzer, 1992).

Although the summed total scores on the GSE scale for the LPN group ($M=33.69$, $SD=3.691$) were lower than the LPN who had attained RN licensure group ($M=34.38$, $SD=3.698$), the p value of .231 indicated the differences were not scientifically significant. Additionally the LPN group had only slightly lower mean scores on individual question 2 through 9. Both the LPN group and the LPN who had attained RN licensure group had the same mean score ($M=3.53$) on question 1, ‘I can always manage to solve difficult problems if I try hard enough’, but revealed a slight variation in the standard deviation results (LPN, $SD=.528$; LPN-to-RN, $SD=.572$). The LPN group demonstrated slightly higher mean scores ($M=3.55$, $SD=.527$) than the LPN who had attained RN licensure group ($M=3.53$, $SD=.556$) for question 10, ‘I can usually handle whatever comes my way’.

The GSE scale has a broad range of applications; each individual question refers to successful coping and implies an internal-stable attrition of success (Schwarzer, 1992). This study discovered that LPNs and LPNs who have attained RN licensure have similar general self-efficacy scores related to coping and an internal-stable attrition of success. As a general measurement instrument, the GSE does not tap specific behavior changes. Therefore, in this application it would have been prudent to add a few items to cover the particular data content of career decision self-efficacy. The GSE scale may not have predictive utility for identifying LPNs likely to attain RN licensure without adding additional items to cover specific nursing content.
Instrument reliability for the CDSE-SF© was also established for this study. A Cronbach Coefficient Alpha of .950 for LPNs and .942 for LPNs who had attained RN licensure is comparable to the Cronbach Coefficient Alpha of .942 found by Betz, Klein and Taylor (1996). The Cronbach Coefficient Alpha scores for the five subscales for both the LPNs and the LPNs who had attained RN licensure were also consistent with the five subscale scores reported by Betz et al (1996).

The CDSE-SF© scale identified greater score variability between the LPN group and the LPN who had attained RN licensure group in both the summed total scores and the mean subscale scores. Final composite scores for the CDSE-SF© for the LPN respondents ranged from 53 to 125 points ($M=97.61$, $SD=15.618$, $Mdn=100.00$). Final composite scores for the CDSE-SF© for the LPN who had attained RN licensure respondents ranged from 78 to 125 points ($M=103.48$, $SD=18.734$, $Mdn=107.00$).

The overall mean scores on the five individual subscales of the CDSE-SF© for the LPN group were lower than the mean scores on the five individual subscales of the CDSE-SF© for the LPN who had attained RN licensure group. The overall mean score on the combined subscales for LPNs was 3.96, indicating much confidence in their abilities to make career related decisions. The overall mean score on the combined subscales for LPNs who had attained RN licensure was 4.26, also indicating much confidence in their abilities to make career related decisions.

Female LPN respondents reported slightly lower GSE scores ($n=62$, $M=33.73$, $SD=3.773$) and CDSE-SF© scores ($n=62$, $M=98.26$, $SD=15.773$) than the female LPN who had attained RN licensure respondents reported GSE scores ($n=95$, $M=34.23$, $SD=3.655$) and CDSE-SF© scores ($n=95$, $M=103.09$, $SD=19.436$).
Male LPN respondents reported moderately lower GSE scores (n=4, $M=34.25$, $SD=1.78$) and significantly lower CDSE-SF© scores (n=4, $M=91.00$, $SD=13.540$) than the male LPN who had attained RN licensure respondents reported GSE scores (n=9, $M=36.56$, $SD=2.506$) and CDSE-SF© scores (n=9, $M=107.44$, $SD=10.690$).

GSE mean scores and CDSE-SF© mean scores for the female LPN group and the female LPN who had attained RN licensure group were quite similar while the GSE mean scores and CDSE-SF© mean scores for the male LPN group and the male LPN who had attained RN licensure group were quite disparate.

Previous studies (Bergeron & Romano, 1984; Wilson, 2000) that performed a comparison of the effect of gender on the Career Decision-Making Self-Efficacy scale did not find significant differences. The results of this study do not challenge their findings. Given the relative small number of male study participants, scientific predictions cannot be drawn, but the mean GSE and CDSE-SF© scores for male LPNs who had attained RN licensure were significantly higher than the male LPN respondents. Based on these findings it is recommended that male LPNs need to be directed towards activities that build general self-efficacy and career decision self-efficacy.

White LPN respondents reported slightly lower GSE scores (n=59, $M=33.63$, $SD=3.939$) and CDSE-SF© scores (n=59, $M=96.73$, $SD=16.479$) than the white LPN who had attained RN licensure respondents reported GSE scores (n=92, $M=34.37$, $SD=3.764$) and CDSE-SF© scores (n=92, $M=103.28$, $SD=19.500$). Conversely, black LPN respondents reported slightly higher GSE scores (n=7, $M=34.57$, $SD=3.101$) and CDSE-SF© scores (n=7, $M=103.00$, $SD=15.210$) than the black LPN who had attained RN licensure respondents reported GSE scores (n=8,
Given the relative small number of ethnic respondents outside the white category, scientific predictors cannot be drawn.

The Spearman’s rho correlation coefficient results indicated the magnitude of the relationship between the ordinal variables of the CDSE-SF© total score and subscale category scales for LPN respondents and the LPNs who had attained RN licensure respondents. The LPN respondents demonstrated high positive correlations between six of the ten subcategories and moderate positive correlations between four of the ten subscale categories. Conversely, the LPN who had attained RN licensure respondents demonstrated high positive correlations between only two of the ten subscale categories and moderate positive correlations between eight of the ten subscale categories. Both groups demonstrated high positive correlations between self appraisal and goal planning (LPN=.873; LPN-to-RN=.762) and between planning and problem solving (LPN=.729; LPN-to-RN=.720). The lowest correlations for both groups involved the subscale category of occupational information. LPNs revealed their lowest moderate positive correlations between occupational information and problem solving (.663) while LPNs who had attained RN licensure revealed their lowest moderate positive correlations between occupational information and goal planning (.603).

A possible explanation for the variation in high positive correlations between LPNs and LPNs who had attained RN licensure may be attributed to the fact that the LPN group reported more total years worked as an LPN (18.59 years) when compared to the LPN who had attained RN licensure group (5.69 years). Both group expressed the ordinal variable of occupational information as their lowest moderate correlation. Clearly, further education of nurses related to educational mobility in the field of professional nursing is warranted.
**Aim 3.** Determine if GSE and CDSE-SF© scores can predict which LPNs attain RN licensure and which LPNs do not attain RN licensure.

As previously described under the discussion of Specific Aim 2, the GSE scale did not demonstrate utility for the prediction of LPNs likely to attain RN licensure in this study. On the other hand, the CDSE-SF© scale showed promise as an effective psychometric tool to predict LPNs more likely to attain RN licensure. Although five independent variables were computed into the logistic regression model (self appraisal, occupational information, goal selection, planning, and problem solving) only one (planning) showed statistical significance as a predictive variable for identifying LPNs more likely to attain RN licensure. This study indicated that LPNs who had higher planning scores on the CDSE-SF© survey were almost two and a half times more likely to attain RN licensure when compared to LPNs who had lower planning scores.

Self-efficacy can be taught. Self-efficacy beliefs are constructed from four principal sources of information: enactive mastery experiences that serve as indicators of capability; vicarious experiences that alter efficacy beliefs through transmission of competencies and comparison with the attainment of others; verbal persuasion and allied types of social influences that one possesses certain capabilities; and physiological and affective states from which people partly judge their capabilities, strength, and vulnerability (Bandura, 1997). Although nursing educators can build self-efficacy beliefs in nursing students in all four genres, focus should be on enactive mastery experiences. Enactive mastery experiences are the most influential source of efficacy information because they provide the most authentic evidence of whether one can muster whatever it takes to succeed. The development of efficacy beliefs through enactive experience creates the cognitive and self-regulative facility for effective performance (Bandura,
Nursing education lends itself to successful mastery of complex tasks and knowledge. Incorporating self-efficacy building experiences throughout nursing education, particularly in planning for further nursing education, may increase the number of nurses transitioning through levels of nursing and nursing education.

**Summary**

In summary, LPNs who had attained RN licensure had higher general self-efficacy scores and higher career decision self-efficacy scores than LPNs. High career decision self-efficacy scores in the subscale category of planning may have utility for predicting LPNs more likely to attain RN licensure. Previously, the literature provided extensive attention to self-efficacy and performance in a myriad of behavioral domains. Researchers further expanded the application of career self-efficacy to students in science and engineering. Career decision self-efficacy related to nursing and/or nursing educational mobility have not been studied. This study fills a gap in the literature by documenting scientifically significant statistical evidence supporting higher planning subscale category scores on the CDSE-SF© may have predictive value in identifying LPNs more likely to attain RN licensure.

A finding in regard to ethnicity was identified from the demographic data. Black LPNs accounted for 9.3% of the sample compared to Washington state statistics of 5.0%. Black LPNs who had attained RN licensure accounted for 7.5% of the sample compared to Washington state statistics of 0.8%. Increasing feedback from ethnically diverse nurses may lead to effective strategies that will expand diversity in professional nursing. Unfortunately, however, the only significant findings from the demographic data were that Black LPNs had higher mean GSE scores (34.57) and CDSE-SF© scores (103.00) when compared with Black LPNs who had
attained RN licensure mean GSE scores (33.00) and CDSE-SF© scores (101.12). A larger sample size would likely verify this finding.

Conversely, male LPNs had moderately lower mean GSE scores (34.25) and significantly lower mean CDSE-SF© scores (91.00) when compared to male LPNs who had attained RN licensure mean GSE scores (36.56) and CDSE-SF© scores (107.44). Again, a larger sample size would likely verify this trend.

Logistic regression determined that the strongest predictor for an LPN to attain RN licensure was planning, recording an odds ratio of 2.38. This indicated that the odds of attaining RN licensure is almost 2.5 times higher for those LPNs who planned compared to those LPNs who did not plan.

**Implications**

The present study reveals that LPNs who have attained RN licensure have higher mean GSE scores and higher mean CDSE-SF© scores when compared with LPNs who have not pursued RN education. This may be an eye-opening statement to LPNs who may state high self-efficacy as a bedside nurse. The implications of this research can best be understood from the point of view of inclusivity. These implications are threefold. First are issues of the nursing shortage, second is the concept of educational mobility and third is self-efficacy. Additionally, recommendations to facilitate increasing self-efficacy related to career planning for LPNs will be discussed.

**Nursing Shortage**

The nursing shortage refers to a situation where the demand for RNs exceeds the supply. The current shortage is not likely to be resolved soon; rather research suggests that the shortage
will worsen through 2025 (Claywell, 2003). The U.S. population is projected to grow at least 18% by 2025 and the population of citizens over sixty five years is expected to increase by 50%. This growing and aging population will require increased health care services at a time when the shortage of RNs is projected to reach 250,000 (Buermaus, Auerbach, & Staiger, 2009).

The Center for Health Workforce Studies at the University of Washington recently estimated that the RN shortfall in Washington state, without changes in health and education policy and practices, would reach nearly 25,000 RNs by 2020 (Skillman, Andrilla, & Hart, 2007).

Effects of the nursing shortage will be experienced by all, and individuals who are vulnerable and fragile will be at increased risk for negative health outcomes. Today’s health care environments are increasingly complex and require competent technological skill. Shorter hospital stays have decreased the time allocated to provide comprehensive nursing care (Goodin, 2003). Greater incidences of adverse outcomes for patients have been associated with fewer RNs caring for them (Agency for Healthcare Research and Quality, 2007; Aiken, Clarke, Cheung, Sloane, & Silber, 2003; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002). To meet the predicted demands for RNs under the current system, the RN graduation rates in Washington state need to increase by 400 per year each year for the next 15 years (Skillman, Andrilla, & Hart, 2007).

Providing culturally respectful or sensitive care is difficult when the recent nursing workforce does not reflect the diversity of the population. The Institute of Medicine (2004) and the U.S. Department of Health and Human Services (2000) describe benefits when culturally

In academic year 2008 – 2009, ethnic minority groups made up 35.5% of LPN students, 28.2% of Associate’s (ADN) students, 23.6% of Bachelor’s (BSN) students, 24.2% of master’s students, and 20.3% of doctoral students (NLN, 2009). Although the composition of the nursing student body is more racially and ethnically diverse than that of the current workforce, diversity continues to be a challenge. Another major challenge for the nursing workforce is the underrepresentation of men in the profession. Although men are still a slim majority of the workforce, the percentage of male nurses is steadily increasing. The 2008 National Sample Survey of Registered Nurses (US DOH, 2010) reported that nationally male RNs had increased from 2.7% (1980) to 5.8% (2004) to 6.6% (2008). In 2006, Washington state reported 11.6% of the LPN population as being male, well above the 2008 national average of 6.6% male RNs (WCN, 2006).

Facilitating opportunities to advance LPNs towards RN education and licensure may increase not only the necessary numbers of RNs needed to meet the health demands of a growing and aging nation, but may also increase ethnic and gender diversity in the RN workforce.

Education Mobility/Career Ladders

The nursing profession must adopt a framework of continuous learning that includes basic education and academic progression. LPNs who pursue RN education and attain RN licensure may increase RN numbers and ethnic and gender diversity percentages in the RN workforce. Typically the LPN receives a diploma after completion of a 12 month program. The LPN is not educated for independent decision making for complex care but obtains basic
education in anatomy and physiology, nutrition, and nursing techniques. Some LPNs continue their education to become RNs; in fact, approximately 17.9% of RNs were once licensed as LPNs (HRSA, 2010). While many LPNs have an interest in advancing their education, a number of barriers to their doing so have been cited, including financial concerns, lack of capacity and difficulty getting into RN programs, and family commitments (HRSA, 2004).

The Committee on the Robert Wood Johnson Foundation (RWJF) Initiative on the Future of Nursing (2010) recognizes the contributions of LPNs in improving the quality of healthcare. The committee also recognizes the opportunity the LPN diploma creates as a possible pathway toward further education along the RN tracks for the diverse individuals who hold that diploma.

In 2008, the RWJF and the Institute of Medicine (IOM) launched a two year initiative to respond to the need to assess and transform the nursing profession. The IOM appointed the committee on the RWJF Initiative on the Future of Nursing to produce a report that would make recommendations for an action-oriented blueprint for the future of nursing. The four recommendations are:

1. Nurses should practice to the full extent of their education and training

2. Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression

3. Nurses should be full partners, with physicians and other health care professionals, in redesigning health care in the United States

4. Effective workforce planning and policy making require better data collection and an improved information infrastructure
Recommendation 2 arises from the trend of nurses being called upon to fill expanding roles and to master technological tools and information management systems while collaborating and coordinating care across teams of health professionals. Nurses must achieve higher levels of education to respond to these increasing demands. Education should include opportunities for seamless transition into higher degree programs – from LPN diplomas; to the ADN and BSN degrees; to master’s, PhD, and doctor of nursing practice (DNP) degrees.

Major changes in the U.S. health care system and practice environments will require equally profound changes in the education of nurses both before and after they receive their licenses (IOM, 2010). Nursing education should serve as a platform for continued lifelong learning and include opportunities for seamless transition to higher degree programs.

The Council for Nursing Education in Washington State (CNEWS) incorporated in it’s articulation document a requirement for all practical nursing programs to have a formal articulation agreement with a registered nurse program by December, 2010. Associate degree registered nursing programs must have a formal articulation agreement with a baccalaureate degree nursing program by December, 2012. The purpose of the agreements is to facilitate LPNs becoming RNs; RNs to earn bachelor’s degrees; bachelor degree RNs to earn graduate degrees (Nursing Care Quality Assurance Commission, 2008-2009 Annual School Report, 2010).

To prepare a professional community that will be competent for the 21st century, Washington state nurses and nursing students must be able to pursue their education through multiple pathways and with a strengthened collaborative effort among the various types of nursing programs. Barriers to a seamless transition through the nursing schools system must be eliminated (Padgett, 2008). Facilitators that ease access to a seamless transition through the
nursing schools system must be explored. Determining if career decision self-efficacy scores can predict the likelihood of LPNs’ successful attainment of RN licensure through career laddering and educational mobility could increase both the number and diversity of RNs in Washington state.

**Self-efficacy**

Previous research has demonstrated that career interest and self-efficacy are important concepts which impact career choices among nurses. The social cognitive career theory (SCCT, Lent, Brown, & Hackett, 1994) is a well-established theory for investigating the variables that predict student persistence in an academic program. It postulates that an individual’s academic and career development outcomes, such as interest, choices, and performance (including self-efficacy), are affected by contextual variables (Lent et al., 1994). Contextual variables, or support and barriers, are those variables in an individual’s background or environment that either promote or hinder academic and career development outcomes, including self-efficacy. The person-cognitive variables of self-efficacy, outcome expectations, and goals (borrowed from Bandura’s Social Cognitive Theory, 1999) are also postulated to mediate between contextual variable and career development outcomes.

Drawing from Bandura’s theory of self-efficacy (1982), individuals who believe that they are able to organize and mobilize action to reach a desired outcome in a specific area tend to successfully perform tasks or behaviors. Many different types of self-efficacy have been explored in the literature. For example, academic self-efficacy (e.g., beliefs about passing a subject) was shown to be strongly related to performance in technical fields (Lent, Brown, & Larkin, 1984). Coping self-efficacy, or an individual’s beliefs about their ability to deal with career barriers, has been shown to be related to having greater goals related to academics and
careers (Lent, Brown, Schmidt, et al., 2003). Restubog, Florentino, & Garcia (2010) focused on career self-efficacy, defined as a students’ beliefs about their ability to succeed in an academic program that is aimed toward a particular career. This type of self-efficacy has been shown to be related to greater academic and career goals (Lent, Brown, Schmidt, et al., 2003). Moreover, previous research has shown that self-efficacy expectations are positively related to academic persistence in science and engineering (Lent et al., 1984).

Building on their work, this study extended the scope of career decision self-efficacy application in LPNs and examined its effect on attaining RN licensure. LPNs who exhibited high planning subscale category scores on the CDSE-SF© scale increased their commitment to successfully attain RN licensure when compared to LPNs who were less efficacious. Career decision self-efficacy is conceptually unelaborated in the LPN population. Exploring the concept of career decision self-efficacy in the LPN population as a predictive variable for the attainment of RN licensure may be a useful strategy to ease the RN shortage and enhance ethnic and gender diversity to the RN workforce.

Study Limitations

As with any study, there are limitations. Inferences from this study are limited to the specific population of LPNs and LPNs who had attained RN licensure residing in Pierce County, Washington. Studying LPNs and LPNs who had attained RN licensure in other areas of the country would be necessary to corroborate the findings of this study to all LPNs and LPNs who had attained RN licensure in the country. Additionally, data collection was limited to one two-sided questionnaire and the potential for maturation threat existed with this study. If respondents
became weary or bored while ranking the survey questions there would be potential for the respondents to make errors. The potential to make errors could influence the GSE and CDSE-SF© scores.

The respondents themselves were another limitation. All invitees had the choice to participate in the study yet only 14.0% of LPNs and 22.5% of LPNs who had attained RN licensure did participate. Perhaps there are unique qualities of some individuals who choose to participate in mailed survey research studies that may have had some influence on GSE and CDSE-SF© scores. Perhaps individuals who are unlikely to participate in mailed survey research studies have much lower or higher self-efficacy than those who chose to participate. Those question, however, will not be answered through this study, as the only data obtained is from those respondents who completed and returned the mailed survey tool.

Selection bias was a significant limitation. The survey research study was mailed to LPNs and LPNs who had already attained RN licensure. Determining if the GSE and CDSE-SF© scores of the LPNs who had attained licensure group were similar to what they would have scored prior to attaining RN licensure cannot be guaranteed. Researchers have argued that self-efficacy might simply be a reflection of past performance, rather than a generative motivational belief impacting future performance (Mitchell, 1997). Individuals make judgments of their own efficacy based primarily on past performance levels (Mitchell, 1997). Research in support of this position has shown that self-efficacy does not predict future performance when the effects of ability or past performance are sifted out (Ackerman et al, 1995; Heggestad & Kanfer, 2005; Mitchell et al., 1994). Thus, an important question remains: Does high self-efficacy result in greater motivation and increased performance, or is it primarily a reflection of high past performance?
Sample size proved to be the fifth limitation in this study with Aim 2. A significantly large sample size might have led to the identification of more statistically significant findings with the demographic variables. Male respondents and non-white respondents were not large enough to be able to detect scientifically statistical differences between groups.

**Future Research**

Based on the findings yielded by this research and their relationship to the review of related literature the following recommendations for future research are presented:

The first recommendation addresses implications for further study of certain aspects of demographic characteristics investigated in this study. As noted in this study, further research is warranted on the relationship between age, gender, ethnicity and years worked as an LPN and the attainment of RN licensure. Earlier literature (Bergeron & Romano, 1984; Hackett & Betz, 1981, Wilson, 2000) revealed these were not influential factors in career decision self-efficacy. This study’s small sample size for male respondents and non-white respondents did not identify statistical differences for these groups. Therefore, additional study is necessary.

The need to conduct research on LPNs and LPNs who have attained RN licensure across the country is the second recommendation. The nature of this study was limited to LPNs and LPNs who had attained RN licensure residing in Pierce County, Washington. Pierce County nurses responses cannot be reliably generalized to speak for all American nurses. Including LPNs and LPNS who have attained RN licensure participants from all regions of the country will allow for findings that can be generalized to all American nurses.

The findings of this study provided models to identify which subscales (self appraisal, occupational information, goal selection, planning and problem solving) of the CDSE-SF© could
predict LPNs more likely to pursue RN education. It is predicted that LPNs who scored higher on the planning subscale of the CDSE-SF© are more likely to pursue RN education and attain RN licensure. Therefore, an implication for practice is to provide opportunities for planning related to seamless transitions between levels and schools of nursing for all LPNs and students enrolled in LPN educational programs.

Finally, selection bias existed in this study. LPNs whom had already attained RN licensure were invited to participate in the study. It is unknown if the LPN who had attained RN licensure had higher self-efficacy scores prior to pursuing RN education or if they increased their self-efficacy as a result of additional nursing education. An additional study should be initiated to administer the GSE and CDSE-SF© survey tools to LPNs and LPN students and at a later date (5 – 10 years) check the Washington State Department of Health list server for the subscale category of Provider Licensing Credentials for RNs to identify which of those LPNs went on to achieve RN licensure. This next step will be an observational follow up study where general self-efficacy scores and career decision self-efficacy scores are determined prior to the attainment of RN licensure. The study may be able to prove with some accuracy that LPN A, B, C, and LPN student A, B, C, did attain RN licensure, thus improving the predictability purposes of self-efficacy as a variable to identify LPNs more like to attain RN licensure.
Bibliography


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http://www.ced.gov/mmwr/preview/mmwrhtml/00021729.htm


Stedman, M.J. (2007). Breakthrough to nursing. Making it happen; the LPN to RN transition.


United States Department of Health and Human Services, Bureau of Health Professions.


Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology, 82*, 51-59.
Appendix A

From: Nancy Betz [Betz@psy.ohio-state.edu]
To: colleen@net-venture.com [colleen@net-venture.com]
Subject: RE: Doctoral student request
Attachments: CDSEITEMS.doc (55 Kb) CDSEITEMSCORING.doc (25 Kb) CDSEManual2007.rtf (416.58 Kb)

Here you go Colleen! Thnaks for the great story about your daughter! Yes the OSU Synch team has an illustrious history!@! Go Bucks and best wishes on your research!
nancy
Nancy E. Betz, Professor
Department of Psychology
The Ohio State University
1835 Neil Avenue
Columbus OH 43210
614-847-0517
betz.3@osu.edu

-----Original Message-----
From: colleen@net-venture.com [mailto:colleen@net-venture.com]
Sent: Monday, June 15, 2009 1:21 AM
To: betz.3@osu.edu
Subject: Doctoral student request

Good evening Dr. Betz. My name is Colleen Doherty. I am a PhD in Nursing student at Washington State University. My dissertation topic is 'Self efficacy of LPNs: Relation to attaining RN licensure'. I have studied/reviewed several self efficacy scales and feel that your "Career Decision Self-Efficacy Scale - Short Form" is a good fit for my study. I am hoping that you will grant me permission to utilize your psychometric tool/scale in my research.

Just an interesting FYI. My youngest daughter (Valerie Jolibois) actually graduated from OSU in 2005. She chose OSU over Stanford because she preferred the synchro coach (Linda Witter). Valerie swam varsity for 4 years, and with her teammates won 3 NCAA championships. She had a fabulous experience, and I grew to love being a 'Buckeye Mom'. I am tickled to think that I might actually get to use the talents of a Buckeye professor for myself.

Thank you very much for considering my request. I anxiously await your reply. Feel free to contact me at anytime via email or telephone. My home phone number is (253) 565-3558. My
work phone number is (253) 403-3175. Very appreciatively, Colleen
From: Kelley, Aaron (DOH) [mailto:aaron.kelley@DOH.WA.GOV]
Sent: Monday, June 07, 2010 11:45 AM
To: Bruya, Margaret A
Subject: List

Ms. Bruya,

Attached are your lists. Some may take several minutes to open. My system is not able to pull up RN’s with expired or inactive LPN licenses.

<<Bruya.zip>>

Sincerely,

Aaron Wayne Kelley
Forms and Records Analyst 2
Health Systems Quality Assurance
Public Disclosure Record Center
PO BOX 47865
OLYMPIA, WA 98504-7865
Direct Phone - 360-236-4812
Fax-360-586-2171

"The Department of Health Works to Protect and Improve the Health of People in Washington State"
MEMORANDUM

TO: Margaret Bruya and Colleen Doherty,

FROM: Malathi Jandhyala, Office of Research Assurances (3005)

DATE: 3/19/2010

SUBJECT: Certification of Exemption, IRB Number 11321

Based on the Exemption Determination Application submitted for the study titled "Self-Efficacy of LPNs: Relation to Attaining RN Licence," and assigned IRB # 11321, the WSU Office of Research Assurances has determined that the study satisfies the criteria for Exempt Research at 45 CFR 46.101(b)(2).

This study may be conducted according to the protocol described in the Application without further review by the IRB.

NOTE: It is recommended that the PI on the projects for exempt studies should completed CITI training.

It is important to note that certification of exemption is NOT approval by the IRB. You may not include the statement that the WSU IRB has reviewed and approved the study for human subject participation. Remove all statements of IRB Approval and IRB contact information from study materials that will be disseminated to participants.

This certification is valid only for the study protocol as it was submitted to the ORA. Studies certified as Exempt are not subject to continuing review (this Certification does not expire). If any changes are made to the study protocol, you must submit the changes to the ORA for determination that the study remains Exempt before implementing the changes (The Request for Amendment form is available online at http://www.irb.wsu.edu/documents/forms/rtf/Amendment_Request.rtf).
Exempt certification does NOT relieve the investigator from the responsibility of providing continuing attention to protection of human subjects participating in the study and adherence to ethical standards for research involving human participants.

In accordance with WSU Business Policies and Procedures Manual (BPPM), this Certification of Exemption, a copy of the Exemption Determination Application identified by this certification and all materials related to data collection, analysis or reporting must be retained by the Principal Investigator for THREE (3) years following completion of the project (BPPM 90.01).

Washington State University is covered under Human Subjects Assurance Number FWA00002946 which is on file with the Office for Human Research Protections (OHRP).

Review Type: New

Review Category: Exempt

Date Received: 3/16/2010

Exemption Category: 45 CFR 46.101 (b)(2)

OGRD No.: N/A

Funding Agency: N/A

Best Regards,

Malathi

Malathi Jandhyala, MS

Human Subjects Review Coordinator

Washington State University

Institutional Review Board

Office of Research Assurances

Albrook 205

PO Box 643005, Pullman, WA 99164-3005

Phone: 509-335-3668

Fax: 509-335-6410
Appendix D

Bruya, Margaret A [bruyam@wsu.edu]

Sent: 7/6/2010 1:19:38 PM

To: colleen@net-venture.com [colleen@net-venture.com]

Subject: RE: Survey (final pieces)

WOW--whatever system you send you mail from does NOT like me replying to you..--I just received a message that you did not receive my message, so I want to tell you that you are GOOD TO GO with your letter and research. Sorry, I had the same problem previously, and did not even check it today when I replied. ...

-----Original Message-----
From: Colleen Doherty [mailto:colleen@net-venture.com]
Sent: Tuesday, July 06, 2010 9:52 AM
To: Bruya, Margaret A
Subject: FW: Survey (final pieces)

Good morning Margaret. Any news from the IRB regarding the Introduction Letter? I'm anxious to get my mailing out. Thank you very much, Colleen
July 9th, 2010

Dear Professional Nursing Colleague,

My name is Colleen Doherty. I am a doctoral candidate at Washington State University. I am conducting a research study as part of the requirements of my PhD in Nursing, and I would like to invite you to participate. After review of my research proposal, the Washington State Department of Health provided the names and addresses of nurses residing in Pierce County for use in my study.

I am studying the self-efficacy of LPNs as a predictive variable for attaining RN licensure. I would appreciate if you would complete the enclosed survey questionnaires. Completion of the surveys is expected to take about 15 minutes of your time. There are no known or anticipated risks to participation in this study. Participation in this study is voluntary and anonymous. Further, all information you provide will be considered confidential.

If you are interested in participating in this study, please return the completed survey questionnaires in the self-addressed stamped envelope. If after receiving this letter, you have any questions about this study, or would like additional information to assist you in reaching a decision about participation, please feel free to contact me at colleen@net-venture.com. Your informed consent will be implied through the return of the survey questionnaire. If you would like a summary of the findings of this study, please provide an email address on the survey form.

I would like to assure you that this study has been reviewed and received ethics clearance through the Institutional Review Board at Washington State University. Thank you for your support in helping grow the state of the science of nursing.

Very appreciatively,

Colleen Doherty, RN
Appendix F

Demographic Information

Age: _____ years

Gender: (please circle) Male or Female

Ethnicity/Race: White _____ Black _____ Hispanic _____ American/Alaskan Native _____
Asian & Pacific Islander _____ All other races _____

Years employed as a LPN: _____ years

Current position held: (please circle) Registered Nurse (RN) or Licensed Practical Nurse (LPN)

Facilitators that Ease Access to an RN Educational Program

Rank in order of importance from 1 to 4 with 1 being the most significant and 4 being the least significant

- Academic respect for students’ existing knowledge and experience _____
- Encouragement and support (family/friend/mentor) _____
- Fulfill an original dream _____
- Obtain greater independence (practice and financial) _____

Barriers that Impede Access to an RN Educational Program

Rank in order of importance from 1 to 4 with 1 being the most significant and 4 being the least significant

- Financial _____
- Struggle to unlearn content and/or habits that are no longer acceptable _____
- Time Constraints _____
- Work and class schedule conflicts _____
### General Self-Efficacy Scale

**INSTRUCTIONS:** For each statement below, indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the following key:

(1) Not True at all        (2) Hardly True        (3) Moderately True        (3) Exactly True

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Question</th>
<th>Participant Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I can always manage to solve difficult problems if I try hard enough.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>If someone opposes me, I can find the means and ways to get what I want.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>It is easy for me to stick to my aims and accomplish my goals.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I am confident that I could deal efficiently with unexpected events.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Thanks to my resourcefulness, I know how to handle unforeseen situations.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I can solve most problems if I invest the necessary effort.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I can remain calm when facing difficulties because I can rely on my coping abilities.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>When I am confronted with a problem, I can usually find several solutions.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>If I am in trouble, I can usually think of a solution.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I can usually handle whatever comes my way.</td>
<td></td>
</tr>
</tbody>
</table>

Jerusalem & Schwarzer, 1992

**Please turn the paper over to complete the Career Decision Self-Efficacy-Short Form® scale**
**Career Decision Self-Efficacy–Short Form®**

INSTRUCTIONS: For each statement below, indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the following key:

(1) No confidence at all       (2) Very little confidence       (3) Moderate confidence
(4) Much confidence       (5) Complete confidence

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Question</th>
<th>Participant Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Use the internet to find information about occupations that interest you.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Select one major from a list of potential majors you are considering.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Make a plan of your goals for the next five years.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Determine the steps to take if you are having academic trouble with an aspect of your chosen major.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Accurately assess your abilities.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Select one occupation from a list of potential occupations you are considering.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Determine the steps you need to take to successfully complete your chosen major.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Persistently work at your major or career goal even when you get frustrated.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Determine what your ideal job would be.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Find out the employment trends for an occupation over the next ten years.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Choose a career that will fit your preferred lifestyle.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Prepare a good resume.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Change majors if you did not like your first choice.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Decide what you value most in an occupation.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Found out about the average yearly earnings of people in an occupation.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Make a career decision and then not worry whether it was right or wrong.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Change occupations if you are not satisfied with the one you enter.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Figure out what you are and are not ready to sacrifice to achieve your career goals.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Talk with a person already employed in a field you are interested in.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Choose a major or career that will fit your interest.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Identify employers, firms, and institutions relevant to your career possibilities.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Define the type of lifestyle you would like to live.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Find information about graduate or professional schools.</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Successfully manage the job interview process.</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Identify some reasonable major or career alternatives if you are unable to get your first choice.</td>
<td></td>
</tr>
</tbody>
</table>

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Thank you for your time in completing this questionnaire.

**Please turn the paper over to complete the General Self-Efficacy scale & Demographic Table**