UTILIZING THE EXPECTANCY THEORY AS A PREDICTOR OF STUDENT

ACADEMIC SUCCESS ON THE ILLINOIS NURSE ASSISTANT COMPETENCY

EXAMINATION

by

Kelli D. Whittington

B.S.N., Middle Tennessee State University, 1992
M.S.N., Southern Illinois University Edwardsville, 2001

A Dissertation
Submitted in Partial Fulfillment of the Requirements for the
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Approved by:

Dr. C. Keith Waugh, Chair

Dr. Paul Asunda

Dr. Glen Blackstone

Dr. Barbara Hagler

Dr. Seburn Pense

Graduate School
Southern Illinois University Carbondale
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MAJOR PROFESSOR: Dr. C. Keith Waugh

This study researches the relationship between motivation and academic success by utilizing the concepts of Vroom's Expectancy Theory: Valence, Expectancy, and Instrumentality. In order to quantify motivation, the Valence, Instrumentality, Expectancy, and Motivation Score (VIEMS) was used. The population assessed consisted of 375 nurse assistant students in the state of Illinois. The self-reported survey tool was evaluated to assess the constructs of Vroom's Expectancy Theory, thus investigating their motivation level. This level was then compared to their performance on the Illinois Nurse Assistant Training Competency Examination.

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CHAPTER 1

INTRODUCTION AND SIGNIFICANCE OF PROBLEM

Introduction

The United States is facing a major dilemma in providing care for the population. With the population aging and living longer, the number of consumers requiring assistance to meet their health care needs is increasing (Langer, 2008; Peterson, Ruble-Davies, Elley-Brown, Widdowson, Dixon, & Irving, 2012). As this consumer base expands and seeks health care, the current amount of staff trained to provide care is inadequate (Halstead, 2012; Kinnair, 2012). One facet of care delivery is met by the certified nurse assistant. Without an adequate workforce of nurse assistants, patient care will not be at an optimal level. In order to provide an adequate workforce of nurse assistants, educational systems must identify factors that assist in recruiting and retaining individuals in nurse assistant training programs. This researcher explored one facet of supplying qualified individuals for the nurse assistant workforce: the relationship between motivation, as measured by Vroom's Expectancy Theory (Vroom, 1964), and academic achievement. Endeavoring to identify how motivation impacts academic achievement may potentially increase the amount of certified nurse assistants available to assume employment in the state of Illinois within the health care arena, thus positively impacting patient care.

In the health care field, patient care is delivered by nurses trained in a tiered system, as designed by the regulations associated with the educational preparedness of the individual. The upper-most tier is composed of doctoral prepared nurses, who typically function as researchers, primary health care providers, and faculty members (Institute of Medicine [IOM], 2012). The next tier prepares nurses with masters of science degrees in Nursing who function in capacities ranging from nurse practitioners to faculty members and Clinical Nurse Specialists (IOM, 2012).

The next level is the bachelor's prepared nurse; this nurse typically functions at the bedside in magnet status hospitals, in managerial or clinical instruction positions (O*NET, 2013). The following level is comprised of registered nurses educated at the associate degree of nursing level. These nurses function as team leaders at the bedside. Working closely with this registered nurse is the licensed practical nurse, who obtained a vocational certificate to provide patient care (O*NET, 2013). Finally, the nurse assistant is the basic caregiver within the nursing educational system. Nurse assistants are trained to assist people with the activities of daily living; they feed, groom, bathe, and assist patients in a variety of ways (Illinois Department of Public Health [IDPH], 2013). Without their presence in the acute and long-term care setting, it would be difficult to render timely patient care.

With the aging population noted in the United States to extend through 2020, it is predicted that hospital admissions will increase at a rate of 1.23 times faster than population growth. In order to accommodate this surge, staffing levels in US hospitals will have to grow faster than the population (Pallin, Allen, Espinola, Camargo, & Bohan, 2013).   When employment areas are left unfilled in the health care setting, patients are exposed to potentially detrimental situations, such as inappropriate patient to nurse ratio's, which increases the likelihood of errors (Erlen, 2001).

Because individuals are living longer, the need for adequately trained health care providers is evolving at a furious pace. Currently, the number of health care providers is struggling to meet the needs of the patient care population. The present deficits are increasing the burden associated with a variety of shortages across several related vocational fields (Benson & Dundis, 2003). In order to recruit, train, and retain competent nurse assistants, it is essential to identify not only those individuals that are cognitively equipped to be successful in this academic

arena, but to also identify the impact motivation has on their academic success. McLaughlin (2010), and Newton, Kelly, Kremser, Jolly, and Billett (2009) reported the need to ascertain the relationship between motivation and how it relates to student success within their particular career choices. Cheng, Li, and Su (2011) asserted the need to enhance motivation as a means to bolster student success within the arena of high stakes testing, such as the Nurse Aid Competency Examination. Therefore, it is essential to determine how motivation, as measured by Vroom's Expectancy Theory, leads to academic achievement and provides a qualified workforce of certified nurse assistants for the nation's health care centers.

Background

Academic achievement is related to a qualified workforce (Handel, 2006). When a student fails to perform adequately, they may miss the opportunity to become a productive member of society. This lost opportunity widens the gap between the need for qualified individuals and the availability of a skilled labor force (ACTE, 2007). In the health care arena, staffing health care centers in order to provide safe care is essential (Institute of Medicine, 2012). One facet of staffing directly related to the provision of safe care is the certified nurse assistant. This individual is responsible for providing care at the bedside (Illinois Department of Public Health, 2013, Administrative Rule, Section 395.300). O*Net (2013) lists nurse assistant as a Bright Outlook occupation, with an estimated 20% to 28% job growth for the next decade. Without an available qualified workforce, these positions will not be filled, thus impacting patient care at the bedside.

There is no specific indicator or scientific equation that can accurately predict what makes a student successful in their academic endeavors since many factors play a role in student achievement (Dearnley & Matthew, 2007). Because several factors do exist, educators must

consider what best enhances student academic achievement, and when factors associated with student achievement are identified, what measures can be used to foster student retention (Adams, 2011; Alarcon & Edwards, 2013; Popiolek, Fine, & Eilman, 2013; Ryan, 2013). Identifying factors that predispose students to poor academic performance can assist the student and educational institution in providing opportunities for remediation that positively influence the likelihood of academic achievement (Association for Career and Technical Education [ACTE], 2007; Bahr, 2008; Carr, 2011; Martorell & McFarlin, 2011). Being able to foster academic achievement results in providing the workforce with individuals equipped with the skills needed to become successful employees.

One variable that is linked to academic achievement is the motivation level of the student (Lei, 2010). Motivation exists as an extrinsic force, such as the desire for a certain level of income, and as an intrinsic force, like the desire to better oneself for the sake of personal satisfaction. While faculty, administrators, and family can play an influential role in promoting success by fostering extrinsic motivation, it is essential that the student embrace a sense of intrinsic motivation to fully obtain academic achievement (Wong, Wong, & Mensah, 1993).

Understanding the relationship between motivation and academic achievement is critical within the educational arena (Cheng, Li, & Su, 2011). By identifying factors that nurture motivation, instructors and administrators within institutions of higher learning may positively influence student academic achievement (Goodman et al., 2011). Fostering student growth will positively impact the student's ability to attain academic achievement. Faculty must understand that students present to academia with a variety of different expectations, and assisting them to invest in their academic pursuits build personal and professional growth (Huett, Kalinowski, Moller, & Huett, 2008).

When students do not experience motivation at an optimal level, they experience a lower level of academic achievement (Cohen, 2011). Failing to meet acceptable levels of academic achievement results in student attrition. Lack of motivation and academic achievement negatively affects the retention abilities of educational institutions; but, by promoting the student's motivation, their ability to achieve academically is increased (Adams, 2011). Understanding the factors that restrict motivation is important in minimizing their impact (Antoline, 2005). Likewise, understanding the implications that foster motivation is imperative to bolster student academic achievement (Kim & Keller, 2008). Within the realm of nursing education, researchers have found it crucial to identify the reasons associated with academic achievement and incorporate them into the learning environment (Carr, 201l; Drake & Michael, 1995; Franklin & Tolbert, 1995; Levett-Jones, Lathlean, Higgins, & McMillan, 2009).

Motivation and academic achievement have been studied among nursing students, but not at the nurse assistant level (Carr, 2011; Drake & Michael, 1995; Franklin & Tolbert, 1995). With a gap in the literature involving the impact of motivation upon the academic achievement of nurse assistants, a rationale exists to pursue this study. As mandated by the Illinois Department of Public Health, individuals desiring to be employed as nurse assistants within the state of Illinois must first successfully complete an approved nurse assistant program. Following successful completion of a program, they must also successfully complete the Illinois Nurse Assistant Competency Examination (Illinois Department of Public Health, Administrative Rule, Section 300.395). Successful completion of this examination serves to denote the minimum level of knowledge and skill an individual must possess to practice safely. The benefit of predicting successful academic achievement of the nurse assistant on the Illinois Nurse Assistant Competency Evaluation allows measures to be utilized within the admission process to capture

the best candidates, as well as identify measures to support these individuals within their course of study that enhances their probability of success in the classroom, clinical settings, and on the certification examination.

An opportunity existed to study the effect of motivation. By utilizing Vroom's Expectancy Theory (Vroom, 1964) to quantify student motivation, it was possible to examine the relationship between motivation and student achievement. Identifying how motivation impacts student achievement may assist recruitment and retention of nurse assistant students.

Statement of the Problem

The population within the United States is aging. As the population continues to grow and live longer, the need for adequate care, as delivered by nurse assistants, increases. Presently, the demand for nurse assistants exceeds the workforce supply (O*Net, 2013). In order to alleviate this shortage, it is essential to recruit and retain individuals within nurse assistant educational programs. The ability to predict student academic achievement based on the individual's motivation has not been examined in nurse assistant programs. Identifying factors that positively impact motivation is essential in recruiting and retaining students within a nurse assistant program. Individuals who are motivated to persist in nurse assistant training and successfully complete the Illinois Nurse Assistant Training Competency Examination are qualified to enter the workforce within the health care arena as certified nurse assistants.

Purpose of the Study

The relationship between motivation, as measured by the constructs of Vroom's Expectancy Theory and student academic achievement, as measured by successful completion of the Illinois Nurse Assistant Competency Examination, was evaluated.

Understanding the significance of motivation within the classroom could provide educators with information that may potentially affect their students' academic achievement positively. Identifying factors influencing motivation within the educational arena can promote a qualified work force of nurse assistants.

Theoretical Framework

Vroom's Expectancy Theory (1964) was utilized to explore the relationship between the concepts of Vroom's Expectancy Theory and individual performance upon the standardized Illinois Nurse Assistant Competency Examination. Within the framework of Vroom's Expectancy Theory (Vroom, 1964), three components are utilized to describe and quantify motivation. The components are Valence (V), Expectancy (E) and Instrumentality (I). Valence described the attractiveness of a reward (Vroom & Jago, 1995). Expectancy was defined as the individual's belief that their action will yield a specific result (Vroom, 1964). Instrumentality was best described as the individual obtaining what they earn (Malloch & Michael, 1981). Vroom's Expectancy Theory was used to describe the individual's ability to attain academic achievement as noted by successful completion of the Illinois Nurse Assistant Training Competency Examination. Utilizing Vroom's Expectancy Theory as a framework, Sanchez, Truxillo and Bauer (2000) developed the Valence, Instrumentality, Expectancy, Motivation Scale (VIEMS) that quantifies test-taking motivation, specifically as it relates to test performance or academic achievement that leads to vocational employment. Vroom's Expectancy Theory, as measured by the Valence, Instrumentality, Expectancy, Motivation Scale (VIEMS) was utilized as the theoretical framework for the proposed study as it provides an opportunity to ascertain motivation as a quantifiable measure, which can be used to describe the correlational relationships between the variables studied.

The variables in this study were the following: (a) Valence score of the student, (b) Instrumentality score of the student, (c) Expectancy score of the student, (d) Motivational score of the student, (e) student's perception of employment, and (f) student's score on the Illinois Nurse Assistant/Aide Examination.

Research Questions

This study was guided by the following research questions, which were derived from the VIEMS model. In order to examine the nature and strength of relationships, as identified in questions 1, 2, and 3, a correlational coefficient will be determined.

Research question 1- What is the nature and strength of the relationship between Valence and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?

Research question 2- What is the nature and strength of the relationship between Expectancy and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?

Research question 3- What is the nature and strength of the relationship between Instrumentality and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?

Research question 4- What is the relationship between test taking motivation and actual test performance on the Illinois Nurse Assistant Competency Examination?

Research question 5- What is the relationship between the likelihood of being employed as a certified nurse assistant and the Instrumentality subscale of the Valence, Instrumentality, and Expectancy Motivation Scale?

Significance of the Problem

According to national employment data trends, the need for nurse assistants is projected to grow at a "faster than average" rate of 20-28% per year through 2020 (O*Net, 2013). With the increasing age of the baby boomer generation, this projection marks the initial need for nurse assistants, with that need increasing post 2020 (United States Department of Health & Human Services, 2004).

Providing an adequate supply of nurse assistants to the workforce can enhance patient care and healthcare outcomes, while decreasing healthcare costs (Prestia & Dyess, 2012). When care is enhanced, the patient experiences a higher level of satisfaction with the services rendered. This satisfaction is now linked with hospital reimbursement, which substantially impacts health care facilities sustainability (Mathews, 2013). To identify patient satisfaction, the Hospital Consumer Assessments of Healthcare Providers and Systems (HCAHPS) was developed by the Centers for Medicare and Medicaid Services (CMS). The goal was to enhance the patient care experience; thus, positively impacting their satisfaction. Health care facilities that boost high levels of patient satisfaction receive higher reimbursement from CMS, as well as being able to market HCAHP scores strategically. This push for coordinating and providing better patient care is labeled the "Triple Aim" and focuses on the goals: to "improve the overall health of the population being served; improve the care experience, which goes beyond simply providing the right type of care; provide the best care possible while lowering the per-capita costs of care over time" (Mathews, 2013, p.24). With these goals in mind, a qualified workforce of nurse assistants can prove instrumental.

Illinois Nurse Assistant/Aide Training Competency Evaluation Program

It is essential to provide an adequate, skilled nurse assistant workforce to health care facilities. In order to demonstrate competence as a nurse assistant, the individual must successfully pass an accredited nurse assistant course delivered at an approved nurse assistant training program, and pass the standardized state level Nurse Assistant Training Competency Examination. The passage rates for 2010, 2011, 2012, and 2013 are 86%, 83%, 85%, and 85% respectively. In 2010, the certification test versions were changed to demonstrate the following characteristics: parallel in nature, relevance to job performance required, defensible material needed by the nurse assistant, and uncompromised question banks (T. Hovatter, personal communication, April 30, 2013).

Upon scoring, the individual receives an overall score of pass or fail based on their performance on the test divided by the number of scored questions. Additionally, each test taker receives information based on their performance in each critical skill area in a percentage format. This score allows the individual to focus remediation on specific areas of noted weakness (T. Hovatter, personal communication, February 18, 2014). The need exists to enhance nurse assistant students' success within their educational programs, as well as their ability to succeed on the examination.

Even with the current number of individuals passing, there is still a documented shortage of nurse assistants available to enter the workforce (U.S. Department of Health & Human Services, 2004). Recall that Illinois nurse assistants are employable in the job market only after both successfully completing an accredited training course within an approved program and completion of the Illinois Nurse Assistant Examination. Attempting to meet the need for

qualified nurse assistants in the workforce is imperative, as the need to retain individuals within this field remains a concern among the aging population, health care institutions, and the United States labor market (Stone & Weiner, 2001). Fostering motivation of individuals within nurse assistant programs could increase student academic achievement, and thus potentially their retention within the academic program (Griffin, MacKewn, Moser, & VanVuren, 2013). Increasing retention throughout the educational program allows for more individuals to be qualified to take the Illinois Nurse Assistant Training Competency Examination. Successful completion of this competency examination provides the individual with the certification necessary to pursue employment in the health care arena as a certified nurse assistant.

Limitations and Delimitations

The research was delimited to a population of individuals sitting for the Illinois Nurse Assistant Competency Examination during March of 2014. The examinations were held at 22 approved testing sites across Illinois. As mandated by the Illinois Department of Public Health, the examination must be completed within a ninety minute time frame and is held on the third week of every month. Scores on the survey instrument were self- reported. Of the 622 test takers, 375 individuals provided the last four digits of their social security number, which was essential to match them with their test score. An additional limitation was the time limit for surveys used within this population as designated by the Illinois Department of Public Health. With a ten minute time limit, several desired demographic questions could not be asked and a more length survey could not be used. Since all test takers completed the survey, the results cannot be generalized to all nurse assistants in Illinois. The completed survey limits how the findings can be generalized to nurse assistants in other states, including nursing students at

various levels of education, since individuals of this specific population may differ from individuals from other populations.

Terms

Academic Achievement- successful completion of the Illinois Nurse Assistant Training Competency Examination

Illinois Nurse Assistant Training Evaluation Competency Program- the facet of Illinois Department of Public Health responsible for nurse assistant competency examinations and approved program quality assurance measures

Instrumentality- the individual obtaining what they earn

Intrinsic Motivation-the internal force that assists an individual to reach their goals

Expectancy- an individual's belief that their action will yield a specific result

Extrinsic Motivation- external forces that impact the ability of the individual to reach their goals

Motivation- the drive to engage, learn, and succeed

Nurse Assistant- an individual that has completed a nurse assistant training course at an approved nurse assistant training program site and the requisite competency examination

Skilled Labor Force- individuals possessing specific traits and skills for specific occupations

Student Success- successful completion of the Illinois Nurse Assistant Training Competency Examination

Valence- the attractiveness of a reward

VIEMS- Valence, Instrumentality, Expectancy, Motivation Scale

Vroom's Expectancy Theory- Victor Vroom's theory that uses the constructs of Instrumentality, Expectancy, and Valence to quantify motivation

CHAPTER 2

LITERATURE REVIEW

The relationship between motivation, as measured by the constructs of Vroom's Expectancy Theory and student academic achievement, as measured by successful completion of the Illinois Nurse Assistant Competency Examination, was evaluated.

Understanding the significance of motivation within the classroom could provide educators with information that may potentially affect their students' academic achievement positively. Identifying factors influencing motivation within the educational arena could promote a qualified work force of nurse assistants.

Motivation encompasses the intrinsic force that propels an individual towards a desired goal, as well as what extrinsic influences impact intrinsic motivation. Motivation was examined as it is quantified by the concepts of Vrooms's Expectancy Theory: Valence (V), Expectancy (E), and Instrumentality (I) (Vroom, 1964). Exploring the relationship between motivation and the desire for possible employment opportunities among the nurse assistant population leads to the need to clarify the concept of motivation. Additionally, motivation was described using the concepts of Vroom's Expectancy Theory. Student performance was examined in light of academic achievement, specifically, by successful completion of the Illinois Nurse Assistant Competency Examination. Successful completion of the Illinois Nurse Assistant Competency Examination is determined by the individual correctly responding to a certain percentage of questions on the examination and is reported to the individual and staff of the Illinois Nurse assistant Competency Evaluation Program as either a pass or fail status, as dictated by the Illinois Department of Public Health (personal communication, D. Barnham, September 4, 2013).

Research has found that a relationship can be established between motivation, as measured by Vroom's Expectancy Theory, and academic achievement among students in a variety of settings (Allen & Robbins, 2010; Dearnley & Matthew, 2007; Madus & Russell, 2010; Oliver, 1995; Peterson et al., 2012; Shapira, 1976; Taylor, 2005). Presently, the relationship between the concepts of Vroom's Expectancy Theory has not been utilized when examining motivation within the academic settings of nurse assistants.

The specific concept of Instrumentality from Vroom's Expectancy Theory, was quantified and correlated with the individual's likelihood of employment as a certified nurse assistant. Enhancing Instrumentality may positively impact the number of qualified individuals ready to enter the workforce within the function of a certified nurse assistant.

A number of factors need to be considered when examining motivation and its impact. Utilizing Vroom's Expectancy Theory as a framework to measure motivation, the basic constructs of Valence, Expectancy, and Instrumentality are defined. Research related to motivation and the constructs of Vroom's Expectancy Theory formed the basis of the theoretical relationship between the variables (Allen & Robbins, 2010; Dearnley & Mathew, 2007; Madus & Russell, 2010; Oliver, 1995; Peterson et al., 2012; Shapira, 1976; Taylor, 2005). The review demonstrates how the concepts of Vroom's Expectancy Theory were used to quantify motivation; and thus, provided an effective predictor of student academic achievement. The review also presented information regarding the impact of motivation upon student academic achievement among students in a variety of curricular programs.

Motivation

Theories describing motivation abound in the literature. From the desire to succeed (Bong & Clark, 1999), to the need to achieve (McClelland, 1965), to the concept of individual

competence in particular activities (Hartmann, Widner, & Carrick, 2013), motivation speaks strongly about an individual. While motivation has been evaluated in the job market in order to enhance productivity, it has also be assessed in the academic realm. Motivation was believed to be a crucial factor of excellent academic performance (Griffin et al., 2013). It served as a stimulus to participate in the learning environment. Motivation enhanced student engagement with learning opportunities (Moreira, Dias, Vaz, & Vaz, 2013). As a cycle of motivation and engagement ensues, a positive influence is noted in the academic environment. The impact of motivation on student learning and achievement can be traced back to classical philosophies of learning identified by Socrates. Students desire to comprehend and understand the world around them. Motivation served as the stimulus encouraging individuals to action in order to obtain a desired reward (Cinar, Bektas, & Aslan, 2011). Stimulated students engage in actions, such as reading, studying, interacting with classmates, and practicing skills, which leads to successful completion of a project, course, certification, or degree. Without motivation, the student will be less likely to demonstrate these behaviors, which may negatively impact their ability to achieve academic success. Motivation assisted the individual to actively engage, which enhances the learning process (Shillingford & Karlin, 2013). Identifying, developing, and fostering motivation among students is crucial in keeping them vested in their learning opportunities.

Vroom's Expectancy Theory and Motivation

For purposes of this study, motivation, as it relates to successful student achievement, was examined using Vroom's Expectancy Theory (Vroom, 1964). According to Vroom, the following constructs must be present for the individual to be motivated: a relationship between effort and performance, good work resulting in a reward, the rewards fulfilling the individual's personal need, and the necessity of fulfilling the need makes the effort meaningful (Vroom &

Jago, 1995). Motivation encompasses a variety of features, but can generally be divided into two broad categories: intrinsic and extrinsic. Intrinsic motivation has generally described as the internal drive an individual possesses that assists them to reach their goals; it included the motivation to comprehend, to achieve, and to appreciate inspiration (Shillingford & Karlin, 2013). Extrinsic motivation has been classified as forces external to the individual that also impact the ability of the individual to reach their goals (Wormington, Corpus, & Anderson, 2011).

Vroom's Expectancy Theory is an ideal tool to measure motivation as the constructs provide for two things: a quantifiable motivational score and an effective method for categorizing motivational impacts into either intrinsic or extrinsic features. Although all constructs were examined in detail, simply put, the concept of Valence can be categorized as intrinsic motivation, the construct of Expectancy can be categorized as extrinsic motivation, and the concept of Instrumentality can be categorized as either intrinsic or extrinsic, depending on its use. Understanding the impact of all three constructs on the overall motivation of an individual is imperative in recruiting and retaining individuals within nurse assistant educational programs. Again, this retention is imperative to providing an adequate workforce of nurse assistants.

Intrinsic Motivation

Intrinsic motivation has been linked to a personal desire to succeed (Kim & Keller, 2008). It is based on taking pleasure in an activity rather than just working towards an external reward. Intrinsic motivation differs from extrinsic motivation by specifically addressing what characteristics the individual has that promotes personal growth. Espoused by educational psychologists for decades, intrinsic motivation has been researched extensively to examine teaching methods that positively enhance this type of motivation.

Intrinsic motivation has been fueled by an individual's interests and interaction with work, along with their appreciation of a challenge; while extrinsic motivation has been driven by the aspiration for a particular goal that is distinct from the work itself, much like attaining a coveted incentive (McLaughlin, 2010). Within the realm of nurse assistant education, assisting the individual to identify what drives them in their pursuit of nurse assistant certification may enhance their intrinsic motivation. Enhancing the individual's intrinsic motivation with extrinsic factors may positively influence their performance upon the Illinois Certified Nurse Assistant Competency Examination. Attempting to describe the relationship between intrinsic and extrinsic motivation for performing well on certification examinations, Cheng, Lin, and Su (2011) surveyed 342 individuals completing business and management certificate examinations. Using analysis of variance (ANOVA), the results indicated that intrinsic motivation (M = 3.97) was significantly higher than extrinsic motivation (M = 3.45, t = 6.21, p < .01) among the individuals that obtained the certificates (Cheng, Li, & Su, 2011). Due to the importance of intrinsic motivation, the finding supported the importance for instructors and administration in education to enhance the intrinsic motivation factors for students (Baldwin & Karl, 1987). Enhancing this intrinsic motivation will positively impact the student's ability to persist and achieve in the academic setting.

Building upon this idea of fostering intrinsic motivation, the relationship between motivation and student achievement is evaluated in the post-secondary education level. Goodman et al. (2011) explored this relationship, starting with the basic definition that motivation is the desire to satisfy a need and proposed the importance of intrinsic motivation as it relates to academic achievement. With this focus in mind, the study quickly moved to an in-depth review of characteristics evident in students that exhibited successful academic

achievement. Some of the characteristics addressed are as follows: competence, self-determination, ability to take risks, regular class attendance, and engagement in classroom activities. Although four hypotheses were tested, for this research proposal one is specifically pertinent and was examined. This hypothesis reflected interest in the positive relationship between academic achievement and intrinsic motivation. In a cross-sectional quantitative relational design, the researchers identified intrinsic motivation as the independent variable (measured via Likert-type scale from several modified instruments developed by the researchers) and academic achievement as the dependent variable (measured by grade point average).   The convenience sample yielded 254 subjects from a diverse class representation of freshmen, sophomores, juniors, seniors, and graduate students. With an alpha level set at 0.05, the results illustrated a positive relationship between the students' perceived intrinsic motivation and their grade point average. Some characteristics evident in students who exhibited successful academic achievement are the following: competence, self-determination, ability to take risks, regular class attendance, and engagement in classroom activities. Students who refer to themselves as being intrinsically motivated typically tried harder, and therefore, performed well academically (Howell, Kurlaender, & Grodsky, 2010).   Additional conclusions supported findings that instructors and administrators could positively impact student achievement by nurturing intrinsic motivation in their students (Baldwin & Karl, 1987; Cheng et al., 2001).

Additional implications in the post-secondary setting include identifying the need for support through the development of a relationship between motivation and persistence. One retention factor essential for academic achievement within the educational arena was persistence (Smith, 2007). Identified facets of persistence include commitment to goals, support, self-efficacy, and the desire for career advancement (Cohen, 2011). For motivation to be present, the

individual must exhibit characteristics of energy, skill, and acknowledgement of incentives. Identifying and developing these traits can build student persistence, thus enhancing their motivation towards academic achievement.

Defining motivation as the inner state that stimulates individuals, Lei (2010) provided information distinguishing intrinsic and extrinsic motivation, while examining the perspective of the college instructor. Lei reported that students needed both intrinsic and extrinsic motivation in order to obtain the knowledge and skills they needed in the workforce post college. Also related to post-secondary education, McLaughlin (2010) asserted the necessity of identifying what factors of motivation influence entry into nursing education as a means to decrease attrition. Intrinsic motivation at the student level encompasses a myriad of benefits, such as enjoying the material, having a positive perception of learning and a decrease in anxious thoughts, depressive moods and, frustration (Lei, 2010). Students who exhibited intrinsic motivation actively engaged in learning activities and possessed a sense of initiative related to their academic pursuits. Intrinsic motivation revolves around previous experiences, current reasons for seeking additional education, and future prospects that influence his/her decision (McLaughlin, 2010). When both aspects of intrinsic and extrinsic motivation can be improved, the likelihood of academic achievement is increased. As students persist, they feel a sense of personal accomplishment, which further enhances the intrinsic motivation. Lei (2010) cited the maximum level of motivation is equivalent to the challenge of the academic task.

Because adult learners typically enter into a learning scenario at will, they are believed to come with a minimal level of interest in the topic, thus positively affecting their ability and desire to learn (Murphy, 2006). Citing Vroom's Expectancy Theory, in order to become and remain motivated about learning, individuals must be able to identify what value they will

achieve from learning. There must be some result dependent upon learning. The challenge of

the instructor becomes keeping that motivation for learning fueled. Within the confines of

Murphy's study, motivation to achieve was largely impacted by a positive nurturing relationship

between the students and mentors. The learning environment was developed to promote learning

by reducing the amount of demotivating factors often present in the academic setting.

      To promote success of the students, it has been necessary to enhance the individuals'

intrinsic motivation by fostering the learning opportunities and providing positive reinforcement

(Hancock, 1994). This positive reinforcement can include anything from verbal praise to

awarding a grade consistent with the work completed by the individual. Positively impacting the

intrinsic motivation assists with student retention and student academic achievement.

      Further addressing the way motivation impacts the learning environment, Levett-Jones et

al. (2009) explored the relationship between motivation and belongingness, which is defined as

the need for individuals to belong. The findings discovered by the researchers promoted the

assertion that individuals experience belongingness in ways that impacted motivation and student

ability to learn. This concept, applied to nursing students within the clinical setting, identified

the growth of motivation when the sense of belongingness between the nursing students and the

nursing staff is present. When students felt a sense of belongingness, they reported feeling like a

valued member of the health care team (Hagerty & Patusky, 1995). Enhancing the feeling of

belongingness positively impacts the nurse and patient relationship, thus increasing patient

satisfaction (Boev, 2012). In an era when the nursing shortage is apparent not only at the

bedside, but also in the classroom, it is essential that nursing education programs utilize a variety

of methods to foster achievement. In developing a sense of belongingness in the clinical setting,

a positive motivational factor can be linked to student achievement.

Extrinsic Motivation

Similarly, it was also beneficial to examine the effect of extrinsic motivation. Extrinsic motivation necessitates the need for an action to produce a palpable incentive, so fulfillment comes from an external consequence rather than the activity itself (Cinar, Bektas & Aslan, 2011). Positively influencing extrinsic motivation assists the individual to persist and may enhance their intrinsic motivation. While the clearest outcomes of extrinsic motivation in an academic setting come in the form of grades, other benefits included recognition and competition with fellow students (Spouse, 2000). Extrinsic motivation focused on how learning is a social activity (Newton et al., 2009). When external reinforcements are present, students were more likely to stay on task until the external reinforcement is awarded (Raines, 2011). McLaughlin (2010) identified the important role of the student's significant other concerning the impact of extrinsic motivation. This individual is capable of influencing the student in his/her academic pursuits with either positive or negative support. Since student achievement was the overarching goal, variables that can be used to enhance motivation should be identified and utilized. For the college instructor, identifying and enhancing intrinsic motivation, as well as providing acceptable methods for extrinsic motivation will foster student persistence and, therefore, achievement.

Effective teachers are also capable of creating a positive impact, thus serving as extrinsic motivators. Legislation mandating the exploration of teacher effectiveness, as the adoption of No Child Left Behind Act (United States Department of Education [USDE], 2002) resulted in student achievement as the measure of effective teachers. In addition to content mastery, effective teachers must also be fluent with applicable delivery methods, where classroom interactions flourish. The ability to engage the students' attention is also linked with teacher

effectiveness, because this ability maximizes the delivery of content. The ability to engage the student enhances extrinsic motivation. Antoline (2005) also addressed the relationship between student perception of instructor motivational behaviors and the students' ability to attain academic achievement and concluded that the relationship between motivational characteristics demonstrated by the instructor positively impacted the final grade attained by the student. This finding supported by Hancock (1994) who asserted the importance of instructors as they assist adult learners within course content.

Faculty project caring attitudes when they engage in conversations with their students, attempting to better understand the background students bring to the classroom. Individuals attained skills associated with achievement when they work with an engaged mentors and have supportive family members (Jeffe, Whelan, & Andriole, 2010). Employing a qualitative analysis approach, Peterson et al. (2012) utilized three focus groups of five to ten individuals each and completed triangulation analysis on the meetings. The results indicated that engaged instructors are able to constructively assist the students in identifying their weaknesses, while enhancing their strengths. Additionally, Urdan, Solek, and Schoenfelder (2007) found that students reported positive effects of family support, ranging from encouragement to financial assistance, which had a cumulative impact on their school work. Encouragement and positive attitudes from teachers also impacted students' ability to perform well on multiple choice tests (Williams & Clark, 2004). When students are consistently receiving these positive inputs, the implications reach beyond the classroom atmosphere to impact performance as well. Providing these extrinsic motivators may enhance the individual's ability to academically achieve.

Motivational Studies Specific to Nursing

The relationship between motivation and the ability of the student to attain academic achievement was apparent. However, few studies existed that describe the relationship between motivation and nursing students in particular. When examining this relationship, three studies became relevant.

Exploring the predictive ability of course grades upon the National Council of Licensure Examination for Registered Nurses (NCLEX-RN) became a concern after the 1988 revision of this standardized examination. Prior to 1988, the NCLEX-RN was more content focused, with emphasis on knowledge and comprehension. Post this change, the examination began to focus with application taxonomy in mind, thus changing the way nursing faculty assessed student readiness (Waterhouse, Carroll, & Beeman, 1993). Baradell, Durham, Angel, Kaufman, and Lowdermilk (1990) recognized the need for a comprehensive approach to preparing students for standardized tests. When attempting to predict student success upon standardized tests, obtaining performance information over a period of time was found to be more reflective of actual student performance. Similarly, Drake and Michael (1995) examined 350 nursing students pursuing a registered nursing license via an associate of science in nursing degree. Gathering data over five years, the researchers calculated Pearson point biserial correlation coefficients that showed, with statistical significance less than .05, that students with prior positive performance within nursing theory and nursing laboratory courses were more likely to obtain a passing score on the NCLEX-RN. Multiple regression indicated that there was no statistical significance in the ability of the individual's grade point average within the nursing curriculum to better predict attaining a passing score on the NCLEX-RN than were the measures of grade point average prior to entry into the nursing program and the grade point average

attained in the nursing laboratory course (Drake & Michael, 1995). Baradell, Durham, Angel, Kaufman, and Lowdermilk (1990) asserted limited predictive ability of grade point averages prior to nursing school entry and laboratory course grades upon the individual's NCLEX-RN score; likewise, the grade point average within nursing theory courses provided a modest ability to predict success upon the NCLEX-RN. These studies point to the need for additional factors beyond grade point averages to serve as predictors of academic achievement.

Franklin and Tolbert (1995) examined the use of how assessment tools influence the curriculum design and delivery within baccalaureate nursing programs in an effort to improve student performance on the National Council Licensure Examination for Registered Nurses (NCLEX-RN). Utilizing information obtained from the standardized tests provided by the National League of Nursing (NLN), information regarding results from the entire group, as well as individual strengths and weaknesses were identified. Areas in which 50% or more of the group failed to answer questions correctly prompted the researchers to examine the curriculum for content analysis. Additionally, in specific instances where actual/potential problems were noted, strategies were implemented to identify problem areas and turn them into opportunities for improvement (Braxton, 1993). When enrichment plans and policies were developed in response to individual areas of weaknesses, motivation was fostered, thus retention occured (Piper, 2012). Although formal statistical analysis was not reported, Franklin and Tolbert (1995) utilized the scores obtained from a random selection of students within the TTU School of Nursing on standardized NLN achievement tests given at specific times within the curriculum to compare with the NCLEX-RN passage rates as reported to the school by the Tennessee State Board of Nursing. The predictive ability of NLN achievement tests was found to positively correlate with students' successful completion of the NCLEX-RN.

Describing academic achievement as successful completion of the NCLEX-RN, Davenport (2007) related research concerning tactics employed by a school of nursing as they attempted to increase their NCLEX-RN passage rates. Several issues were cited as relevant to student success upon this examination. These issues consisted of addressing student and faculty attitudes, curriculum, and standardized examinations (Carr, 2011). To address student attitudes, courses were modified within the curriculum to require a minimum required grade on standardized tests (Sifford & McDaniel, 2007). Once weaknesses in curriculum were identified, courses were revamped to meet the existing gaps in knowledge (Morton, 2005). Subpar performance in any area must be detected early, which initiated an opportunity for remediation of course content (Stuenkel, 2006). Recognizing the difficulty of successful completion of the NCLEX-RN fostered enhanced preparation. This preparation was visible when individuals realize a particular goal is difficult to attain, and to achieve it, they must be willing to work harder (Silva, McCord, & Gendolla, 2010).

Author and curriculum designer/evaluator, Robert Mager stated, "When you locate discrepancies between measurements and standards or ideals, you identify opportunities for improvement" (Mager, 1985, p. 182). An opportunity for improvement existed within the ability to predict student achievement upon the Illinois Nurse Assistant Competency Examination. While a scant amount of studies were present that involve the predictive ability of a variety of factors upon the NCLEX-RN, no studies were found to address the predictive ability on the Illinois Nurse Assistant Competency Examination. As noted in Chapter 1, the nurse assistant level of learning serves as a basis for further nursing education, as well as meeting the need for bedside caregivers. It is imperative to the nursing community to discover ways that positively impact the ability to retain, educate, and foster academic achievement for nursing students.

Furthermore, it is essential to the health care community at large that the availability of competent nurses matches the needs of the population.

Motivation Summary

Instructors play a crucial role in developing motivation. Examining the relationship between motivation and student achievement, Mahle (2011) explored how various levels of interactions between faculty and students impact student motivation. To promote student achievement, it has been essential to motivate the student to learn (Weibell, 2011). Using undergraduate students in web-based health administration courses at a public university, students were placed into either control or experimental groups. The experimental group participated in a section of the web-based class that utilized high interactivity between the student and instructor. The hypothesis of the study tried to correlate the relationship between student and instructor interactivity and student motivation. Obtaining student responses on a 5-point Likert-type scale, an ANOVA was conducted. The results supported the hypothesis that increased interactions positively impacted the participants' level of achievement ($X_{2, 124} = 10.080$, $p = 0.006$). (Mahle, 2011). Weibell (2011) also asserted that student motivation increased when student and instructor interactivity was enhanced, and students who experienced higher interactivity demonstrated a positive motivation to learn. Antoline (2005) further elaborated upon the motivational effect of the teacher by citing research that supported teacher effectiveness as being paramount to student motivation.

Motivation, whether intrinsic or extrinsic, plays a vital role in assisting individuals to reach their maximum potential. Because academic achievement means so many things, it has been essential for educators and students to identify the context in which it is being used (Woolfe, 2011). When the context is clarified, it assists the student to recognize what they must

to do in order to achieve their goal, while providing a framework for the instructor to systematically engage the student in the learning opportunities needed to meet the terminal objective. In the academic setting, the literature review indicated that faculty members can foster intrinsic motivation and enhance extrinsic motivation thus increasing the likelihood of individual's reporting a high level of motivation (Huett, Kalinowski, Moller, & Huett, 2008). Motivation is essential for persistence within an academic track, and thus the future preparedness to enter the workforce.

Vroom's Expectancy Theory

Vroom's Expectancy Theory emerged in management sectors in 1964 (Vroom, 1964) as a method for quantifying motivation. First applied to work behaviors as a means to enhance employee performance, it focused on variables that impact employee performance (Vroom & Maier, 1961; Vroom, 1964). This model became readily accessible in the academic setting by substituting the employee with a student, and equating employee performance as student achievement. According to Vroom, the following constructs must be present for the individual to be motivated: a relationship between effort and performance, good work results in a reward, the rewards fulfill the individual's personal needs and the necessity of fulfilling the need makes the effort meaningful (Vroom & Jago, 1995). The model asserted three basic concepts that are essential to its application: Valence (V), Expectancy (E), and Instrumentality (I).

The Construct of Valence

Valence has been described as the pleasantness of an outcome (Harrell, Caldwell, & Doty, 1985, p. 725). Valence or reward described the correlation between the individual's desires for a particular outcomes (Vroom & Jago, 1995). Since individuals visualize rewards differently, a person may feel a different attraction towards different rewards.

Academic achievement has been related to Valence. When a student perceives the benefits of academic achievement as desirable, they are more likely to engage the other two constructs of Vroom's Expectancy Theory, Expectancy and Instrumentality, to reach a sought after objective. There are many indicators of academic achievement, including attaining specific grades that allow for progression within a field of study (Dearnley & Matthew, 2007), successful acquisition of knowledge and skills (Peterson et al., 2012), earning specific certificates or degrees (Allen & Robbins, 2010), and passing of competency examinations (Madaus & Russell, 2010). The very act of achievement fueled the students' desire and assurance that they are capable of further success (Slade & Rush, 1991).

Building upon this capability of success, Moors, DeHouwer, Hermans, and Eelen (2005) defined motivational Valence as a component of incentive related to present aspirations. Motivational Valence is largely determined by where the individual wants to be. Gorlick and Maddox (2013) found that Valence is associated with the range of awareness generated by the individual. For example, if something is found to have a high or positive Valence, then the individual will demonstrate an enlarged range of awareness, understanding, and action, while a negative Valence will result in the opposite findings.

Valence was a key indicator of occupations when individuals chose to enter a nursing program (Spouse, 2000). Understanding the rationale behind what entices an individual to begin a nursing academic course and maintain productivity within the health care arena has been paramount to the retention of a qualified workforce of nurses (Newton et al., 2009). Many students identified the Valence between a nursing education and a nursing career as a viable option for employment based on the projected health care shortage and workforce needs. This shortage increased the Valence of nursing as a vocational option, often an individual's second

career choice, as the job market is secure and projected to grow (Raines, 2011). When individuals choose career options based on pre-conceived ideas, they do so by forming personal images in their mind about what a particular vocation does. These personal images have served to enhance the Valence of choosing a nursing career by serving to motivate individuals to practice in a way that stems from personal beliefs (Spouse, 2000). Likewise, Valence towards a particular occupational choice impacted the individual's reason to approach a particular employment venue (Janman, 1987). Janman found the motive to approach success, along with the incentive value of success, as noted by the desired career, to be strongly linked with motivation. When individuals chose a particular career path due to their interest in that selection, they demonstrated a Valence towards that occupation.

Valence, as researched by Suri, Sheppes, and Gross (2013) identified how pleasing or unpleasing is the result of an action. When an individual is pursuing an education that leads to employment as a nurse assistant, they must first identify whether they find the tasks associated with this career as pleasant or not. Tubbs, Boehne, and Paese (1991) identified Valence as expected gratification. They noted usual tests of Vroom's Expectancy Theory to require participants to make decisions based on the Valence and Expectancy and their impact on a particular variable, often a career option (Tubbs, Boehne, & Dahl, 1993).

When desired grades are earned, skills are developed, and academic progression is made, students are rewarded with anticipated academic certificates or degrees. Obtaining desired certificates and/or degrees is closely associated with Valence. Currently only 50% of students entering community colleges completed their degree within six years (Allen & Robbins, 2010). Readiness for college courses was one facet of this retention (Le, Casillas, Robbins, & Langley, 2005). The researchers utilized the hypothesis that examined the relationship between the

individual's interest-major with motivation, academic preparation, and socio-demographic factors upon the first year academic performance program retention (Allen & Robbins, 2010). Within 15 four-year institutions and 13 two-year institutions in the study, a variety of valid instruments were used: American College Testing (ACT) scores, Unisex Edition of the ACT Interest Inventory (UNIACT), the Student Readiness Inventory (SRI), and grade point averages (GPA). Using hierarchical logistic regression, the researchers identified the following: 33% of the four-year students attained a degree in more than four calendar years; however, only 12% of the almost 800 students entering the two-year institution obtained an associate's degree or a comparable certificate within two years (Allen & Robbins, 2010). Precollege academic performance and motivation were found to significantly predict first-year academic success. Other impacts, such as the occupational training choice, were also significant indicators of persistence (Herriot & Ecob, 1979).   Identifying the driving and restraining forces for degree completion supported the concept of academic achievement (Center for Community College Student, 2012). Colleges and universities benefit when students matriculate by reaping the benefits of student retention, such as the revenue stream generated by student enrollment. The workforce benefits also, by having a pool of qualified individuals prepared for employment.

The Construct of Expectancy

The second construct, Expectancy or effort, is the student's projection that A causes B. Within this concept is the belief that an individual acts a certain way because they believe their actions will yielded a specific result (Vroom, 1964). For example, the motivated sales person believes that the more cold calls they make the more products they will sell. Likewise, the motivated student believes that the more they study, the better they will perform on an assessment. Inherent in this portion of the theory is the belief that action A (good study habits)

yields result B (desirable test results). When the employee or student consistently reaps positive results from specific actions, they are more likely to employ those actions again. This concept is imperative for the management leader and dynamic instructor to grasp. The reinforcement of these actions fosters the employee or student to recognize the relationship and identify ways to continue these positive actions. Academically, studying and effort to learn caused the student to earn a good grade (Geiger & Cooper, 1996).

Gonzalez-Moreno (2012) believed that understanding the Expectancy of students in the academic setting could assist educators to identify factors that influence attrition and/or retention rates. Decreasing attrition is an obvious benefit for academic institutions, as students that are retained reflect positively on the institution, as well as provide needed funds for institutional endeavors. Retention, as noted by student success, was linked to academic motivation (Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998). Citing Expectancy as a factor, this facet of motivation was related to the tasks that individuals choose as well as their ability to persist in those tasks and ultimately how well they do on said tasks (Hartmann, Widner, & Carrick, 2013).

Jones, Paretti, Hein, and Knott (2010) found that constructs related to Expectancy were better able to predict achievement than constructs related to values. Additionally, Jones et al (2010) asserted the need to comprehend students' intentions as their career plans are impacted by their educational experiences, not to mention the impact of academic persistence. In order to assist with academic planning and career building, the individual must exhibit Expectancy needs that were recognized as high for the motivated behavior to exist (Nagengast, Trautwein, Kelava, & Ludtke, 2013).

The Construct of Instrumentality

The final construct, Instrumentality, refered to the student actually getting what they earn, such as the sought after grade, degree, or employment position (Malloch & Michael, 1981). Described by Scholl (2002), this concept was best defined by the term performance. Within this supposition, the motivated employee believes that his/her performance (hardworking, dedicated) will secure him the pay raise, the client contract, or the job promotion. Similarly, the motivated student believes that their performance (successful score on their industry-specific high stakes test), will secure their career opportunities, and with that, financial stability and prestige. Both management leader and vibrant instructor could utilize this concept to enhance performance of the employee or student respectively. To see the opportunities and internalize the steps necessary to reach the goals will incentivize both employee and student. When these variables or constructs were viewed together, they formed an algebraic equation that allows for the measurement of motivation. V x E x I = Motivation. Of the three constructs within Vroom's Expectancy Theory, Instrumentality has been identified as having the most direct impact (Kover & Worrell, 2010. Specifically, Instrumentality has the ability to correlate with both extrinsic and intrinsic motivation.

Instrumentality can also be seen in relation to academic achievement. Academic achievement signifies a degree of knowledge and skill acquisition. By attributing specific grades to acceptable performance, the student has been able to show his/her ability to think and practice independently (Dearnley & Matthew, 2007). In an academic setting, when a student demonstrates this gain, he/she is rewarded with a sought-after grade.

Emich (2012) asserted Instrumentality is attenuated in group work. This decrease is due to the difficulties group members perceive in the correlation between the time and energy they

invest with the outcome.   Additionally, Emich (2012) reported the decrease in Instrumentality is due to group members not perceiving that the entire group is needed for task completion. Likewise, Karau and Williams (2001) found group work to impact the extent of effort each individual would yield. When the entire group is not felt to be directly necessary, the member Instrumentality was also reduced as all members do not view their participation as inter-dependent (Wagemen, 1995). In direct conflict with Emich's (2012) assertions, Huffmeier, Krum, Kanthak, and Hertel, (2012) found Instrumentality to be increased in group settings. This increase was credited to the participants' perceptions that their personal aid is integral to the group outcome as a whole (Huffmeier et al., 2012). For the astute faculty member, assessment of group dynamics would be necessary in order to determine the growth of Instrumentality within a group setting.

Bembenutty (2010) stated that individuals that demonstrate Instrumentality value goal achievement and should be considered independent learners. These self-regulated learners may need assistance from faculty in development of attainable goals related to their career choice. Miller, DeBacker, and Greene (1999) asserted the importance of Instrumentality on building future goals. They held that future goals provide a stimulus for designing and attaining mini-goals that lead to the attainment of obtaining future goals. Individuals' choices for future goals is directly related to amount of motivation needed to complete tasks that lead to desired goals, as measured by Instrumentality (Simons, DeWitte, & Lens, 2004). Instrumentality is crucial when an individual considers the implications of choices and goals.

The link between Instrumentality and extrinsic motivation has also been explored in the literature and has found that extrinsic motivation could be enhanced when academic support is offered by providing tutoring, study groups, library resources, and research assistance, as well as

financial means to secure textbooks, childcare, and additional resources (Levine & Levine, 1991). Additionally, a connected relationship was identified between the student and instructor, which was linked to academic achievement (Taylor, 2005). Conversely, if a student has difficulty attaining the grade he/she desires due to poor academic performance, they needed encouragement from the educator to seek academic support, which would help them to be more successful (Ofori & Charlton, 2002).

Instrumentality is also seen as the motivator to perform well on standardized tests, specifically tests that are associated with potential employment opportunities. Some career options require the use of competency examinations for successful entry into that chosen career path. Successful completion of a competency examination held the student accountable for the learning that occurred in order to advance to the next level of certification or degree attainment (Madaus & Russell, 2010). Since competency examinations directly reflected prior learning that has occurred, it was essential that instructors prepare students adequately for these competency examinations. In order to do this, teaching and assessment strategies within a program needed to be modified (Carrick, 2011). To increase instructor effectiveness, gaps in teaching and examination methods need to be evaluated for consistency. This consistency may allow the student to perform better on the competency examination as they acquire the knowledge and skills needed, as well as become proficient with the specific evaluation procedure. While preparing students for successful completion of competency examinations is essential, Au (2007) pointed out that this preparation may foster educators teaching to the test. The aspiration is to identify a middle ground, where instructors prepare students with the knowledge and skills needed in their professions, in addition to competency examination preparation.

Studies Utilizing Vroom's Expectancy Theory as a Framework

For a numerical value to be assigned to motivation, it was necessary to operationally define these formal concepts within each research opportunity (Vroom, 1964). Doing so ensures consistency between the measurements of different subjects, as well as within an individual over a specified period of time. Benefits of quantifying the value of motivation allowed the researcher to verify the existence of relationships that exist between variables. These relationships could be modified in such a way to increase the likelihood of student academic achievement by manipulating the variables.

As shown by a variety of divergent studies, the relationship between Vroom's Expectancy Theory and motivation as it relates to academic achievement could be investigated (Batlis, 1978; Harrell, Caldwell, & Doty, 1985; Oliver, 1995; Sanchez, Truxillo, & Bauer, 2000; Shapira, 1976). As researchers explored different relationships, variables could be manipulated to examine the many different ways motivation can be enhanced to bolster student academic achievement and determine what role remediation plays in enhancing academic achievement (Martorell & McFarlin, 2011).

Vroom's Expectancy Theory explained how an individual motivation influences the actions utilized to obtain a goal (Wong, Wong, & Mensah, 1983). Among student populations, it is essential for the student to draw correlations between his/her work and their grade. The importance of successful academic achievement becomes the reward for obtaining identified knowledge and skills. The learning institution faces the challenge of designing situations in which the student can draw a clear correlation between his/her actions, products of their motivation, and the outcomes. When this relationship is clear and consistent, it serves as a catalyst to propel the student in the desired direction. Instructional techniques must be clearly

defined in such a way that the objectives fuel the learning opportunities, and therefore, their assessments (Anderson & Krathwohl, 2001). Consistently connecting performance with learning outcomes allows the student to identify how the learning opportunities are driven from the learner objectives. When the assessment was a direct reflection of the student's acquisition of the knowledge and skills obtained via the learning opportunities, they perceived benefit from fully understanding and practicing within those learning opportunities (Rolloff, 2010). Experiencing this format repeatedly throughout the curriculum, the student built the confidence in the system and motivation of their ability to perform.

Oliver (1995) used Vroom's Expectancy Theory as a model to identify factors that negatively impact motivation in an effort to develop strategies for assisting student to perform well in school. Newsom (1990) asserted that the greater the motivation, the greater the effort which leads to positive functioning, thus the attainment of desired outcomes. Teachers must recognize what motivates students and how to motivate them in order to enhance student performance (Hancock, 1994). Drawing upon Vroom's Expectancy Theory, Oliver (1995) recognized the necessity of engaging the student in the effort of learning, which enhances the individual's performance and satisfaction. When the individual attained better academic performance and the subsequent satisfaction, all three facets of Vroom's Expectancy Theory were realized. Subsequently, as teachers identified what motivated their students and then enhanced that motivation, student performance was more likely to occur (Silva, McCord & Gendolla, 2010). Student performance can further be linked to student retention, which plays an important role in enrollment, and therefore, the financial status of various institutions. The positive impact of fostering motivation is experienced by the student via increased performance,

the teacher via increased student engagement and performance, and the institution via increased enrollment, persistence, and financial stability.

Further examining the relationship between student performance and motivation, Harrell, Caldwell and Doty (1985) applied Vroom's Theory to describe the positive correlation of accounting students' (n=77) performance with their Expectancy of a good grade. This finding is consistent with Silva, McCord, and Gendolla's (2010) research that asserted the more difficult the goal, the more earnest the effort. Likewise, Slade, and Rush (1991) found a positive relationship between achievement motivation and the choice an individual makes related to task difficulty.

Attempting to describe how intrinsic motivation is more closely linked with achievement motivation than extrinsic motivation, Batlis (1978) examined (n=107) the relationship between students self-reporting a high level of intrinsic motivation versus students reporting a high level of extrinsic motivation. Using a questionnaire designed to quantify the students' perceptions of their intrinsic or extrinsic motivation, Batlis (1978) measured instrumentality via a Likert-type scale. Instrumentality was reported as $r = -.20$, n = 68, p > .10. Valence was referenced with Instrumentality and obtained by using the same 12 outcomes and ranking them in importance. This score, reported as The Instrumentality-Valence Cross products produced $r = .42$, n = 41, p < .01. Finally, Expectancy was found to be statistically significant ($r = -23$, p < .02). Although this correlation was low, it did not surprise the researchers because they believed it represented a more generic approach to Expectancy, while Instrumentality proved to be a more unique and specific indicator of performance (Batlis, 1978). This finding is consistent with Baldwin and Karl (1987) who also asserted the importance of Instrumentality when designing tests to measure motivation. Likewise, Bembenutty (2010) also utilized Instrumentality as a predictor of goals.

Understanding this perception of intrinsic motivation is an essential aspect of Vroom's

Expectancy Theory, as it supports the ability to predict academic achievement by reinforcing the

concept of Instrumentality.

Due to the extensive use of standardized testing throughout all levels of education, it is

important to understand the implications of motivation upon student performance on these tests.

Barry, Horst, Finney, Brown, and Kopp (2010) found that students with higher cognitive ability

and higher appreciation of academic performance exerted more effort on test performance.

When students can fully appreciate the rationale for standardized tests, they may perceive a

benefit for trying harder to perform better. When individuals perceived that their efforts result in

a performance that produces an outcome, it increased their task satisfaction (Hamington, 2010).

Giere (2003) emphasized the need to identify a correlation between the motivation and attitudes

as they related to testing as it may provide a foundation for research on applicable teaching

methodologies within current educational systems. Utilizing this cause and effect idea, Vroom's

Expectancy Theory produced a positive result that is likely to be reproduced in order to attain a

similar feeling of satisfaction. Assisting students to identify their second order outcome enabled

them to align their first order outcomes towards that end (Wiltermuth & Gino, 2013).

Motivation could be examined by utilizing Vroom's Expectancy Theory (1964) and

Atkinson's Model (1964). Drawing upon Deci's (1975) work, the differences can be explained

by understanding the difference between intrinsic and extrinsic motivation. Noting that the two

models do not exactly coincide with their ability to predict similar results in all situations,

Shapira (1976) explored the concepts of Valence within each model and proposed the following

hypothesis:

If a person is engaged in a challenging activity and if the person can choose the

level of task difficulty that he/she wishes to pursue, then a person who can get no

monetary rewards for performing the activity should choose a more difficult task

to work on than a person who can get monetary rewards for performing the

activity. (p. 1237)

To test the hypothesis, 60 undergraduate students from a public university were randomly

assigned to either a control group or an experimental group. In a 30-minute setting, the

individuals were instructed to complete a puzzle; the control group did not receive monetary

incentives to successfully complete the puzzle in the time frame, while the experimental group

was informed they would receive a monetary award for successful completion of the puzzle

within the allotted time (Shapira, 1976). Gorlick and Maddox (2013) asserted that when

attention was increased, so were the cognitive results. This assertion reinforces the concept that

individuals may choose easier options with extrinsic rewards if they gain some intrinsic

satisfaction from accomplishing a difficult task. Indeed, Valence has been viewed as a strong

component of motivation that can be linked to specific choices (Suri et al., 2013). In the

academic setting, instructors may provide an extrinsic award, but that apparently does not

outweigh the intrinsic satisfaction a student feels when accomplishing a challenging task.

After an exhaustive literature search, only one article was found that addressed the

application of Vroom's Expectancy Theory for students in some level of nursing education.

Gyurko (2011) completed a synthesis of Vroom's model as it applied to nursing education, and

yielded the following implications. If a licensed practical nurse (one year vocational certificate)

was contemplating returning to school to obtain a registered nurse license (two year associate

degree or four year bachelor degree), they may ask,

How much energy is needed to get through school and become an RN, what rewards they

perceive accrue to becoming an RN, and how much they actually value those perceived

rewards (i.e., how much the rewards to being an RN actually align with their personal

goals and values). (Gyurko, 2011, p. 507)

Vroom's Expectancy Theory could be utilized in assisting nursing faculty with the admission

and retention process. While current admission structures admit based on grade point average

and completion of prior educational requirements, adding this layer may positively impact

student retention.

Similarly, motivation as it relates to retention was found to be integral when examining

occupational choice (Herriot & Ecob, 1979). Fostering motivation in this aspect can prove to be

beneficial not only on an individual level, but across workforce disciplines.

Valence, Instrumentality, Expectancy Motivational Scale

Building upon the constructs in Vroom's Expectancy Theory, Sanchez, Truxillo, and

Bauer (2000) developed an instrument to examine the relationship between the known constructs

and an individual's testing performance. The authors conceptualized that the individual's belief

that attempting to do well on a standardized test would help them perform better. This concept

served as the working definition of Expectancy, which is similar to research completed by

Herriot and Ecob (1979). Identifying those factors that influence the relationship between

performance and individual belief may prove advantageous to recruiting individuals to particular

occupations (Benson & Dundis, 2003).

Correlations and reliabilities were provided for the following variables: test score,

Valence, Instrumentality, Expectancy and VIEMS composite (Sanchez, Truxillo, & Bauer,

2000). Test-taking should be viewed as complex indicating several facets of an individual's

motivation is linked with how well the individual actually performs on the test, how they

perceive their performance and how they feel about the entire test-taking event (Macan, Avedon,

Paese, & Smith, 1994). Also, a positive relationship did exist between test-taking motivation and

actual test performance (Arvey, Strickland, Drauden, & Martin, 1990).

Additionally, the relationship between test-taking motivation and actual test performance

was ascertained by describing the relationship between the individual's test result of pass or fail

and his/her composite VIEMS score. Finally, building upon the facet of Instrumentality, the

relationship of the VIEMS score as it relates to perceived employability within the medical field

as a nurse assistant was explored.

The Relationship between Motivation and Vroom's Expectancy Theory

As the literature shows, motivation has been a broad lens used to define what internal or

intrinsic traits, along with what external or extrinsic traits, are responsible for inspiring an

individual to achieve particular goals. While extrinsic motivation can incentivize an individual

to act in a certain way, primarily an individual's intrinsic motivation is responsible for spurring

them to action and maintaining that action.

In an effort to clearly define facets of intrinsic motivation, as well as motivation

holistically, Vroom's Expectancy Theory was utilized as a foundational cornerstone. The three

components of Vroom's Expectancy Theory, Valence (V), Expectancy (E), and Instrumentality

(I), were utilized to describe and quantify motivation.

Although all constructs were examined in detail, simply put, the concept of Valence can

be categorized as intrinsic motivation, the construct of Expectancy can be categorized as

extrinsic motivation, and the concept of Instrumentality can be categorized as either intrinsic or

extrinsic motivation, depending on its use. Understanding the impact of all three constructs on

the overall motivation of an individual was imperative in recruiting and retaining individuals within nurse assistant educational programs. Again, this retention is imperative to providing an adequate workforce of nurse assistants.

Summary

The focus of this literature review was to explore the definition of motivation within the academic setting. Addressed were issues of intrinsic and extrinsic motivation, and how they impact student academic achievement. Student academic achievement was defined as attaining specific grades that allow for progression within a field of study (Dearnley & Matthew, 2007), successful acquisition of knowledge and skills (Peterson et al., 2012), earning specific certificates or degrees (Allen & Robbins, 2010), and passing of competency examinations (Madaus, 2010). A variety of factors influence student achievement, as noted by Taylor (2005). The literature review also explored the relationship between the concepts of Vroom's Expectancy Theory. These concepts include Valence, Expectancy, and Instrumentality.

The identification of intrinsic and extrinsic motivation was introduced as a predicting factor associated with successful student achievement (Lei, 2010). Since motivation is linked with persistence, Cohen (2011) found evidence of the ability of motivation to predict academic achievement among students. When methods that identify and enhance intrinsic and extrinsic motivation are used in the academic setting, persistence, and ultimately, academic achievement can be realized.

CHAPTER 3

METHODS

The purpose of this study is to examine the relationship between motivation, as measured by the constructs of Vroom's Expectancy Theory and student academic achievement, as measured by successful completion of the Illinois Nurse Assistant Competency Examination, was evaluated.

Definition of Study Population

Participants consisted of individuals who have successfully completed a nurse assistant training course within an approved nurse assistant training program in the state of Illinois, as approved by the Illinois Department of Public Health (IDPH), and who were seeking entry into the Illinois Health Care Registry, which infers the individual's successful completion of the Illinois Nurse Assistant Competency Examination. These individuals took the competency examination at various approved locations across the state of Illinois. The competency examination is available monthly in a paper/pencil format. Approximately 1,000 individuals test monthly, with an average of 90% of candidates passing the competency examination upon their first attempt. Although a fairly low amount of individuals do not pass the examination on their first attempt, program evaluation identifies particular programs to be more susceptible to a higher fail rate than other programs. By identifying what factors impact success upon the competency examination, programs with lower than average pass rates could use this data in their admission process, as well as within their training to enhance the possibility of success for their students (T. Hovatter, personal communication, February 5, 2012).

This population was chosen because of the accessibility of test takers, as well as the amount of individuals who are not successful on the first attempt. Ten percent of the individuals

sitting for the exam do not pass the Illinois Nurse Assistant Examination Competency on the first

attempt. With the current and proposed need for nurse assistants to increase 24% to 28%

(O*Net), retention within nurse assistant programs, as well as successful completion of the

Illinois Nurse Assistant Competency Examination is essential in meeting the patient care needs

of the population. Because the IDPH had granted permission for surveys to be attached to

competency examinations, tracking of individuals was simplified.

<div align="center">**Instrumentation**</div>

Valence, Instrumentality, Expectancy Motivation Scale

Although the population did not utilize individuals engaged in any type of medical

education, Sanchez, Truxillo and Bauer (2000) utilized Vroom's Expectancy Theory as a basis to

develop an Expectancy-Based Measure of Test-Taking Motivation. Researchers Sanchez,

Truxillo and Bauer (2000) utilized four subject-matter experts on applied psychology and one

subject-matter expert in personnel testing to evaluate the items they wrote to reflect the three

separate constructs measuring motivation of Valence, Instrumentality, and Expectancy utilized in

the VIEMS.   After revisions based on input from the subject-matter experts, the 10 item scale

was piloted at a university with a sample of 42 individuals. Validity was established by

demonstrating a correlation with the VIEMS scores and the Test Attitude Scale Motivational

subscale (TAS-M) scores of the participants. TAS-M was designed by Arvey et al., (1990) to

gain a wide measure of motivation by focusing on the individual's aspiration for a positive test

score and evaluate the individual believed he or she attempted to do well (Sanchez, Truxillo, &

Bauer, 2000). Reliability was established by utilizing the VIEMS in two field samples as well as

one student sample following the pilot and obtaining similar results.

Within this study, sample sizes of 296 and 246 completed the Valence, Instrumentality, Expectancy Motivation Scale; hierarchical regression analysis was performed to identify relationships between components of motivation and test-taking performance (Sanchez, Truxillo & Bauer, 2000). Hypotheses tested by Sanchez, Truxillo and Bauer (2000) included the following:

    1. Items of the VIEMS factor into three unique clusters.

    2. There is a positive relationship between test-taking motivation and actual test performance.

The VIEMS research question specifically addresses Instrumentality by evaluating the Expectancy of being hired. To ensure validity of the VIEMS, the authors developed questions to assess the components of motivation as measured by the constructs of Valence, Instrumentality, and Expectancy (Sanchez, Truxillo & Bauer, 2000). Subject matter experts in applied psychology then reviewed the items and provided feedback for revisions.

Item stems were designed so that the scale could be used in diverse employment and research settings. The outcome referent for Valence (e.g., a job in the selection context) would likely change in each setting. Valence consisted of 3 items (e.g., "I want to get [outcome referent]"). The hypothesized Instrumentality subscale contained 4 items (e.g., "I think you will [outcome referent] if you get a high test score"). Expectancy consisted of 3 items (e.g., "If you concentrate and try hard you can get a high test score") (Sanchez, Truxillo & Bauer, 2000, p.742).

Participants for the study included entry level police officer applicants who voluntarily participated. Using a 5-point Likert-type scale, the participants completed the VIEMS after their submission of a written exam that served as the initial application step in the

entry level police officer position. Individual VIEMS scores were correlated with written test examination scores with descriptive statistics, correlations and reliabilities provided for the following variables: test score, Valence, Instrumentality, Expectancy and VIEMS composite (Sanchez, Truxillo, & Bauer, 2000).

After examining the results, Sanchez, Truxillo and Bauer (2000) posited several implications from their study. First, that test-taking be viewed as complex, which indicates several facets of an individual's motivation is linked with how they actually performed on the test, how they think they performed on the test and the entire test taking occurrence. Second, a positive relationship did exist between test-taking motivation and actual test performance, as indicated by the results of their hierarchical regression. Also, additional research exploring if test-taking motivation is impacted by the actual test design is needed (Sanchez, Truxillo, & Bauer, 2000).

Utilizing the VIEMS composite as a measurement, Reeve and Lam (2007) addressed test taking motivation in their study examining test-taker characteristics. Although other tools were utilized, the VIEMS was specifically included to measure test-taking motivation. The results from this particular portion of their study provided consistent results with Sanchez, Truxillo, and Bauer by obtaining Cronbach's alpha of .85 for Valence, .81 for Instrumentality and .79 for Expectancy (Reeve & Lam, 2007, p. 231). Recall the internal consistencies calculated by Sanchez et al. as .94, .86 and .89 respectively.

Following the Sanchez, Truxillo, and Bauer (2000) study, the present research explored relationships between Valence, Instrumentality and Expectancy, as introduced by Vroom's Expectancy Theory (Vroom, 1964). Additionally, the relationship between test-taking

motivation and actual test performance was ascertained by describing the relationship between the individual's test result of pass or fail and his/her composite VIEMS score. Finally, building upon the facet of Instrumentality, the relationship of the VIEMS score as it relates to perceived employability within the medical field as a nurse assistant was explored.

The VIEMS composite was calculated by adding Valence, Instrumentality, and Expectancy, consistent with the procedure utilized by Sanchez, Truxillo, and Bauer, 2000. Likelihood of job acquisition was calculated on a 100- point scale using the prompt, "I estimate the likelihood of my getting a job as a CNA to be _____%." CNA Competency Exam Score was coded as 1= pass; 0= fail was used for descriptive data, as well as entering the raw test score obtained on a 0 to 100 scale. Education level was coded as follows: 0=High School diploma, 1 = GED, 2 = Certificate, 3 = Associate degree, 4 = Bachelor degree, and 5 = Other. Program training type was coded as follows: 0 = Community College, 1 = High School, 2 = Vocational/Private, 3 = Home Health, 4 = Hospital, 5 = Facility, and 6 = Other. English as primary language was coded as 0=primary, 1= not primary.

Data Collection Procedures

Human Subject Approval was obtained in February of 2014, providing Assurance number FWA00005334. Permission for using the VIEMS model was provided in the appendix of Sanchez, Truxillo, and Bauer (2000) research depicting the development and examination of the VIEMS scale.

The survey was pilot tested with nurse assistant students at two different locations. The first location was a nurse assistant training program at a local high school. The second location was a nurse assistant training program at a local community college. The nurse assistant students were encouraged to participate in the survey by their instructor and test proctor, but was not

rewarded or penalized for completing or failing to complete the survey. The pilot study was utilized to ascertain that the time needed to complete the survey was equal to or less than 15 minutes. Also, participants from the pilot study were asked to give the researcher information regarding the ease of completing the survey. Modifications to the survey were made based on information from the pilot tests. This modification included the survey being on the front and back of one sheet of paper rather than two sheets of paper. Additional comments questioned the similarity of items on the VIEMS, but those could not be altered without compromising the validity of the survey tool.

The group of students in the first pilot study were currently enrolled in a nurse assistant training program located at Benton Consolidated Community High School. This survey took place on a Tuesday morning, immediately after morning announcements, during the first week of March of 2014. After instructions were given and the survey tool was delivered, the respondents began answering the instrument. A total of six students were available for this pilot. The time required for all individuals to complete the survey was six minutes. The group asked questions pertaining to the format of the survey, preferring the survey on the front and back of one sheet. Additionally, two students commented on the redundant style of questions.

The group of students in the second pilot study were currently enrolled in a nurse assistant training program located at the Rend Lake Marketplace, which is an extension center for Rend Lake Community College. This survey occurred on a Wednesday morning, immediately after the instructor took attendance, during the first week of March of 2014. After instructions were given and the survey tool was delivered, the respondents began answering the instrument. A total of ten students were available for this pilot. The time required for all individuals to complete the survey was eleven minutes. Although instructed not to include their

social security number, several students (4) included their entire social security number on the survey, along with their first and last names. No questions were asked from this group.

The researcher provided the Illinois Nurse Assistant Competency Evaluation Training Program with 649 copies of the survey to be included with every competency test booklet being administered in March of 2014. Of the 649 individuals registered for the examination, 27 individuals did not show up at their testing site. The survey was delivered via a testing proctor, to every individual testing in the specified time frame. Students were asked to voluntarily participate in the survey, but received no reward or penalty for completing the survey or not completing the survey.   All of the surveys, completed, partially completed, or blank, were returned, along with the testing booklets, to the Illinois Nurse Assistant Competency Evaluation Training Program and collected by the researcher for analysis.

Primary data for this study was obtained during one testing opportunity during March of 2014. All nurse assistant students sitting for the Illinois Nurse Assistant Competency Examination in the month of March, 2014 (N=622), received a survey with their Illinois Nurse Assistant Competency Examination. This examination was monitored by a trained testing proctor. The testing proctor was instructed to read aloud the request for survey completion, as well as the rationale for completing the survey. The proctor was instructed to ensure each survey would be returned with the examination scantron, whether completed or not.

Once received at the Illinois Nurse Assistant Training Competency Examination office in Carbondale, Illinois, the surveys were manually removed by student workers and placed in a secured location for the researcher to obtain. Data entry was completed by the researcher. Surveys that did not provide the last four digits of the social security number were removed from the data entry process as those surveys could not be linked with the appropriate test score.

Surveys that provided the last four digits of the social were aligned with the coinciding test score. Of these, incomplete surveys were treated by utilizing the group mean, due to that method being widely accepted for survey instruments (Howell, 2007). For this method, missing values were replaced by the "mean of a subset of the data, based on other observed variable(s) in the data" (Penny & Atkinson, 2012, p. 2725). Data from this population was examined to identify the relationship among all variables. Demographic data collected included the following: the last four digits of their social security number, educational level, type of nurse assistant training program, and whether or not the individual considers English as his/her primary language. The variables in this study were the following: (a) Valence score of the student, (b) Instrumentality score of the student, (c) Expectancy score of the student, (d) Motivational score of the student, (e) student's perception of employment, and (f) student's score on the Illinois Nurse Assistant/Aide Examination.

The first data point was the demographic data of the last four digits of their social security number, which allowed for cross referencing Illinois Nurse Assistant Competency Examination results, as approved by the Human Subjects Committee (Appendix C). The second point obtained was the measurement of either a passing or failing score on the Illinois Nurse Assistant Competency Examination, as scored by the Illinois Nurse Assistant Competency Examination office. Subsequent data points gathered were based on the responses to the questions on the VIEMS. Using the Flesch-Kincaid readability formula, the VIEMS survey registers at a 6.7 grade level. This readability score was important as the Illinois Nurse Assistant Competency Examination is written at approximately an eighth grade level, so difficulty understanding the statements and questions on the survey was not anticipated or reported.

Research Questions

This study was guided by the following research questions, which are derived from the VIEMS model. In order to examine the nature and strength of relationships, as identified in questions 1, 2, and 3, a correlational coefficient will be determined.

Research question #1- What is the nature and strength of the relationship between Valence and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?

Research question #2- What is the nature and strength of the relationship between Expectancy and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?

Research question #3-What is the nature and strength of the relationship between Instrumentality and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?

Research question #4- What is the relationship between test taking motivation and actual test performance on the Illinois Nurse Assistant Competency Examination?

Research question #5- What is the relationship between the likelihood of being employable as a certified nurse assistant and the Instrumentality subscale of the Valence, Instrumentality, and Expectancy Motivation Scale?

Research Design

In this non experimental, correlational, quantitative study, descriptive statistics were employed to provide description and comparison of various characteristics revealed by the subjects. Pearson's correlation was utilized to determine the nature and strength of the relationships between the dependent variable and chosen independent variables.

Logistic regression was utilized as it allows the data to be examined when the variable is "discrete, taking on two or more possible values" (Hosmer, Lemeshow, & Sturdivant 2013, p. 1). As used by Sanchez, Truxillo, and Bauer (2000) when applying Vroom's Expectancy Theory, analysis examined the relationship between individual aspects of motivation, as well as the relationship of the composite score of motivation (independent variables) and the individual's achievement of academic success (dependent variable). This research and subsequent data analysis is important to the current body of knowledge related to motivation and academic achievement, specifically with the population of nurse assistants.

Measures and Instrumentation

Per Vroom's Expectancy Theory, three components of motivation were identified: Valence, Instrumentality, and Expectancy. Additionally, the sum of these variables yielded a cumulative score reflecting the individual's perception of motivation (Sanchez, Truxillo, & Bauer, 2000). The variable identified to reflect academic achievement was the pass or fail status on the Illinois Nurse Assistant Competency Examination.

To examine each construct, an aggregate measure was obtained by adding all the individual scores in each construct. This aggregate was compared to all individual scores using Chronbach's alpha. In order to explore relationships between the data, Pearson correlation-moment product was obtained between the individual's test score, as well as their aggregate score reflecting each construct of Vroom's Expectancy Theory. Additionally, linear regression was also utilized to describe the relationship.

Treatment of Data

The variables were the following: (a) Valence score of the student, (b) Instrumentality score of the student, (c) Expectancy score of the student, (d) Motivational score of the student, (e) student's perception of employment, and (f) student's score on the Illinois Nurse Assistant/Aide Examination.

Table 1 shows the relationship between the survey items, the research questions, and how the data was statistically treated.

Table 1

Research Questions, Instrument Items, and Proposed Statistical Analysis

Research Question	Instrument Item	Statistical Analysis
What is the nature and strength of the relationship between Valence and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?	VIEMS 1, 2, & 3	Descriptive Statistics, Pearson Correlation Linear Regression (with stepwise function also)
What is the nature and strength of the relationship between Expectancy and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?	VIEMS 8, 9, & 10	Descriptive Statistics, Pearson Correlation Linear Regression (with stepwise function also)
What is the nature and strength of the relationship between Instrumentality and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?	VIEMS 4, 5, 6, & 7	Descriptive Statistics, Pearson Correlation Linear Regression (with stepwise function also)
What is the relationship between test taking motivation and actual test performance on the Illinois Nurse Assistant Competency Examination?	VIEMS 11, 12, 13, & 14	Descriptive Statistics, Pearson Correlation Linear Regression (with stepwise function also)
What is the relationship between the Expectancy of being employable as a certified nurse assistant and the Instrumentality subscale of the Valence, Instrumentality, Expectancy, Motivation Scale?	VIEMS 15	Descriptive Statistics, Pearson Correlation Linear Regression (with stepwise function also)

The first research question examined the student's perception of the Valence construct

within Vroom's Expectancy Theory, determining the attractiveness of the reward. In order to

utilize an aggregate Valence score, each individual question measuring Valence was compared to the cumulative additive total via a Chronbach's Alpha, as discussed in Chapter Four. This aggregate score was compared statistically to the examination score the student attained by using a Pearson correlational study to determine whether a relationship existed between the construct of Valence and each student's standardized examination score.

The second research question examined the Expectancy construct within Vroom's Expectancy Theory, assessing the student's belief that an action yields a result. Again, an aggregate cumulative for Expectancy was obtained by comparing the cumulative additive total via a Chronbach's Alpha and will also be discussed in Chapter Four. This aggregate score was compared statistically to the examination score the student attained by using a Pearson correlational study to determine whether a relationship exists between the construct of Expectancy and each student's standardized examination score.

The third research question examined the Instrumentality construct within Vroom's Expectancy Theory, assessing the student's belief that he/she get what he/she deserves. The aggregate for the cumulative additative total was evaluated via a Chronbach's Alpha and will be examined in Chapter Four. This cumulative total was compared statistically to the examination score the student attained by using a Pearson correlational study to determine whether a relationship exists between the construct of Instrumentality and each student's standardized examination score.

The fourth research question examined the cumulative quantifiable number associated with the student's report of motivation, specifically how it influenced their test taking ability. This was compared statistically using Pearson correlational between the examination score the

student attained and the overall VIEMS score to determine whether a relationship exists between these variables.

The fifth and final research question addressed the Instrumentality construct as it relates to the student's likelihood of employability as a certified nurse assistant. This was compared statistically using Pearson correlational to determine whether a relationship exists between the construct of Instrumentality and each student's perception of employability.

Data was checked for accuracy as entered and checked again by reexamining every tenth survey with the corresponding data in the program. Descriptive statistics were generated and presented, as well as correlations calculated, using Pearson's correlation and linear regression procedures of Statistical Package for the Social Sciences (SPSS), Version 21.

Table 2 shows the data obtained and entered from each survey related to the research questions.

Table 2

Data Collection List

Numerical identifier
Pass or fail status
Valence Question 1
Valence Question 2
Valence Question 3
Valence Aggregate
Instrumentality Question 1
Instrumentality Question 2
Instrumentality Question 3
Instrumentality Question 4
Instrumentality Aggregate
Expectancy Question 1
Expectancy Question 2
Expectancy Question 3
Expectancy Aggregate
Motivation Score (VIEMS)
Likelihood of being hired in %
Highest Education Level (coded 0=High School Diploma; 1=GED; 2=Certificate; 3=Associate Degree; 4=Bachelor's Degree; 5=Other)
Training program (coded 0=Community College; 1=High School; 2=Vocational/Private; 3=Home Health agency; 4= Hospital based; 5=Facility based; 6= Other)
English as a first language (coded 0=yes; 1=no)

Summary

In summary, a survey instrument, the VIEMS (Appendix A) was utilized to measure

student's perception of motivation, as determined by the three constructs of Valence,

Instrumentality and Expectancy identified by Vroom's Expectancy Theory. The results provided

information describing any existing relationship between each construct and the student's performance on the Illinois Nurse Assistant/Aide Examination, as well as the overall test taking motivation as it relates to student performance as reported by the student. Additionally, the VIEMS allowed for the relationship between the specific construct of Instrumentality and employability to be addressed.

This chapter identified the procedure for obtaining the survey instrument data, as well as the population being examined. The survey instrument was described in detail. The plan for data collection, as well as data analysis was also provided.

CHAPTER 4

ANALYSIS OF DATA

Introduction

The major topic addressed was the exploration and identification of the relationships that exist between motivation and student academic achievement. The results of this study are presented by first analyzing each construct of Vroom's Expectancy Theory, then the aggregate measure of motivation, and finally the relationship between Instrumentality and the likelihood of job attainment. This chapter presents the results obtained by a non-experimental, correlational quantitative research design. A survey methodology was utilized to collect the data from nursing assistant students in Illinois.

Data was collected from individuals sitting for the Illinois Nurse Assistant Competency Examination during March of 2014. The survey instrument was included with every testing booklet mailed to 22 approved testing centers across the state of Illinois (n=622). Although every individual had the opportunity to complete the survey, only 375 respondents completely supplied the last four digits of their social security number, which was necessary to track them with their test score, along with a completed survey instrument. Prior to mailing the survey instrument to testing centers, the researcher obtained approval from Southern Illinois Human Subjects Committee (Appendix B), obtaining Assurance Number FWA00005334. The survey tool was mailed with testing booklets and returned with the booklets, as well as testing scantrons to 22 testing sites across Illinois. Upon return to the Illinois Nurse Assistant Training Competency Examination Program, the surveys were removed and placed in a secure location. The researcher alone entered all data.

Performance Results

Data collected for this study was obtained from the population of nursing assistant students sitting for the Illinois Nurse Assistant Competency Examination in March of 2014 at twenty two approved testing sites across the state of Illinois. Of the 622 individuals testing during this month, 60% (n = 375) returned surveys capable of correlating with test scores. The methodology used data collected from the following sources:

1. Valence, Instrumentality, and Expectancy Motivation Scale

2. Demographic information, including educational level, nurse assistant program type, and English as a first language

3. Illinois Nurse Assistant Competency Examination test score

4. Last four digits of the social security number to allow matching with test score

Statistical Package for the Social Sciences

The software utilized for statistical analysis of this research project was the Statistical Package for the Social Sciences (SPSS), Version 21. The SPSS software was chosen due to its ability to perform numerous assessments and analyses of data pertinent to the present research questions. In order to perform SPSS analysis, the researcher first manually identified and entered all variables into an Excel document with the following data names: social security digits, test score, items from the VIEMS survey labeled V1, V2, V3 and V indicating the aggregate score for Valence. This process was repeated with Instrumentality, yielding an I1, I2, I3, I4, and I composite. Expectancy was completed in a similar fashion with E1, E2, E3, and E designating the composite score. Next, the Likelihood of job attainment was indicated in the following percentages: 25%, 50%, 75%, and 100%. Finally, the demographics were labeled and obtained according to educational level, program type

and English as a first language. In order to protect confidentiality, the last four digits of the social security number were eliminated from data entry into the SPSS file. The variables were entered into the SPSS document as follows: the raw test score, individual scores on each survey item, and aggregate scores for the constructs of Valence, Instrumentality, and Expectancy. An aggregate VIEMS score was also obtained by adding each individual's constructs of Valence, Instrumentality, and Expectancy. Once entered, SPSS allowed the researcher to analyze all data and develop all frequency charts. The first set of data analyses involved descriptive data and frequency tables. These tests were chosen to provide an overall picture and a preliminary analysis of the raw data.

Data Analysis

Demographic Data Analysis

Six hundred and twenty-two individuals took the Illinois Nurse Aide Competency Examination in March of 2014. Of these, 375 completed the enclosed research survey (Appendix A) and provided the last four digits of their social security number. Providing the last four digits of their social security number was essential in order to match the survey with the individual's test results. Additionally, respondents were asked three questions to determine demographic composition. The first question concerned the individual's educational level (Table 3). The choices provided were as follows: high school diploma, GED, Certificate, Associate Degree, Bachelor's Degree, or other. The majority of participants had a high school diploma (179, 47.7%), with the next largest group holding an occupational certificate (58, 15.5%). An associate's degree and other tied for the third highest educational levels with each showing 43 individuals (11.5%). Twenty-eight

individuals (7.5%) had earned a bachelor's degree while the remaining 24 individuals held a

GED (6.4%).

Although a plethora of other demographics would have been welcome opportunities for

analysis, the Illinois Department of Public Health allows researcher's access to this

population with surveys that require no more than ten minutes to complete. This stipulation

minimized the amount of demographic information that could reasonably be requested, as

well as the length of a more lengthy survey.

Table 3

Descriptive Statistics Related to Educational Level

Education Level	Frequency	Percent	Cumulative Percent
High school diploma	179	47.7	47.7
GED	24	6.4	54.1
Certificate	58	15.5	69.6
Associate degree	43	11.5	81.1
Bachelor degree	28	7.5	88.5
Other	43	11.5	100.0

The second demographic question dealt with the type of program in which the individual

completed their nursing assistant training. Per the Illinois Department of Public Health, all

approved nursing assistant training facilities are divided into one of six categories as follows:

community college, high school, vocational/private, home health, hospital based, facility based,

or other. Descriptive data for this demographic question yielded the largest amount of

participants, 113; these reported completing their nursing assistant training in a community

college setting (30.1%), (Table 4). The second largest training type was vocational/private entity

with 101 (26.9%). Eighty seven participants (23.2%) reported training from other types of

programs. Facility based programs had 34 participants (9.1%), while 21 of the respondents

reported completion from a high school based program (5.6%). Finally, 10 (2.7%) were from a

hospital training program, leaving the remaining 9 (2.4%) from a home health facility. This

finding implies that the majority of students taking the certification examination in March of

2014 were high school graduates.

Table 4

Descriptive Statistics Related to Program Type

Program Type	Frequency	Percent	Cumulative Percent
Community College	113	30.1	30.1
High School	21	5.6	35.7
Vocational/Private	101	26.9	62.7
Home Health	9	2.4	65.1
Hospital Based	10	2.7	67.7
Facility Based	34	9.1	76.8
Other	87	23.2	100.0

The final demographic data obtained reports English as a second language. This

demographic question was chosen due to the necessity of providing a Spanish version of the

Illinois Nurse Assistant Competency Examination, with some question about the necessity for

versions in other languages as well. Of the respondents, 317 (84.5%) reported English as their

first language, with the remaining 58 (15.5%) reporting that English was not their first language

(Table 5).

Table 5

Descriptive Statistics Related to English as First Language Status

Language Status	Frequency	Percent	Cumulative Percent
English reported as first language	317	84.5	84.5
English reported as NOT first language	58	15.5	100.0

Descriptive Data Analysis

The first data entry point to be evaluated was the raw test score. For the testing period of

March 2014, a total of 622 individuals took the exam with 67% passing (n=467). However, of

the 375 individuals that took the exam in March of 2014 and completed the survey, 76.3%

(n=286) passed the exam (Table 6). This number is lower than the average passing rate of 80-85% per month. One reason for the decrease in the average amount of passing test scores could be the policy prohibiting individuals from applying to test in the month directly after receiving a failing score, thus prolonging the date of testing from program training completion (personal communication, D. Barham, March 2014). This increased length of time elapsing from program completion until successful completion of the exam can result in individuals losing the retention of various topics discussed in the classroom and clinical settings.

Table 6

Survey Respondent's Raw Test Average

Passing/Not Passing	Frequency	Percent
Passing Scores	286	76.3
Not Passing Score	89	23.7

Following the demographic data analysis and determination of raw test scores, the constructs of Vroom's Expectancy Theory were next evaluated. In order to examine the construct of Valence, the responses obtained on the first three questions of the survey instrument were utilized, as these questions were developed specifically to measure this construct. Since Valence deals with the attractiveness of obtaining a job, these three questions essentially asked the same question with a modification in the wording regarding obtaining employment as a certified nursing assistant. Of the 375 respondents, an overwhelming majority (88.2%) reported they strongly agreed with the items designed to measure Valence (Table 7). This response suggests that the individuals taking the Illinois Nurse Assistant Competency Examination in March of 2014 found being employed as a nursing assistant favorable.

Table 7

Subject's Responses on Questions 1, 2, and 3 Assessing Valence

Response Options	Frequency	Percent
Question 1		
Strongly Agree	307	81.9
Agree	34	9.1
Neutral	19	5.1
Disagree	6	1.6
Strongly Disagree	9	2.4
Question 2		
Strongly Agree	342	91.2
Agree	11	2.9
Neutral	5	1.3
Disagree	5	1.3
Strongly Disagree	12	3.2
Question 3		
Strongly Agree	343	91.5
Agree	14	3.7
Neutral	3	.8
Disagree	3	.8
Strongly Disagree	12	3.2

The second construct, Instrumentality, was evaluated next. This construct was evaluated by utilizing the scores on the next four questions of the survey that were also developed to measure this construct. In measuring Instrumentality, these four questions employed different words to assess similar thoughts related to the relationship of test performance upon job attainment. Per a Likert-type scale where 1 = strongly agree and 5 = strongly disagree, the majority of respondents chose agree or strongly agree (58.9%) for the questions designed to measure the individual's perception of their test performance upon future employability as a nursing assistant (Table 8). This response indicates that the test takers reported a relationship between their test scores and their ability to obtain a job.

Table 8

Subject's Responses on Questions 4, 5, 6, and 7 Assessing Instrumentality

Response Options	Frequency	Percent
Question 4		
Strongly Agree	309	82.4
Agree	37	9.9
Neutral	14	3.7
Disagree	4	1.1
Strongly Disagree	11	2.9
Question 5		
Strongly Agree	222	59.2
Agree	68	18.1
Neutral	47	12.5
Disagree	20	5.3
Strongly Disagree	18	4.8
Question 6		
Strongly Agree	210	56.0
Agree	70	18.7
Neutral	61	16.3
Disagree	13	3.5
Strongly Disagree	21	5.6
Question 7		
Strongly Agree	142	37.9
Agree	83	22.1
Neutral	86	22.9
Disagree	27	7.2
Strongly Disagree	37	9.9

Expectancy, the third construct, was measured next. Three questions on the survey were utilized to obtain this score. Again, these three questions essentially asked the same thing three times, but modified the verbiage to assess the individual's assessment of the relationship between how well they did on the test and the expectation of being hired as a certified nursing assistant. Seventy-six point seven percent of respondents reported that their performance on this test was directly reflected by the score they obtained (Table 9). This indicates that these individuals believed a relationship existed between the individual's effort and test score.

Table 9

Subject's Responses on Questions 8, 9, and 10 Assessing Expectancy

Response Options	Frequency	Percent
Question 8		
Strongly Agree	274	73.1
Agree	63	16.8
Neutral	17	4.5
Disagree	7	1.9
Strongly Disagree	14	3.7
Question 9		
Strongly Agree	279	74.4
Agree	68	17.9
Neutral	13	3.5
Disagree	4	1.1
Strongly Disagree	11	2.9
Question 10		
Strongly Agree	310	82.7
Agree	43	11.5
Neutral	5	1.3
Disagree	4	1.1
Strongly Disagree	13	3.5

Question 15 involved the likelihood of obtaining a job as a nursing assistant. Obtaining this information was crucial in addressing research question five, described in Table 13. This initial question analysis provided information regarding the responses obtained via the survey. According to the respondents, 94.2% of the respondents felt that the likelihood of obtaining a job as a nursing assistant was 75% to 100% (Table 10). According to this self-report, only 5.8% of test takers did not believe they had a good chance of becoming employed as a nursing assistant.

Table 10

Subject's Responses on Question 15 Assessing Likelihood of Job Attainment

Likelihood of Job Attainment	Frequency	Percent
25% likelihood	5	1.3
50% likelihood	17	4.5
75% likelihood	127	33.9
100% likelihood	226	60.3

Cronbach's Alpha Results

   After all descriptive data were obtained, the researcher employed correlational statistics

to provide reliability to the study. The first reliability statistic to be obtained was the Cronbach's

alpha for the three constructs of Vroom's Expectancy Theory. The VIEMS survey (Appendix A)

questions one, two, and three were developed to measure the construct of Valence. Questions

four through seven on the survey instrument addressed the construct of Instrumentality.

Expectancy was evaluated with questions eight, nine, and ten. In order to determine the internal

consistency of the survey by using a composite score of all questions associated with each

construct singularly, a Cronbach's alpha was utilized. Recalling the closer the result is to one,

the higher the reliability, a Cronbach's alpha over .7 is desired (Howell, Kurlaender, & Grodsky,

2010). The aggregate scores relating the Cronbach's alpha for each construct is found in Table

11.

Table 11

Cronbach's Alpha for Valence, Instrumentality, and Expectancy

Construct	Cronbach's Alpha
Valence	.858
Instrumentality	.820
Expectancy	.873

   Combining the questions pertaining to Valence to a combined Valence score yielded

.858. This finding suggests that an aggregate Valence score was a reliable indicator of the

questions used to measure Valence. The aggregate score for Instrumentality showed a .820 when

compared to the four survey items used to measure this construct. Finally, a score of .873 was

obtained for the construct of Expectancy. These findings support the use of a composite score

for each construct of Vroom's Expectancy Theory, utilizing the single questions and the

composite score to provide internal validity.

Analysis Per Research Question

Attempting to answer the research questions, correlational analysis was performed on the constructs of Vroom's Expectancy Theory, as well as the composite VIEMS score and Question 15 which assessed the likelihood of job attainment (Table 12).

Following correlational analysis, regression analysis was obtained for all variables mentioned in both linear and stepwise fashion. Linear regression was chosen to depict the relationship between the dependent variable of the individual's test score with all three constructs of Vroom's Expectancy Theory, Valence, Instrumentality, and Expectancy (Table 12). For this study, it was anticipated that as the test score increased, so would the individual's scores on the various constructs of Vroom's Expectancy Theory, producing a positive relationship denoted by a line, moving in an upward horizontal fashion (Figure 2).
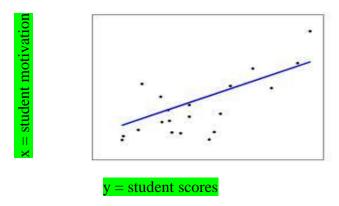

Figure 1: Linear Regression Representation

Further exploration of the relationships was assessed adding a stepwise analysis to the regression model. This function was added to determine if the SPSS program could automatically denote which variables (Valence, Instrumentality, and/or Expectancy) were statistically significant to the dependent variable of the test score.

Research question 1- What is the nature and strength of the relationship between Valence and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination?

According to the Illinois Nurse Assistant Training Competency Evaluation Program, the passing score for the exam is determined by the Illinois Department of Public Health and reported to individuals, programs, and the IDPH as a passing or failing score. In order to examine this relationship, correlation statistics were run using the Valence aggregate score and the test score. The individuals who completed the survey instrument yielded a Pearson product-moment correlation not statistically significant ($r = .017$, $p = 0.740$), (Table 12). Valence questions specifically addressed the attractiveness of being employed within the health care setting. Although a high percentage of respondents answered these questions strongly in the affirmative, there was no relationship to their self-reported Valence construct and test scores.

Research question 2- What is the nature and strength of the relationship between Expectancy and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination? Statistical analysis provided the Pearson product-moment correlation that was not statistically significant ($r = .022$, $p = 0.675$), (Table 12). Again, although the majority of individuals answered these questions strongly affirmative, there was no relationship to their self-reported Expectancy construct and test score.

Research question 3- What is the nature and strength of the relationship between Instrumentality and student academic achievement, as denoted by successful completion of the Illinois Nurse Assistant Competency Examination? For this question, the Pearson product-moment correlation was statistically significant ($r = .104$, $p = 0.044$) (Table 12). Linear regression was performed entering all the constructs of Vroom's Expectancy Theory. An

Adjusted R^2 was obtained at .006. Running this statistical analysis again using the stepwise

feature, Instrumentality was retained by the model, while SPSS removed the variables of

Valence and Expectancy. The Adjusted R^2 for this analysis produced a .008. These analyses

indicate that Instrumentality was statistically significant, however, very little of the variance in

test scores was explained by Instrumentality. The researcher anticipated a negative correlation,

due to the fact that the Instrumentality questions were scored as strongly agree = 1. Examining

the questions associated with this construct, the consistent theme addressed the actual test score

itself, rather than a pass/fail status. Since all respondents have been informed the test results will

only be available as a pass/fail, the question arises if this section of the VIEMS is not given as

much weight by respondents. Specifically, one individual wrote in the margin of this section on

the survey "It's a pass/fail <u>test!!</u>"   This viewpoint gives light to whether or not the

Instrumentality section was evaluated and reported seriously by nursing assistant students.

Moreover, other studies divide Instrumentality into different outcome levels. First level

outcomes would be more immediate results, like a higher test score, while second level outcomes

would be results with a future focus, such as a job that is dependent upon high test performance.

Ellingson and McFarland (2011) found that dividing Instrumentality into these outcome levels

provided for more accurate research results. Similarly, Simons, Dewitte, and Lens (2004) found

that dividing Instrumentality into four types produced both positive and negative correlations,

depending on the sub-divisions of the construct. Only a high Valence and high Expectancy were

demonstrated by Fagbohungbe (2012) to be correlated with performance, excluding the construct

of Instrumentality.

Table 12

Correlation between Raw Test Scores, All Constructs of Vroom's Expectancy Theory, and
Question 15 Assessing Job Likelihood

Variable	N	Pearson Correlation	Sig. (2-tailed)
Valence	375	.017	.740
Instrumentality	375	.104*	.044
Expectancy	375	.022	.675
Question 15	375	.067	.192

*Correlation is significant at the 0.05 level (2-tailed).

Research question 4- What is the relationship between test taking motivation and actual

test performance on the Illinois Nurse Assistant Competency Examination? Per the VIEMS, all

10 questions related to Valence, Instrumentality, and Expectancy were added to provide a

composite VIEMS score. Pearson product-moment correlation coefficient was not statistically

significant ($r = .071$, $p = .169$), (Table 13).

Table 13

Correlation between Raw Test Scores and VIEMS Score

Variable	VIEMS	Test Score
VIEMS		
Pearson Correlation	1.000	.071
Sig. (2-tailed)		.169
N	375.000	375.000
Test		
Pearson Correlation	.071	1.000
Sig. (2-tailed)	.169	
N	375.000	375.000

Linear regression analysis of these two variables provided an adjusted R^2 of .002 (Table

14). This again indicates that the VIEMS score can explain very little of the variance in test

scores. The majority of respondents reported positive scores on all questions of the VIEMS, which showed a mean score of 12.71. While there are numerous studies promoting the relationship between motivation and academic performance (Bong & Clark, 1999; Griffin et al., 2013; McClelland, 1965; Shillingford & Karlin, 2013), other researchers question this relationship (Carr, 2011; Mora, 2011). This researcher found the direction of all the statistics provided by Pearson's correlation in the present study implied a relationship between motivation and academic performance, albeit not statistically significant.

Table 14

Regression Analysis between VIEMS Score and Raw Test Scores

R	R^2	Adjusted R^2	Std. Error of the Estimate
.071[a]	.005	.002	10.280

[a]. Predictors: (Constant), VIEMS

Research question 5- What is the relationship between the likelihood of being employable as a certified nursing assistant (Question 15) and the instrumentality subscale of the Valence, Instrumentality, and Expectancy Motivation Scale? A Pearson moment-product correlation coefficient of statistical significance ($r = -.372$, $p = 0.01$) was provided. This score supports a weak negative relationship between individual's Expectancy of being employed as a certified nursing assistant and the Instrumentality subscale of the VIEMS (Table 15). The negative score is due to the reverse scoring of the questions ascertaining Instrumentality (1= strongly agree and 5 = strongly disagree). This finding suggests that respondents perceive a relationship between their performance on the Illinois Nurse Assistant Competency Examination and the likelihood of being employed as a certified nursing assistant.

Table 15

Correlation between Question 15 Assessing Likelihood of Job Attainment and Instrumentality

Variables	Question 15	Instrumentality
Question 15		
Pearson Correlation	1.000	-.372**
Sig. (2-tailed)		.000
N	375.000	375.000
Instrumentality		
Pearson Correlation	-.372**	1.000
Sig. (2-tailed)	.000	
N	375.000	375.000

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

Following the correlational analysis for Research Question Five, linear regression was also utilized. Due to the nature of the questions associated with Instrumentality, the researcher anticipated a regression close to one, which would denote that any variance in Instrumentality could be explained by the likelihood of obtaining a job as a nursing assistant. The finding provided an adjusted R^2 of .136 (Table 16), which suggests that the individual's report of Instrumentality explains a small amount of variance in their response to question 15, which addresses the likelihood of being employed as a nursing assistant.

Table 16

Regression between Instrumentality and Question 15 Assessing the Likelihood of Job Attainment

R	R^2	Adjusted R^2	Std. Error of the Estimate	R^2 Change	F Change	df1	df2	Sig. F Change
.372[a]	.139	.136	.603	.139	60.076	1	373	.000

[a]. Predictors: (Constant), Instrumentality

Post Hoc Analysis

Although initial research questions did not include exploring other possible relationships, a post hoc analysis was performed on the demographic data as it relates to the constructs of

Vroom's Expectancy Theory as well as test score. For this analysis, the SPSS package split the data so results would be depicted based on the different subsets within each of the three demographic data questions.

Descriptive statistics were obtained concerning the respondent's educational level. While the Illinois Department of Public Health did allow the researcher access to raw test scores, the scores are not provided to either test takers or training programs. Due to IDPH regulations, the raw scores may be utilized for statistical analysis, but not made public knowledge. For that reason, it is not possible to report the range of test scores. Test scores are portrayed here in rank order as follows: bachelor degree, associate degree, other, high school diploma, certificate and finally GED (Table 17). All group test means were above the passing score.

Table 17

Raw Test Scores with Education Level Analyzed as Split Data

Education Level	N	Min	Max	Mean	Std. Deviation
High School	179	43	96	75.56	10.445
GED	24	49	96	73.54	11.163
Certificate	58	35	95	74.31	10.210
Associate degree	43	49	92	78.49	9.620
Bachelor degree	28	53	95	90.36	9.635
Other	43	57	93	78.07	9.374

Descriptive statistics were also obtained concerning the respondent's program type. Program types are determined by the Illinois Department of Public Health. In rank order, from highest mean test scores to lowest mean test scores, the program types were as follows: high school, community college, facility based, vocational/private entity, other, hospital and finally, home health (Table 18). For an individual to be an approved nursing assistant instructor in the

state of Illinois, they must hold a current registered nurse license, have two or more years of experience nursing in a long term care or swing bed facility, and complete the IDPH mandated "Train the Trainer" course. For an instructor in the high school arena, they must also possess a Bachelor's of Science degree in Nursing. The additional instruction provided in a Bachelor's of Science degree in Nursing, above the two years associate degree necessary for the original registered nurse license, provides the individual with fundamental teaching skills and experience. Likewise, at the community college setting, nurse assistant instructors are strongly encouraged to obtain their Bachelor's of Science degree in Nursing. Also, within both academic institutions, instructors have access to full-time faculty and professional development designed to enhance classroom learning.

Table 18

Raw Test Scores with Program Type Analyzed as Split Data

Program Type	N	Min	Max	Mean	Std. Deviation
Community College	113	49	96	77.12	10.118
High School	21	55	93	78.62	9.500
Vocational/Private	101	43	93	75.98	9.842
Home Health	9	35	84	69.33	15.322
Hospital	10	63	83	73.80	7.361
Facility Based	34	57	96	76.74	8.798
Other	87	49	95	75.53	11.304

The final demographic statistic obtained was whether or not the respondent considered English their first language. While no significant data concerning the VIEMS was uncovered, it was noted that the test mean of those individuals reporting English as their first language was a full three points higher than the test mean of those individuals reporting that English was not

their first language (Table 19). Although the test scores a Flesch reading level of approximately

8th grade, there is an obvious disadvantage with medical terminology and colloquialism.

Table 19

Raw Test Scores with English as First Language Analyzed as Split Data

Language	N	Min	Max	Mean	Std. Deviation
English is first language	317	35	96	76.73	10.353
English is NOT first language	58	49	88	73.45	9.576

When reviewing the post hoc information, no other significant correlations were found.

Summary

The purpose of this chapter was to detail the results concerning motivation within the

academic arena. Specifically assessed was the extent to which students perceive motivation

impacts their academic achievement on the Illinois Nurse Assistant Training Competency

Examination. Vroom's Expectancy Theory formed the framework for quantifying motivation by

examining the following three aspects: Valence, Instrumentality, and Expectancy.

In reviewing the five research questions that guided this study, the questions evaluating

the nature and strength of the relationships between test scores and Valence, Expectancy and

overall VIEMS score were not statistically significant. Although the relationship between

Instrumentality and test score was statistically significant, it was not in the expected direction.

The final research question evaluating the relationship between the likelihood of job

attainment as a nursing assistant and Instrumentality was statistically significant, as indicated by

Pearson correlation. Post hoc analysis yielded interesting descriptive data, ranking test scores by

education level and program type, as well as whether or not the individual considers English

their first language.

Although not statistically significant, the findings do support current research that motivation does impact student academic achievement. These findings will be examined in more detail in Chapter Five.

CHAPTER 5

METHODOLOGY, RESULTS, IMPLICATIONS, CONCLUSIONS, AND IMPACT

Introduction

The chapter is divided into three main sections. The first section reviews the

methodology employed to collect the research data and the subsequent results drawn from the

data analysis. The second section describes the implications of the present research findings in

light of prior research related to motivation and Vroom's Expectancy Theory and the conclusions

derived from the examining the data in light of prior research. Finally, the third section discusses

the importance and implications of the research findings related to academic achievement with

recommendations for future research based on the limitations of the current research study.

Methodology and Research Findings

Motivation, as it relates to academic achievement, was the major topic of this research

study. Specifically, Vroom's Expectancy Theory was used as a framework to explore possible

relationships between the constructs of Valence, Instrumentality, and Expectancy as they relate

to individual's standardized test score. The present study sought to build on previous studies

exploring the impact of these constructs upon student performance, as measured by the Illinois

Nurse Assistant Competency Examination. Precisely, do the constructs of Vroom's Expectancy

Theory predict the individual's test performance when evaluated singularly? Likewise, when the

constructs are viewed as an aggregate measure of motivation, do they correlate with the

individual's test performance? Finally, does an individual's report of Instrumentality correlate

with the same individual's report of likelihood of job attainment? In addition, this researcher

sought to demonstrate that motivation is an accurate predictor of student performance upon

standardized examinations.

Methodology

Using a non-experimental, correlational quantitative research design, a survey methodology was utilized to collect the data from Nurse Assistant students in Illinois. Data was collected from individuals sitting for the Illinois Nurse Assistant Competency Examination during March of 2014. The survey instrument was included with every testing booklet mailed to 22 approved testing centers across the state of Illinois (n=622). Although every individual had the opportunity to complete the survey, only 375 respondents supplied the last four digits of their social security number, which was necessary to track them with their test score, along with a completed survey instrument.

Prior to mailing the survey instrument to testing centers, the researcher obtained approval from Southern Illinois Human Subjects Committee (Appendix C). The survey tool was mailed with testing booklets and returned with the booklets, as well as testing scantrons. Upon return to the Illinois Nurse Assistant Training Competency Examination Program, the surveys were removed and placed in a secure location. The researcher alone entered all data.

For this study, the methodology included collected data from the following sources:

1. Demographic data from the 375 respondents;

2. The Valence, Instrumentality, and Expectancy Scale (VIEMS) (Sanchez, Truxillo, & Bauer, 2000). The VIEMS provided the researcher a quantifiable score for motivation and was used for all five research questions;

3. The last four digits of the individual's social security number;

4. The students' examination score on the Illinois Nurse Assistant Competency Examination. Per the Illinois Department of Public Health, the cut off score differentiating passing and failing scores will not be disclosed.

The survey questions were focused on the independent variables found in the three constructs of Vroom's Expectancy Theory: (a) Valence, (b) Instrumentality, and (c) Expectancy. Additional questions examined (d) Perceived Performance Items, and (e) Likelihood of job attainment. The dependent variable was the individual's test score as determined on the standardized Illinois Nurse Assistant Training Competency Program and approved by the Illinois Department of Public Health.

Research Findings

Demographics, including educational level, program training type, and whether or not English was their first language, were analyzed. The majority of participants had a high school diploma (179, 47.7%), with the next largest group holding an occupational certificate (58, 15.5%). An associate's degree and other tied for the third highest educational levels with each showing 43 individuals (11.5%). Twenty-eight individuals (7.5%) had earned a bachelor's degree while the remaining 24 individuals held a GED (6.4%).

Descriptive data for the demographic question concerning program type yielded the largest amount of participants, 113, reporting their nurse assistant training was completed in a community college setting (30.1%). The second largest training type was vocational/private entity with 101 (26.9%). Eighty seven participants (23.2%) reported training from other type of program. Facility based programs had 34 participants (9.1%), while 21 of the respondents reported completion from a high school based program (5.6%). Finally, 10 (2.7%) were from a hospital training program, leaving the remaining 9 (2.4%) from a home health facility.

Finally, assessing the demographic data related to English as a second language produced the following results. Of the respondents, 317 (84.5%) reported English as their first language, with the remaining 58 (15.5%) reporting that English was not their first language.

Implications of Research Findings Compared to Past Research

Numerous studies have examined the relationship between Vroom's Expectancy Theory and motivation as it relates to student performance (Batlis, 1978; Harrell, Caldwell, & Doty, 1985; Oliver, 1995; Sanchez, Truxillo, & Bauer, 2000; Shapira, 1976). Specifically, Vroom's Expectancy Theory allows the researcher to examine correlations between the constructs of Valence, Instrumentality, and Expectancy with academic achievement.

In this study, several directional research questions were posted to examine the relationship between motivation (the constructs that make up motivation, as well as an aggregate figure) and student academic achievement. With the exception of two research questions, none of the relationships examined were statistically significant according to the data analysis performed in SPSS. As mentioned earlier, four of the research questions yielded responses in the predicted direction. Specifically, Valence, Expectancy, and an aggregate motivation score did show results in the predicted direction, which supported the overall premise of the research project.

Initially, Valence and test performance were analyzed per SPSS. Using an inter-item correlational matrix, questions 1, 2, and 3 on the VIEMS were entered along with an aggregate of Valence, to verify the validity of using an aggregate Valence score. The correlation for this analysis was .826, .920, and .916 respectively. The Cronbach's alpha derived for this aggregate provided a .858. The Pearson Correlation for this relationship was not found to be statistically

significant (r = .017, p = 0.740). Although similar in direction and nature to the findings in this research, Sanchez, Truxillo, and Bauer (2000) found a statistically significant Pearson Correlation (r = .74, p = 0.05), which describes a strong relationship between the variables. Likewise, Fagbohungbe (2012) found that high reported Expectancy was correlated with actual performance.

The present study did not demonstrate that Valence is a statistically significant predictor of student academic achievement. However, the findings were directionally congruent with research completed by Sanchez, Truxillo, and Bauer (2000) and Fagbohungbe (2012).

Instrumentality and test performance were analyzed with SPSS next. Again employing an inter-item correlational matrix, questions 4, 5, 6, and 7 on the VIEMS were entered along with an aggregate of Instrumentality to verify the validity of using an aggregate Instrumentality score. The correlation for this analysis was .708, .809, .751, and .544 respectively. The Cronbach's alpha obtained for this aggregate yielded a .820. The Pearson Correlation for this relationship was found to be statistically significant (r = .104, p = 0.044). Sanchez, Truxillo, and Bauer (2000) reported this correlation at .84.   Ellingson and McFarland (2011) found that dividing Instrumentality into outcome levels provided for more accurate research results. First level outcomes would be more immediate results, like a higher test score, while second level outcomes would be results with a future focus, such as a job that is dependent upon high test performance. Similarly, Simons et al. (2004) found that dividing Instrumentality into four types produced both positive and negative correlations, depending on the sub-divisions of the construct. Although research completed by Batlis (1978) did produce statistically significant data exploring the relationship between Instrumentality and academic performance, it is also noted that the Instrumentality model persists despite a number of deficiencies. To obtain more robust results,

Batlis (1978) suggested utilizing an additional factor, locus of control, when assessing the relationship between Instrumentality and academic achievement.

The final construct, Expectancy, and test performance were analyzed per SPSS. Using an inter-item correlational matrix, questions 8, 9, and 10 on the VIEMS were entered along with an aggregate of Valence, to verify the validity of using an aggregate Valence score. The correlation for this analysis was .608, .806, and .877 respectively. The Cronbach's alpha derived for this aggregate provided a .873. The Pearson Correlation was not statistically significant ($r = .022$, $p = 0.675$). Sanchez, Truxillo, and Bauer (2000) reported a statistically significant correlation when assessing Expectancy ($r = .88$, $p = 0.05$) indicating a strong relationship between the variables. Shapira (1976) also produced statistically significant results when examining the relationship between Expectancy and performance. However, it was noted that participant responses may be influenced externally by their desire to be viewed a particular way by the researcher. Nurse assistants participating in the current study may have felt the need to answer questions assessing their motivation in a particular way to be viewed in a positive manner by the researcher. Additionally, they may have felt their responses would be reflected to the Illinois Department of Public Health, thus impacting their answer selection.

The present study did not demonstrate that Expectancy is a statistically significant predictor of student academic achievement. However, the findings were directionally congruent with research completed by Sanchez, Truxillo, and Bauer (2000) and Shapira (1976).

Evaluating the impact of all three constructs of Vroom's Expectancy Theory on actual test performance did not produce statistically significant results consistent with what was observed in the literature review (Batlis, 1978; Harrell, Caldwell, & Doty, 1985; Shapira, 1976; Sanchez, Truxillo, & Bauer, 2000). As mentioned in the proceeding paragraphs, a particular

construct would consistently rate higher than the others when evaluated separately. The Pearson moment-product correlation coefficient was not statistically significant (r =.071, p = .169). Sanchez, Truxillo, and Bauer (2000) reported a Pearson moment-product correlation coefficient that was statistically significant when examining the relationship between test performance and the constructs of Vroom's Expectancy Theory as measured by the VIEMS scale (r = .86, p = 0.05). Harrell, Caldwell, and Doty (1985) reported statistically significant results from their study examining the relationship between the constructs of Vroom's Expectancy Theory and academic achievement. However, they noted that students perceive academic success differently, thus the attractiveness of success will vary among their responses to questions utilized to measure these constructs. While there are numerous studies promoting the relationship between motivation and academic performance (Bong & Clark, 1999; Griffen et al., 2013; McClelland, 1965; Shillingford & Karlin, 2013), other researchers question this relationship (Carr, 2011; Mora, 2011).

Again, the present study did not demonstrate that a composite motivation score is a statistically significant predictor of student academic achievement. However, the findings were directionally congruent with research completed by Sanchez, Truxillo, and Bauer (2000), as well as Harrell, Caldwell, and Doty (1985).

The final relationship researched examined the impact of Instrumentality to the likelihood of job attainment as a certified nurse assistant. The Pearson Correlation yielded statistically significant results (r = -.372, p = 0.01). As mentioned in Chapter 4, the reverse ordering of responses related to Instrumentality provided an anticipated negative relationship. Similarly, Sanchez, Truxillo, and Bauer (2000) produced findings of R^2 = .16, $F(3,242)$ = 15.09, $p < .01$.

Although these researchers analyzed all three constructs for a relationship with the likelihood of job attainment, Instrumentality was the only construct with statistical significance.

The present study did demonstrate that a relationship exists between Instrumentality and the individual's perception of the likelihood of job attainment as a certified nurse assistant. This finding supports prior research conducted by Sanchez, Truxillo, and Bauer (2000).

Conclusions

This research was not able to find a statistically significant relationship between the constructs of Valence and Expectancy as they relate to motivation and test scores. Also, no statistically significant relationship was identified between motivation as measured aggregately by the VIEMS and test scores. However, the relationships noted did agree with prior research studies supporting the correlation between motivation and academic achievement (Batlis, 1978; Harrell, Caldwell, & Doty, 1985; Sanchez, Truxillo, & Bauer, 2000; Shapira, 1976).

The relationship demonstrated between the variance of Instrumentality and test scores was statistically significant, although the directionality was not anticipated. Several prior research studies share inconclusive responses when examining Instrumentality alone as a construct of motivation (Batlis, 1978; Ellingson & McFarland, 2011; Simons et al., 2004). Due to the self-reporting nature of the survey tool, it is difficult to explain this anomaly.

The relationship between the construct of Instrumentality and likelihood of job attainment did show statistical significance. As noted by Sanchez, Truxillo, and Bauer (2000), this correlation may be due to the direct relationship the standardized test has on specific career and technical job opportunities. For individuals participating in this research study, it is required to pass the Illinois Nurse Competency Examination in order to register with the Illinois Department of Public Health, making them employable as certified nurse assistants.

Individuals reporting English as a first language scored higher on the Illinois Nurse
Assistant Competency Examination (76.73) than the individuals that reported English was not
their first language (73.45). Oliver (1995) asserted that the effective teacher has the ability to
motivate individuals from diverse backgrounds to achieve as high as their classmates regardless
of language or cultural barriers. Although not specifically assessed, identifying nurse assistants
and programs that appreciate cultural differences could potentially uncover best practices in
current educational delivery systems across Illinois.

Impact of Research Findings

Although motivation plays an important role with persistence in academic endeavors, this
study found no significant link between motivation, as measured by Vroom's Expectancy
Theory, and student academic achievement, as measured by test performance on the Illinois
Nurse Assistant Competency Examination. Towards that goal, the findings herein add to the
current body of knowledge surrounding motivation within the educational arena by identifying
the relationship between Instrumentality, a construct of motivation, and the likelihood of job
attainment. The lack of statistical significance could be due to several reasons, two of which are
more noticeable. First, the survey tool was completely dependent upon the individual
respondent. As noted in prior research, individuals may fake responses on self-reported surveys
to enhance their attractiveness or because they believe it to be helpful to them personally
(Ellingson & McFarland, 2011). Secondly, individuals may actually have a very positive
perception of their performance and how that performance will result in their desires that are in
contrast to their academic abilities. Due to the timing of the data collection, the majority of test
takers were repeating their test due to a prior failure (personal communication, T. Hovatter,
March 2014). When an individual is not successful on their first attempt, they must wait one

month before they can re-apply to sit for the exam again. Theoretically, this time should be spent reviewing the material. However, statistics from the Illinois Nurse Assistant Training Competency Examination Program support that test scores decrease if the individual waits over 64 days from the end of their educational preparation to testing date (personal communication, T. Hovatter, April 2014, Gronlund & Waugh, 2009).

Suggestions for Future Research

Based on the findings produced in this study, the following recommendations are being made:

1. The Instrumentality construct could be divided into two (Ellingson & McFarland, 2011) outcome levels or four (Simons, DeWitt, & Lens, 2004) outcome levels.

2. As suggested by Sanchez, Truxillo, and Bauer (2000), the VIEMS could be utilized with testing required for different *types* of jobs (service oriented, professional, etc.).

3. The VIEMS could be utilized with the same population, over several months, to determine if variances occur in relation to program completion and testing date.

4. The VIEMS could be utilized with the same population in a pre/post-test scenario.

5. A different survey tool(s) could be used as a framework for examining the relationship between motivation and academic performance.

6. The VIEMS could be modified to more accurately depict current workforce trends.

7. A different theory could be used as a framework for examining the relationship between motivation and academic performance.

Summary

The purpose of this chapter was to identify the methodology, research results, and implications, conclusions and impact of this research opportunity.

Methodology utilized for this project involved a non-experimental correlational design. This design was appropriate as all five research questions dealt with the nature and strength of the relationship between constructs of Vroom's Expectancy Theory, as well as the cumulative motivation score as obtained by the VIEMS and finally between the likelihood of job attainment and Instrumentality specifically. Using the individuals that took the Illinois Nurse Competency Examination in March of 2014, 375 completed surveys were available for statistical analysis. Statistical analysis was completed using descriptive measures, Chronbach's Alpha, Pearson correlation and linear regression.

Research results were consistent with prior research in identifying a relationship between motivation, as described by the constructs of Vroom's Expectancy Theory (Bong & Clark, 1999, Griffin et al., 2013; McClelland, 1965, and Shillingford, 2013). Additionally, the research provided similar findings to describe the relationship between the likelihood of job attainment with the construct of Instrumentality (Sanchez, Truxillo, & Bauer, 2000).

The implications of this research are finite. It does support current research supporting relationships between motivation and student academic achievement. With this in mind, faculty members could potentially enhance student motivation towards academic goals by finding ways to develop extrinsic motivation while fostering growth among intrinsic motivation. Additional ramifications exist when student academic achievement extends beyond the classroom to the workforce.

Conclusions to be drawn range from the immediate applicability of recognizing a relationship does exist between motivation and academic achievement to the long term utilization of this study as a format upon which to replicate additional, similar studies. If the eventual goal is to identify relationships that exist between motivation and student academic

achievement in order to foster their growth, then replication studies would prove most advantageous.

There are several limitations of the present research opportunity that stifle findings generalizations. The first limitation concerns the limited amount of participants that completed the survey. The second obvious limitation involves the likelihood that the March test takers were in fact repeat test takers, having not been successful on their first attempt. An additional limitation would include the need to modify the VIEMS to more accurately reflect the current employment arena.

The impact can only be examined when the initial statement of the problem is reviewed from Chapter One. The American population is aging. As this occurs, the current workforce is aging. The result is a mismatch of adequately trained health care employees, specifically nurse assistants, to meet the caregiving needs of the aging population. In order to recruit and retain individuals in this health care role, investing in their intrinsic and extrinsic motivation is essential to paving the way for their academic achievement (Batlis, 1978; Harrell, Caldwell, & Doty, 1985; Oliver, 1995; Sanchez, Truxillo, & Bauer, 2000; Shapira, 1976). In order to enhance student performance, motivation continues to be an important area of research.

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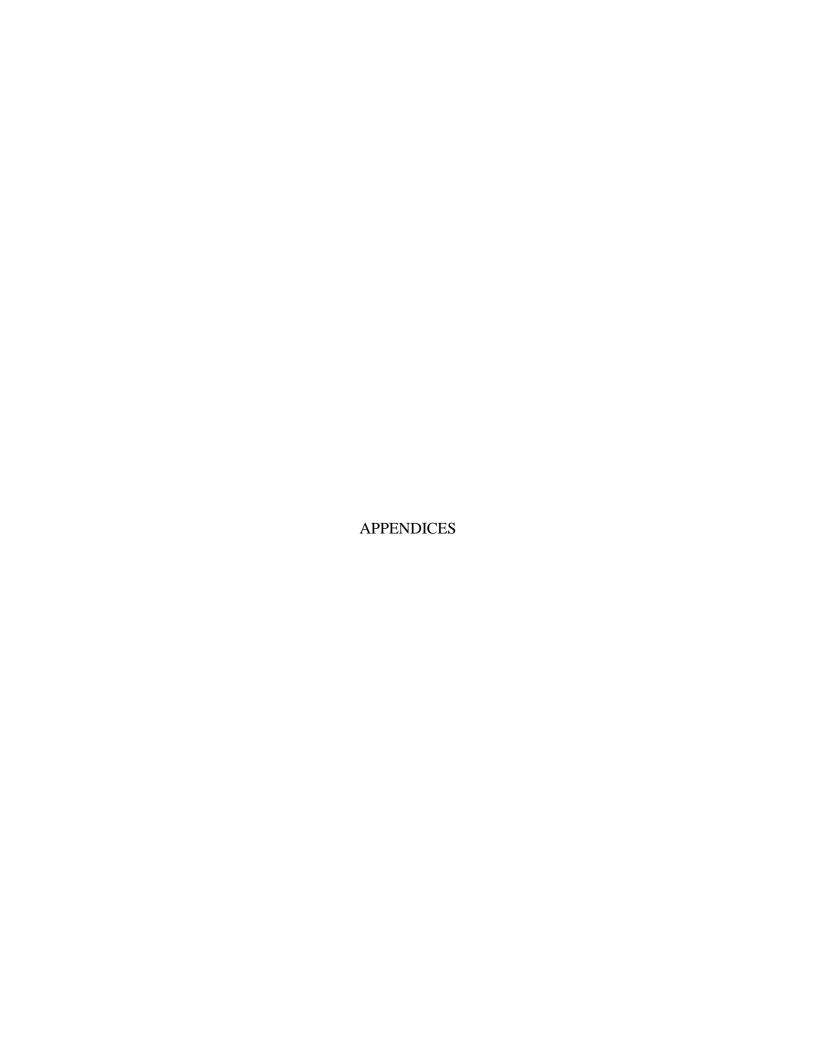   http:// www.uri.edu/research/lrc/scholl/webnotes/Motivation_Expectancy.htm

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APPENDICES

Appendix A- Survey Instrument

Items of the Valence, Instrumentality, Expectancy Motivation Scale (VIEMS)

Please circle the number that best represents your feelings to each of the following questions where 1= strongly agree and 5= strongly disagree.

I would like to be hired as a certified nursing assistant.

1   2   3   4   5

It would be good to have a job in a health care setting.

1   2   3   4   5

I want to get a job within a health care setting.

1   2   3   4   5

If I do well on this test, I have a good chance of being hired as a CNA.

1   2   3   4   5

I think I will be hired as a CNA if I get a high test score.

1   2   3   4   5

How well I do on this test will affect whether I am hired as a CNA.

1   2   3   4   5

The higher my test score, the better my chance of getting hired as a CNA.

1   2   3   4   5

If I try to do my best on this test, I can get a high score.

1   2   3   4   5

If I concentrate and try hard I can get a high test score.

1   2   3   4   5

I can get a good score on this test if I put some effort into it.

1   2   3   4   5

I expect I did well enough on the test I took today to join the Healthcare Worker Registry.

1   2   3   4   5

I believe I did well on the test that I took today.

1   2   3   4   5

I believe that I will get a good score on the test I took today.

1   2   3   4   5

I believe that I passed the test I took today.

1   2   3   4   5

I estimate the likelihood of my getting a job as a CNA is ___%

25%   50%   75%   100%

The last 4 digits of my social security number are:

XXX-XX-☐☐☐☐

My highest educational level is (circle one):

High School Diploma   GED   Certificate   Associate Degree   Bachelor's Degree   Other

I complete my nursing assistant training in a _____ facility (circle one):

Community College   High School   Vocational/Private   Home Health   Hospital   Facility   Other

English is my first language (circle one):

Yes   No

Appendix B – Proctor Letter

CNA Test Proctor- I need your help! Prior to giving the CNA exam, please read this letter to your test takers when distributing the testing materials. Your cooperation is greatly appreciated!

Hi- My name is Kelli D. Whittington and I am a doctoral student in Workforce Education at Southern Illinois University, Carbondale. As a graduate assistant, I work for the Illinois Nurse Assistant/Aide Training Competency Evaluation Program. As part of my dissertation, I am conducting research in the area of motivation, specifically looking at how an individual's motivation effects their ability to perform well academically.

In order to explore the possible relationship between motivation and academic performance, I will be using Vroom's Expectancy Theory, which essentially allows the researcher to assign a numeric value to a person's perceived motivation. This number will be correlated to the individual's result on the Nurse Assistant Test in an attempt to recognize if a relationship between these two variables exist.

Each Nurse Assistant Test booklet during this month includes a yellow survey instrument. Once the surveys have been completed (which should take approximately 10 minutes), returned with the testing booklets and scantrons, they will be removed by a student worker within the Illinois Nurse Assistant/Aide Training Competency Evaluation Program. All surveys and data will be collected and entered by myself. The results of the data analysis will be shared with my doctoral committee, the Illinois Nurse Assistant/ Aide Training Competency Evaluation Program Project Coordinator and the Illinois Department of Public Health.

Dear nursing assistant student-

I need your help! Would you please take a few minutes to answer the attached survey? I'm studying motivation and your responses will allow me to gather confidential information related to your impression of how motivation impacts you as a student. The survey should take less than ten minutes and will be treated confidentially. All information will be kept in a secured location. Access to the returned surveys will only be viewed and entered confidentially by myself. Upon completion of my study, all paper data will be destroyed. I will take all reasonable steps to protect your identity. Participation is voluntarily, and I value your time and responses. Thank you for your help.

Kelli D. Whittington RN MSN	Dr. C.K Waugh
Doctoral Student	Doctoral Dissertation Chairperson
Southern Illinois University Carbondale	ckwaugh@siu.edu

Please complete the front and back of the survey.

If you have any questions, please feel free to contact me at kellid@siu.edu or toll free at 1-877-262-9259. Again, thank you for assisting in my research! A general report of the findings will be available on our website, http://www.nurseaidetesting.com/

"This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Sponsored Projects Administration, Southern Illinois University, Carbondale, Illinois 62901-4709. Phone (618) 453-4533. Email siuhsc@siu.edu."

VITA

Graduate School

Southern Illinois University

Kelli D. Whittington

kdwhittington@mckendree.edu

Middle Tennessee State University

Bachelor of Science, Nursing, May 1992

Southern Illinois University Edwardsville

Master of Science in Nursing, August 2001

Special Honors and Awards:

Illinois Department of Rural Health Scholarship Recipient, Fall 2009-present

Michigan State University Visiting Scholar, Spring 2009

Kappa Delta Pi Midwest, Spring 2014

SIUC Student Honor Society, Spring 2014

Nursing Honor Society, McKendree University, Spring 2012

Phi Kappa Phi, Spring 2012

Sigma Theta Tau, Spring 2001

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