MOTIVATION TO LEARN, LEARNER INDEPENDENCE, INTELLECTUAL CURIOSITY AND SELF-DIRECTED LEARNING READINESS OF PRELICENSURE SOPHOMORE BACCALAUREATE NURSING STUDENTS

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by

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Title of Dissertation: **Motivation to Learn, Learner Independence, Intellectual Curiosity and Self-Directed Learning Readiness of Prelicensure Sophomore Baccalaureate Nursing Students**

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Dedication

This dissertation is dedicated to my loving husband Joe and to my two beautiful children Julianna and Joey, for their never-ending love, support, patience, and encouragement every step of the way. You have loved me and believed in me throughout this journey, and I know that you will continuously understand and support my love of lifelong learning. I love you all, and know without a doubt, that I could not have done this without you. It is also dedicated to my father, who before his passing, demonstrated the importance of higher education and how the giving of oneself to others makes one's life complete. You have showed me signs of your spirit along the way, that you were by my side watching over me, and I am grateful for this. Lastly, this is dedicated to all present and future nurses. May you all have motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness for nursing education.

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Abstract

Attrition is a major concern in schools of nursing, and research shows that it is most prevalent in baccalaureate nursing students as they first encounter their initial nursing and core science courses. Many nursing students are confronted with these challenging courses as they enter their sophomore year in 4-year baccalaureate nursing schools. Nurse educators anticipate that sophomore students have the potential to be self-directed learners; and have the initiative to independently identify and implement resources and strategies for learning. A concept analysis of self-directed learning readiness identified motivation to learn, learner independence, and intellectual curiosity as the primary antecedents of self-directed learning readiness. The purpose of this descriptive correlational study was to explore the relationships among these predictor variables and self-directed learning readiness of prelicensure sophomore baccalaureate nursing students. Imogene King's Theory of Goal Attainment and Malcolm Knowles' Theory of Self-Directed Learning served as a theoretical basis for this study. The target population and setting was prelicensure sophomore baccalaureate nursing students at four randomly selected accredited schools of nursing across the United States holding chapter membership in Sigma Theta Tau International. Data analyses included descriptive and inferential statistics appropriate to answer the study's research questions and to test the hypothesis that the linear combination of motivation to learn, learner independence, and intellectual curiosity will predict self-directed learning readiness in prelicensure sophomore baccalaureate nursing students better than any one variable alone.

The findings of this study revealed statistically significant evidence that prelicensure sophomore baccalaureate nursing students scored moderately high on measures of motivation to learn, learner independence, and intellectual curiosity for nursing education. Furthermore, the linear combination of the predictor variables of learner independence and motivation to learn predicted self-directed learning readiness in prelicensure sophomore baccalaureate nursing students better than any one variable alone. The third predictor variable, intellectual curiosity, failed to enter the regression equation due to multicollinearity. The findings of this study advance nurse educators' and nursing students' understanding of self-directed learning readiness. Redesigning courses in nursing education, incorporating innovative teaching and learning techniques in classroom and clinical settings, and encouraging nurse educators to foster learner independence and motivation to learn may enhance and support student learning. Nurse educators can also identify nursing students early in the educational process who may benefit from mentoring and learning support. These findings support Kings' Theory of Goal Attainment and Malcolm Knowles' Theory of Self-Directed Learning and contribute to the current body of nursing literature and the advancement of nursing science on self-directed learning readiness in prelicensure baccalaureate nursing students.

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Chapter 1

Introduction

Self-directed learning (SDL) is an educational concept that has received increasing attention in recent years, particularly in the context of higher education (Levett-Jones, 2005). Although the definition of SDL varies slightly throughout the literature, the concept of SDL is often used interchangeably with the educational concepts of lifelong learning, active or independent learning, and student-centered education (Ainoda, Onishi & Yasuda, 2005). Learning should be viewed as a lifelong process, and SDL is thought to be the means by which lifelong learning may be facilitated (McDiarmid, 1998). Nursing educators are drawn to the SDL approach because of its humanistic orientation and its association with professional autonomy (Levett-Jones). Although it is expected that students in higher education are self-directed learners, their readiness for SDL may not be fully developed.

The need to "learn on one's own" has been a persistent theme in SDL, with the phrase "self-directed learning" invoking both social (self-direction) and cognitive (learning) issues (Garrison, 1997). Garrison's model of SDL integrates contextual, cognitive, and motivational dimensions of the educational experiences of learners. "To be a self-directed learner is to be a critical thinker and the importance of understanding and facilitating self-direction is its potential to improve the quality of learning outcomes" (Garrison, p. 30). In adult education, however, most of the focus has been on self-direction (self-management of learning tasks). It is important for students and nurse educators in higher education to gain knowledge and understanding of student's readiness

for SDL. If specific variables are found to be significant predictors for self-directed learning readiness (SDLR), nurse educators, as well as students, will have insight of what essential characteristics are found to be valuable for students to successfully gain and comprehend new knowledge and skills in nursing. Readiness for SDL is important to first recognize and then address in sophomore baccalaureate nursing students, making SDLR a phenomenon worthwhile to investigation. Self-directed learning readiness is a state in which a nursing student demonstrates enthusiasm for gaining knowledge and skills, displays confidence in one's own ability to succeed, and easily adapts to environments that offer new educational experiences (Grandinetti, 2010).

Colleges and universities across this nation are facing more than ever, challenges related to rising student attrition rates and falling retention rates. According to American Institutes for Research [AIR] (2012), approximately 30% of students that started college in fall 2012 will not return to that same college next fall. Furthermore, 60% of all students graduating from 4-year colleges and universities do so within a six year time period (AIR). There is evidence that many students are entering college unprepared for the rigors they are about to face (AIR). Data was lacking on the specific reasons (voluntary and involuntary) that students leave higher education institutions prior to graduation. These reasons may range from simply deciding to attend another university, to personal logistic issues, or being required to withdraw from programs of study due to poor academic performance.

The United States (U.S.) student loan debt has recently surged above 1 trillion dollars; surpassing credit card and auto loan debt (The Commercial Appeal [TCA],

2012). Expert economists believe that this debt explosion jeopardizes the fragile recovery of our U.S. economy, increases the burden on taxpayers, and possibly sets the stage for a new economic crisis. Students typically attend public colleges and universities that are subsidized by taxpayer money through state appropriations and through state grants to students. Nationwide, these subsidies approach $10,000 per student annually, and in some states are higher, with the U.S. spending more on higher education than any other nation in the world (AIR, 2012). Attrition at this level of formal education has a societal trickle-down effect, directly impacting millions of people in our nation. Colleges and universities are taking even a closer look at the programs and degrees that they offer, with an eye towards the probability of graduates successfully obtaining employment in their area of study, the ability to satisfy student loan debt, and the capability to support their self and their family.

Attrition is a major concern for schools of nursing and nursing educators have begun to direct their attention and efforts towards creating ways to address rising attrition rates in baccalaureate nursing programs. Due to the difficult and rigorous nature of nursing education, student retention and attrition are major concerns for faculty in schools of nursing (Robinson & Niemer, 2010). Challenges for students include heavy course loads, difficult science core courses, needing to work part-time or full-time, having the responsibility of caring for family members, and the common misunderstanding of the commitment needed for academic success in the nursing major (Robinson & Niemer). These challenges resulted in attrition rates in the first two semesters of clinical nursing and theory courses in 2005 that ranged from 7% to 17.3% in schools of nursing across

our nation (Robinson & Niemer). In combating attrition, challenges also arise in comprehending students' struggles in obtaining minimum passing grades in nursing and science courses. Many but not all schools of nursing are admitting larger cohorts of students, but early academic achievement in the nursing major and retention are problematic (Newton, Smith, Moore, & Magnan, 2007). Although there is a growing body of research regarding attrition, including its primary causes and ways to diminish it, there are no conclusions on ways to prevent it.

Educators are becoming interestingly focused on the sophomore year in higher education. This is the year in which students make many of the decisions that help them succeed in subsequent years, such as clarifying their sense of purpose, declaring their major for study, and narrowing their career options (Tobolowsky, 2008). According to Tobolowsky, in the past, in spite of their importance, sophomores have been "abandoned" as faculty focus their efforts primarily on first-year and senior students. Student resources are provided to first year students but fail to be carried out into the sophomore year (Gahagan & Hunter, 2006).

Support and guidance are provided by university educators, staff, and student leaders at orientation and mentoring events throughout a student's first year in college. At the same time, junior and senior students are more closely advised and directed by faculty as they embark on internships, leadership positions, and prepare for employment after graduation. Financial hardships, academic concerns, and questions about future goals and aspirations can become daunting issues for many second-year students (Gahagan & Hunter, 2006). These difficulties in the sophomore year too often lead to student attrition

(Gahagan & Hunter). There is a modest amount of published research (Graunke & Woosley, 2005; Pattengale & Schreiner, 2000; Schaller, 2005) that examined sophomore students, more specifically; transition issues that impact student satisfaction, retention, and attrition.

This researcher proposed that the lack of SDLR of students may be a significant contributor to attrition in nursing education, particularly in sophomore students. If SDLR is assessed early, in the sophomore year in baccalaureate nursing programs, the problem of rising attrition rates may be ameliorated. Validating predictors of SDLR of baccalaureate nursing students can also help nurse educators when developing, revising, and/or enhancing nursing education and its associated pedagogies presently used in schools of nursing.

Background of Self-Directed Learning

Knowles (1975) defined self-directed learning as one in which "individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing learning strategies, and evaluating learning outcomes" (p. 18). Similarly, Ainoda, Onishi, and Yasuda (2005) reported that self-directed learning is often associated with being a lifelong and independent learner. Self-directed learning is "an approach where learners are motivated to assume personal responsibility and collaborative control of the cognitive and contextual processes in constructing and confirming and worthwhile learning outcomes" (Garrison, 1997, p. 18). Garrison hypothesized that SDL needs to be viewed from a "collaborative constructivist"

perspective, where the learner takes responsibility for constructing meaning while including the participation of others in confirming worthwhile knowledge.

While exploring the phenomenon of SDL, Garrison (1997) developed a comprehensive model of SDL so that others can identify its structure. Garrison's model, reviewed for the purposes of understanding SDL for this study, includes three connected dimensions: motivation (entering the task), self-monitoring (cognitive responsibility), and self-management (task control).

Garrison (1997) explained motivation to be perceived value and anticipated success of learning goals at the time learning is initiated and mediates between context (control) and cognition (responsibility) during the learning process. He believed that motivation is what drives the decision to participate. He reported self-monitoring to be synonymous with the responsibility to construct meaning; to personally ensure that new and existing knowledge structures are integrated in a meaningful manner and learning goals are met. Self-monitoring places the responsibility on the learner to construct meaning through critical reflection and collaborative confirmation (Garrison). He also explained that self-management focuses on the social and behavioral implementation of learning intentions, that is, the external activities associated with the learning process.

Garrison (1997) held a strong stance that learners should be provided with choices of how they wish to learn; including providing input on the material resources that should be available to energize meaningful and continuous learning. He theorized that the collaborating dimensions of motivation, self-monitoring, and self-management are what lead to SDL.

Background of Self-Directed Learning Readiness

Wiley (1983) identified SDLR as the degree to which an individual possesses the attitudes, abilities, and personality characteristics which are necessary for SDL. Years later, Beitler (2000) reported that personal characteristics that are helpful for SDLR are: learner knowledge, experience, maturity level, motivational level, the ability to set goals, and having both the time and resources to learn. These individual traits, as well as the ability to be creative, to be adaptable to change, and to possess problem-solving skills, helped Beitler recognize SDLR in students. Levitt-Jones (2005) recognized that the most common flaw of SDL is the lack of adequate student preparation for it, being without readiness for SDL. Research has been conducted to better understand the way in which nursing students learn, and their state of readiness for nursing education. Similar to Beitler, researchers Payne, Flynn, and Whitfield (2008) explored SDLR and reported that the characteristics of students demonstrating this phenomenon included a desire to succeed, a need for achievement, confidence, acceptance of personal responsibility, and the aspiration to achieve higher learning challenges and benefits from a training program.

A concept analysis of SDLR was conducted by Grandinetti (2010). Based on an extensive literature review in the disciplines of nursing, education, and psychology, the attributes (intellectual curiosity, cognitive maturity, motivation to learn, learner independence, language development, emotional expressiveness, physical health and wellbeing, and background knowledge and skills), antecedents (enthusiasm, adaptability, self-control, and self-confidence), and consequences (future learner, goal attainment, reflective learning, student achievement, higher order of critical thinking, retention of

knowledge and skills, responsible decision making skills, and satisfaction with learning experience) of SDLR were recognized. Motivation to learn, learner independence, and intellectual curiosity were identified as being primary antecedents of this phenomenon.

Based on the works of Guglielmino (1989), and Fisher, King, and Tague (2001), this researcher identified that the predictive variables of motivation to learn and learner independence are significant predictors of SDLR of baccalaureate nursing students. This study is unique with the inclusion of the independent predictor variable of intellectual curiosity. Intellectual curiosity is when an individual purposely seeks out new knowledge and skills with the intention of learning (Eason, 2010; Kashdan, Rose, & Finchman, 2004). There are no published studies to date, investigating intellectual curiosity as a possible predictor for SDLR, or to the extent to which these three variables predict SDLR in prelicensure sophomore baccalaureate nursing students.

Purposes of Study

The first purpose of this study was to explore the total scores of prelicensure sophomore baccalaureate nursing students on the Academic Motivation Scale (AMS) (Vallerand, Pelletier, Blais, Briére, Senécal, & Vallières, 1992), the Autonomous Learner Index (ALI) (Abu-Moghli, Khalaf, Halabi & Wardam, 2005), the Curiosity and Exploration Inventory II (CEI II) (Kashdan et al., 2009), and the Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE) (Fisher, King, & Tague, 2001). The second purpose of this study was to explore the relationships among motivation to learn, learner independence, intellectual curiosity, and SDLR of prelicensure sophomore baccalaureate nursing students.

Statement of the Problem

The statistics are ominous; one million new or replacement nurses are needed by the year 2016; an increase of 30% in the number of nurse graduates annually over the current numbers is needed to meet the nation's health care needs, and 55% of current nurses are planning to retire between the years of 2011 and 2020 (American Association of Colleges of Nursing [AACN], 2011). As a result, there is a continuous rise in the need for qualified registered nurses to enter the profession. Due to the difficult and rigorous nature of nursing education, student retention and attrition are currently major problems for nurse educators (Robinson & Niemer, 2010). This researcher primarily was concerned with the high probability that there are students who are both accepted and enrolled in prelicensure baccalaureate nursing programs that lack SDLR for this field of study.

The concept of SDL has been investigated nationally and internationally in the disciplines of psychology, education, nursing and allied health, and business. Garrison (1997) reported "SDL is a core theoretical construct distinguishing adult education as a field of study" (p. 18). As compared to the numerous published studies about SDL in the area of adult education, there were few published studies that look specifically at SDL in prelicensure baccalaureate nursing students. There were even fewer studies investigating the consequences of students who lack readiness for SDL. Self-directed learning readiness is shrouded in confusion and misunderstanding among learners and educators in higher education (Fisher et al., 2001; Hendry & Ginns, 2009).

An extensive review of the nursing literature revealed that the concept of SDLR was not clearly defined in this discipline, more specifically, in nursing education. There is currently little published literature exploring the SDLR of prelicensure sophomore baccalaureate nursing students. Nursing is a complex body of science. Students entering nursing programs without SDLR may exhibit unsatisfactory academic performance. As a result, attrition rates can rise, retention rates can decrease, and student graduation numbers may decline.

Research Questions

The following research questions were investigated to explore the self-directed learning readiness in prelicensure baccalaureate nursing students.

1. What are motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness scores of prelicensure sophomore baccalaureate nursing students?
2. What are the relationships among motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness in prelicensure sophomore baccalaureate nursing students?

Hypothesis

The first research question is descriptive in nature; therefore, no hypothesis was needed. The second research question was tested by the hypothesis that: The linear combination of motivation to learn, learner independence, and intellectual curiosity will predict self-directed learning readiness in prelicensure sophomore baccalaureate nursing students better than any one variable alone.

Definitions of Terms

The variables in this study were motivation to learn, learner independence, intellectual curiosity, self-directed learning readiness, and prelicensure baccalaureate nursing students.

Motivation to learn is the urge or push to carry out specific actions and behaviors for the purpose of satisfaction and the pleasure one receives from engaging in those activities (Brouse, Basch, LeBlanc, McKnight & Lei, 2010). Motivation to learn was measured by total scores on the Academic Motivation Scale (AMS) (Vallerand et al., 1992).

Learner independence is having a clear self-consciousness: the sense of wanting and being able to act and learn as an individual person (Lockhorst, Wubbels & Oers, 2010). Learner independence was measured by total scores on the Autonomous Learner Index (ALI) (Abu-Moghli et al., 2005).

Intellectual curiosity is a positive emotional-motivational system associated with the recognition, pursuit, and self-regulation of novel and challenging opportunities (Kashdan, Rose & Fincham, 2004). Intellectual curiosity was measured by total scores on the Curiosity and Exploration Inventory II (CEI II) (Kashdan et al., 2009).

Self-directed learning is when individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing learning strategies, and evaluating learning outcomes (Knowles, 1975).

Self-directed learning readiness is a state in which a nursing student demonstrates enthusiasm for gaining knowledge and skills, displays confidence in one's own ability to succeed, and easily adapts to environments that offer new educational experiences (Grandinetti, 2010). Self-directed learning readiness was measured by total scores on the Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE) (Fisher et al., 2001).

Prelicensure sophomore baccalaureate nursing students are individuals enrolled in four-year degree colleges or universities accredited by either the Commission on Collegiate Nursing Education (CCNE) or by the National League for Nursing Accrediting Commission (NLNAC), who are completing requirements for initial registered nurse licensure, to earn a Bachelor of Science in Nursing degree in preparation to engage in the full scope of professional nursing practice across all healthcare settings (American Nurses Association [ANA], 2012). For purposes of this study, the prelicensure sophomore baccalaureate nursing students were enrolled in a nursing theory course with a clinical component at schools that held chapter membership in Sigma Theta Tau International (STTI). STTI is a professional nursing organization that recognizes nurses who devote their time and efforts to research through a wide variety of publications, courses, and initiatives. STTI helps nurse researchers disseminate vital information in order to put knowledge into practice (Sigma Theta Tau International, 2013).

Theoretical Framework

Imogene King's (1981) Theory of Goal Attainment (TGA) and Malcolm Knowles' (1975) Theory of Self-Directed Learning (SDL) were blended to serve as the theoretical basis for this study. The research predictor variables of motivation to learn, learner independence, and intellectual curiosity were congruent with the concepts of learning, self, and growth and development in Personal Systems, one of King's three dynamic interacting systems towards goal attainment, and the educational concepts of proactive learner, learner initiative, and psychological development in Knowles' SDL theory.

Imogene King's Theory of Goal Attainment

King (1981) described the essence of nursing, and the interactional patterns and goals that govern the nurse-patient relationship. King's theory helped to describe and explain the interaction between a nurse and the patient (Meleis, 2007). Theoretically, from these interactions goals are established, a plan of action is devised in order to attain these planned goals, and continuous transactions between the nurse and patient result in the attainment of goals. Meleis explained that King's TGA focuses on the central questions of interaction that develop between nurses and patients. King's TGA is also centered on the goals, needs, and values of the nurse, with the intentions of influencing the nurse- patient interaction process and eventually the outcomes.

Alligood (2010) stated that "King's theory of goal attainment provides a systematic approach to the thought and action of nursing that has stood the test of time with continuing utility for organizing the complex factors of healthcare" (p. 99). One important characteristic of her theory is that she is able to bring together the nursing

process and the human nursing interaction process of communication for the understanding of the patient and the planning of care (Alligood). King's (1981) TGA uses the systematic processes of the conceptual focus to understand individual patients and their families, while simultaneously monitoring progression through the nursing process with respect to human interaction and goal attainment. The concepts in TGA served as a guide for understanding individuals, families, interpersonal processes, and the social aspect of clients and their friends and family when faced with an illness (Alligood).

King's (1981) Theory of Goal Attainment is a middle-range theory and was generated directly from King's Conceptual System. Key concepts of King's Conceptual System are classified under three dynamic interacting systems: Personal Systems (Individual), Interpersonal systems (Groups), and Social Systems (Society) (Figure 1).

The personal systems include the concepts of time, self, learning, perception, body image, personal space, and growth and development (King, 1981). The interpersonal system include the concepts: role, stress, coping, interaction, transaction, and communication, while the social system includes the concepts of: power, status, control, authority, organization, and decision making (King).

With the understanding of the three interacting systems King's (1981) TGA, this researcher identified the concepts of self, learning, and growth and development within King's personal systems as being closely related to the three predictor study variables of motivation to learn, learner independence, and intellectual curiosity. Although the two other systems (interpersonal systems and social systems), and their corresponding

concepts, help explain the relationship that develops between a nurse and a patient, they were not relevant in explaining the study variables.

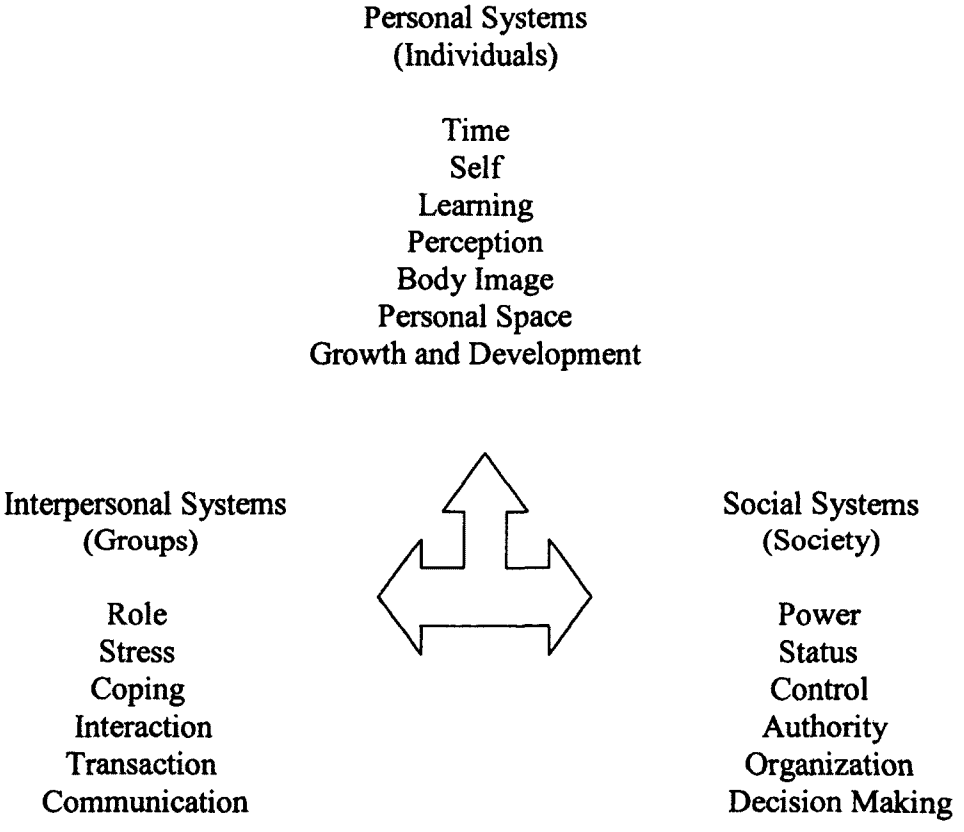

Figure 1. Illustration of King's TGA Dynamic Interacting Systems and Key Concepts

King (1981) believed that every nurse-patient relationship is based upon the assumption that every human being is of equal worth and value, that every relationship is sustained by justice, and the nurse maintains a responsibility to continuously enhance the competence and skills of the patient. The nurse-client relationship that this theory portrays is similar to the relationship that a nurse educator has with a student. Two strangers come together, establish an understanding of each other, and develop an initial sense of trust for one another. The expectations of the nurse educator are provided to the student in advance. This is most accomplished on the first day of class when the course

syllabus is provided and reviewed with the student. Together, with discussion and cooperation, realistic goals are established.

Ideally, the student leaves the classroom with a clear understanding of these goals, and the course of actions needed to accomplish them. The nurse educator is responsible for cultivating and enhancing the competence and skills of the student. The relationship that exists between nurse educators and students plays a part in the assessment and setting of learning goals. Since this personal system interaction most often goes unnoticed, it suggests a natural process of human interaction (King, 1981).

Application of Imogene King's Theory of Goal Attainment to this Study

The research variables of this study reflected the three concepts within the personal system component of King's (1981) Theory of Goal Attainment. The key concepts of learning, self, and growth and development within King's three dynamic interacting systems are closely related to the study's predictive variables that were investigated: motivation to learn, learner independence, and intellectual curiosity. Figure 2 provides an illustration of the application of King's TGA to this study, and the interconnectedness of King's three Personal Systems concepts with the study's predictive variables for SDLR.

The concept of learning was represented by motivation to learn, self was reflected in learner independence, and growth and development was represented by intellectual curiosity. Self-directed learning readiness of sophomore baccalaureate nursing students was the expected consequence, or outcome, of the combination of these predictor variables. The continuous feedback loop represented the circuit returning the output of

SDLR of sophomore baccalaureate nursing students to the input, King's (1981) TGA. This reinforcing loop represented progressive transformation that requires continuous consideration and refinement of the process.

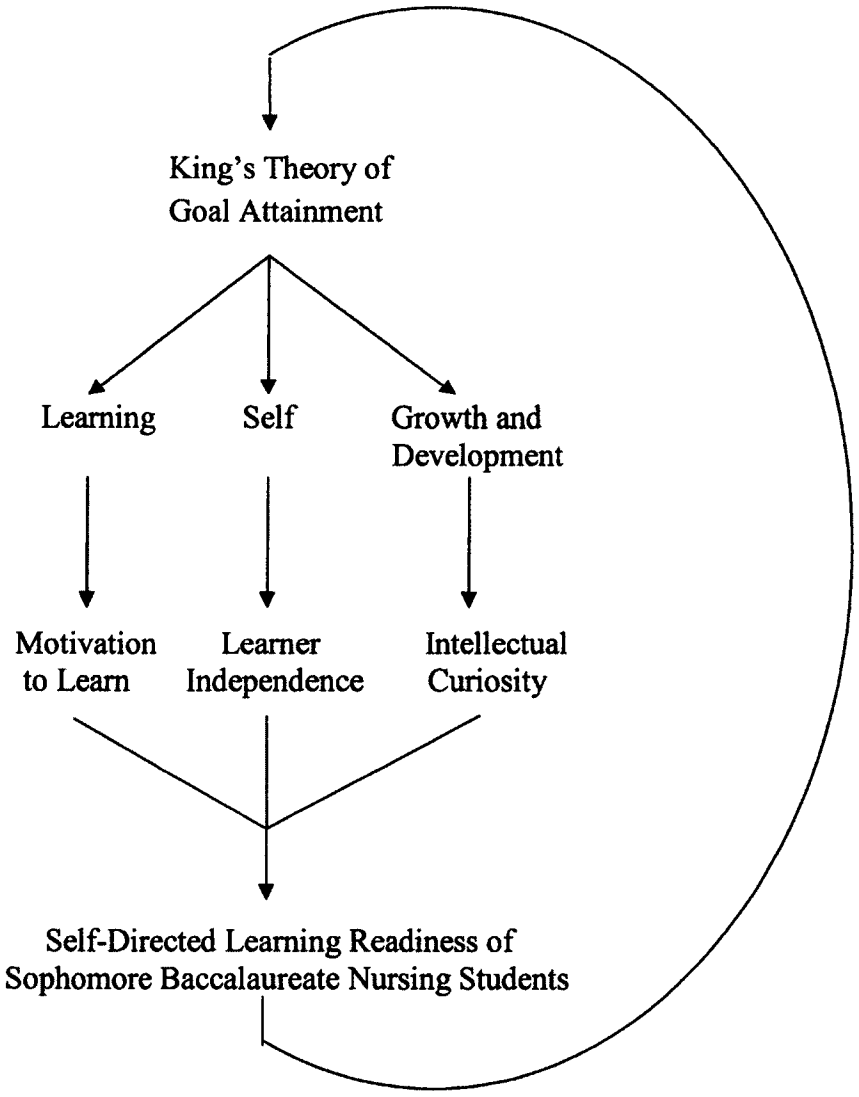

Figure 2. Application of King's TGA to this Study

Nurse educators and students are positioned in academia to work with each other, setting mutual goals, to learn new knowledge and associated clinical skills. Prelicensure sophomore baccalaureate nursing students must take charge of the practices needed to achieve their personal goals of learning. The application of King's (1981) TGA to this study helped to explain that nursing students' SDLR in combination with the relationship of trust and understanding that develops with their nurse educators may help reach outcomes in nursing education.

Malcolm Knowles' Theory of Self-Directed Learning

Knowles' (1975) Theory of SDL operationally guides adult learners to understand the process of learning and the responsibility the self-directed learner has in his/her own learning. Knowles' theory assumes that human beings grow in capacity and need to be self-directed as an essential component of maturing. This capacity should be protected and nurtured by the learner. There is an increasingly profound psychological need to be independent as humans develop and mature; naturally developing the ability to take on more and more responsibly for one's life and to be increasingly self-directed (Knowles).

Society typically thinks of learning as what takes place in school, it is "being taught" (Knowles, 1975, p. 16). Knowles equated learning to living, and that every experience in life is a "learning experience" for personal growth and development. Knowles believed that the life experiences of learners are resources for learning and should be augmented with the resources of academic experts. As a student's natural orientation most often ranges between "tasks and problem centered", learning experiences should be organized as task accomplishments and problem solving learning projects. Furthermore, Knowles

theorized that learners are motivated by internal incentives, such as need for self-esteem, the desire to achieve, the urge to grow, the satisfaction of accomplishment, the need to know something specific, and curiosity.

Knowles' (1975) theory of SDL puts forward three immediate concepts for self-directed learning (Figure 3). The first of these concepts is proactive learner. Knowles believes that human beings who take the initiative in learning to be proactive learners, learn more things, and learn better than do people who sit at the feet of teachers passively waiting to be taught, otherwise known as reactive learners. "They enter into learning more purposefully, with greater motivation, and tend to retain and make use of what they learn better and longer than do the reactive learners" (Knowles, p. 15). The second concept is learner initiative. Education places a heavy responsibility on students to take an active initiative with their own learning. "Students entering into educational programs without having learned the skills of self-directed inquiry will experience anxiety, frustration, and often failure, and so will their teachers" (Knowles, p. 15). The third concept is psychological development. Self-directed learning is more consistent with students' natural processes of psychological development. "An essential aspect of maturing is developing the ability to take increasing responsibilities for one's own life, to become self-directed" (Knowles, p. 15). Knowles' theory of SDL still holds true today. It is regarded as a landmark theory that best explains the self-directed learning behaviors of students. His theory continues to be cited by others, more recently in studies that investigated the self-directed ability of students when learning in internet-based and blended educational environments (Chu et al., 2012; Schwier, Morrison, & Daniel, 2009).

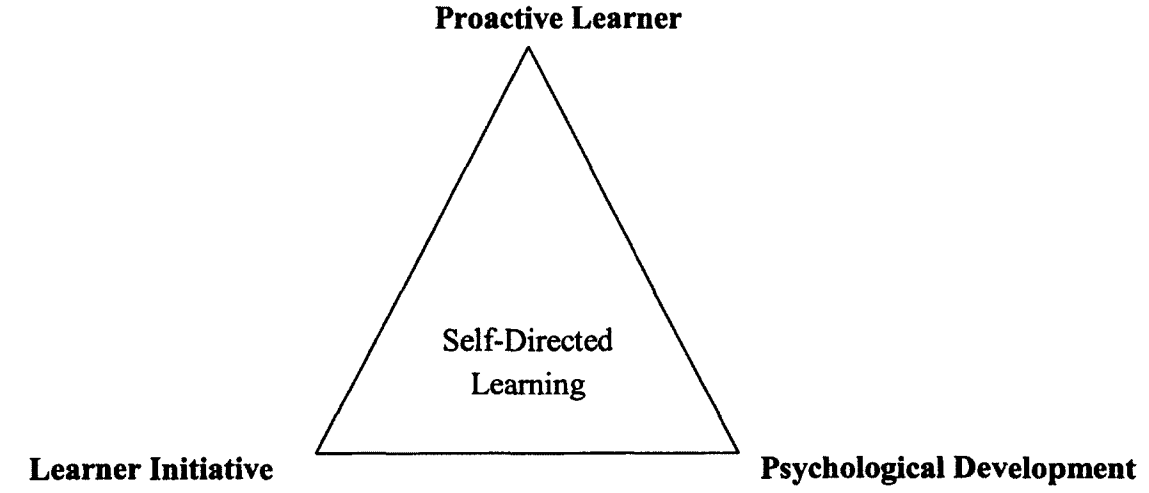

Figure 3. Illustration of Knowles' Theory of SDL and Key Concepts

Knowles' (1975) theory of SDL provides examples of self-directed learning behaviors of students. These include the student determining resources needed to learn, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles). Self-directed learning is when "a student takes the initiative, with or without the help of others to accomplish these tasks, that they are self-directed learners" (Knowles, p. 18). The concepts of proactive learner, learner initiative, and psychological development in Knowles' Theory of SDL, which are indicated in bold type in Figure 3, are interconnected with SDLR predictor variables: motivation to learn, learner independence, and intellectual curiosity.

Application of Malcolm Knowles' Theory of Self-Directed Learning to this Study

The research variables of this study reflected the three concepts within Knowles SDL theory. Figure 4 provides an illustration of the application of Knowles' (1975) SDL theory to the study, and the interconnectedness of Knowles' educational concepts with

the study's predictive variables for SDLR. The key concepts of proactive learner, learner initiative, and psychological development within Knowles' theory were conceptually related to the study's predictive variables that were investigated: motivation to learn, learner independence, and intellectual curiosity. The concept of proactive learner was represented by motivation to learn, learner initiative was reflected in learner independence, and psychological development was represented by intellectual curiosity. Self-directed learning readiness of sophomore baccalaureate nursing students was the expected consequence, or outcome, of the combination of these predictor variables.

The continuous feedback loop represents the circuit returning the output of SDLR of sophomore baccalaureate nursing students to the input, Knowles' (1975) Theory of SDL. This reinforcing loop represents progressive transformation that requires continuous consideration and refinement of the process. The application of key concepts in Knowles' SDL theory helped to explain the SDLR of sophomore baccalaureate nursing students.

According to Knowles (1975), teachers and students are positioned in academia to work with each other, setting mutual goals, and learning and growing together, but it is the responsibility of students to be proactive and self-directed. Prelicensure sophomore baccalaureate nursing students should take charge of their learning, develop the skills of inquiry, and be self-directed learners. Knowles' (1975) theory of SDL clusters together the concepts of proactive learner, learner initiative, and psychological development to form the stimulus and opportunity for reflection and exploration.

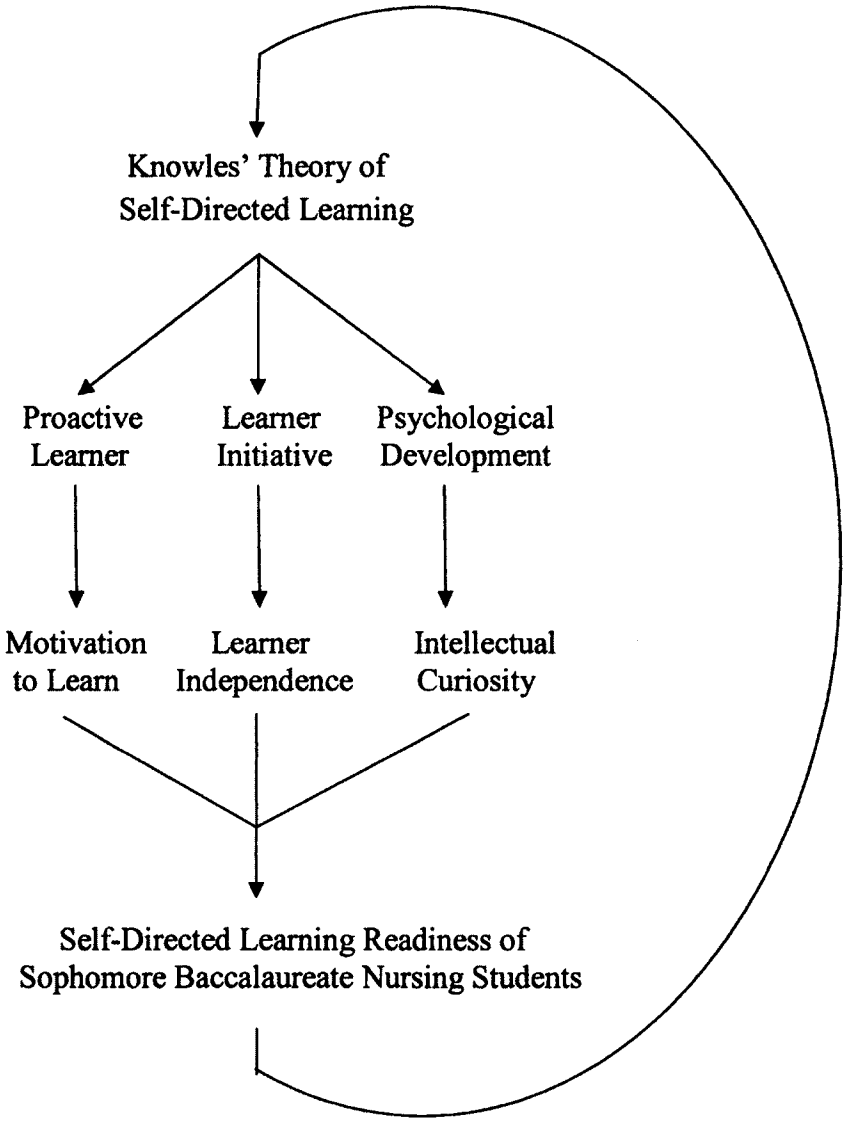

Figure 4. Application of Knowles' Theory of SDL to this Study

Blending of King's and Knowles' Concepts for Self-Directed Learning Readiness

Merging the personal system of Imogene King's (1981) TGA with the educational aspects of Malcolm Knowles' (1975) Theory of SDL formed a theoretical basis explaining the phenomenon of SDLR. Figure 5 provides an application of blending King's TGA concepts and Knowles' Theory of SDL concepts, and the logical association

that these concepts have with the study's predictive variables for SDLR of sophomore baccalaureate nursing students. The continuous feedback loop represents the circuit returning the output of SDLR of prelicensure sophomore baccalaureate nursing students to the input, King's TGA and Knowles' Theory of SDL. This reinforcing loop represents progressive transformation that requires continuous consideration and refinement of the process.

King's (1981) personal system of learning and Knowles' (1975) educational concept of proactive learner helped describe and explain the independent variable motivation to learn. King's personal system concept of self and Knowles' educational concept of learner initiative helped describe and explain the independent variable learner independence. King's personal system concept of growth and development and Knowles' educational concept of psychological development helped describe and explain the independent variable intellectual curiosity.

The predictive relationship that intellectual curiosity may have for SDLR of nursing students, in combination with the variables of motivation to learn and learner independence, has yet to be examined with research. The key concepts extracted from these two independent theories are directly related to the predictor variables of motivation to learn, learner independence, and intellectual curiosity for SDLR of sophomore baccalaureate nursing students. Using these three independent variables, this researcher studied the predictive relationships for SDLR of sophomore baccalaureate nursing students.

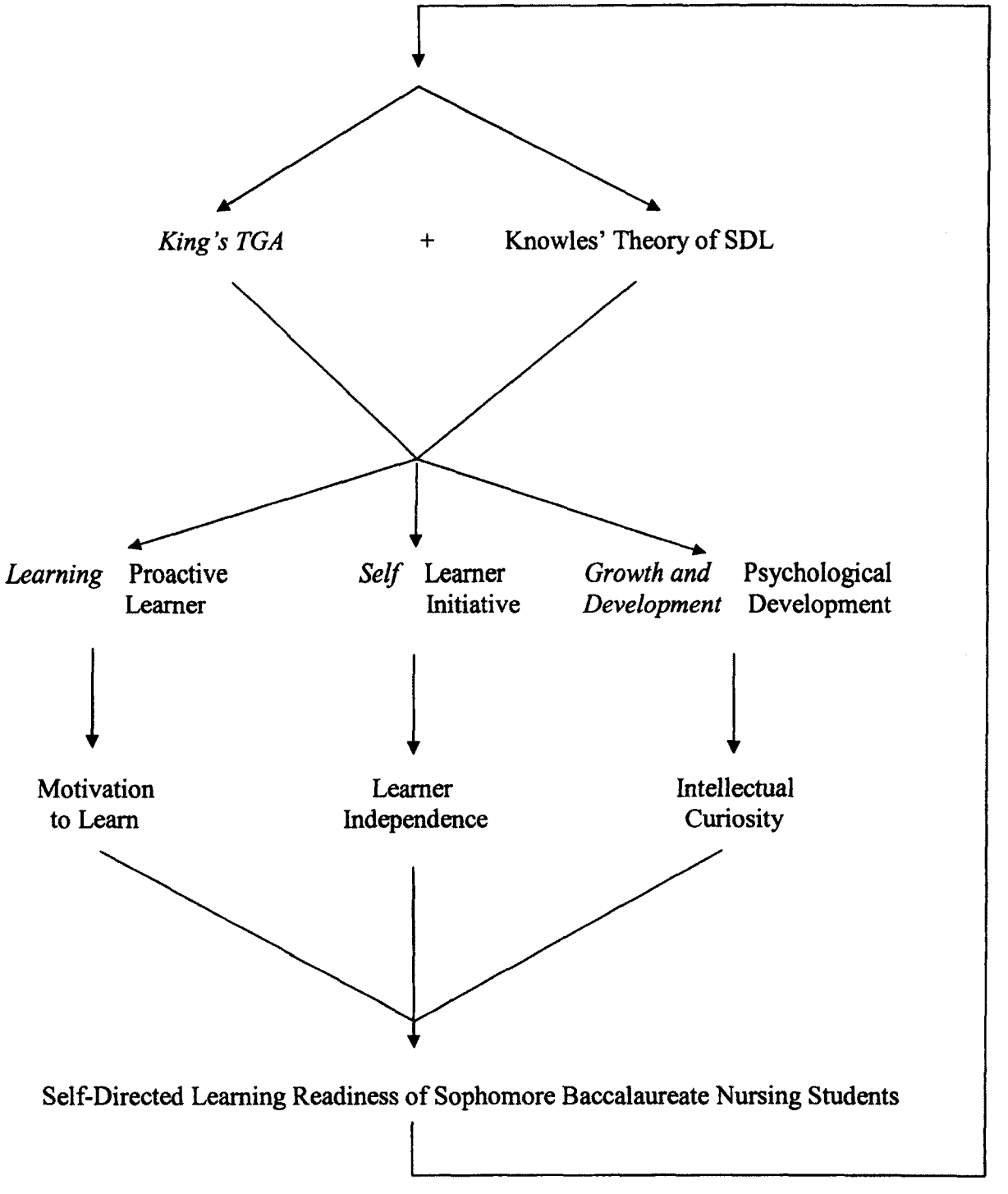

Figure 5. Application of Blending King's TGA and Knowles' Theory of SDL to this Study

Note: King's concepts are in italics; Knowles' concepts are regular print.

The compilation of six key concepts clarified the individuality of the three predictor variables for SDLR. A construct manifested from the synergy of King's (1981) personal system and Knowles' (1975) educational concepts.

Assumptions of the Study

Assumptions are statements made by the researcher that certain elements of the research are understood to be true (Munro, 2005). The first assumption for this study was that prelicensure sophomore baccalaureate nursing students have the capability to be adult self-directed learners. The second assumption was that schools that held chapter membership in Sigma Theta Tau International (STTI) value the importance of nursing research and advancing the science of nursing in comparison to schools of nursing who do not hold chapter membership. The third assumption was that the participating prelicensure sophomore baccalaureate nursing students answered all research questions openly, honestly, and to the best of their ability.

Significance of the Study

Self-directed learning readiness in prelicensure sophomore baccalaureate nursing students is a concept that was under investigated in the discipline of nursing, more specifically, in nursing education. Studying this phenomenon generated new knowledge supporting and advancing current knowledge in nursing science. The investigation may assist nurse educators in identifying nursing students early in the educational process who may benefit from mentoring and learning support. This study, therefore, advances the understanding of SDLR in prelicensure sophomore baccalaureate nursing students.

Nursing Science and Research

Although there is considerable research on self-directed learning and learning readiness of students, this study addressed the ability and extent to which motivation to learn, learner independence, and intellectual curiosity predicts SDLR in prelicensure sophomore baccalaureate nursing students. This researcher anticipated that testing the hypothesis of the study would be a scientific process that would validate and refine existing knowledge of SDLR, and more specifically, generate new knowledge about the relationships the predictor variables may have for SDLR of prelicensure sophomore baccalaureate nursing students. The study findings directly and indirectly influence the ways in which nursing education is provided to students.

The use of Kings' (1981) TGA and Knowles' (1975) theory of SDL are important, considering nursing education research is most often interconnected with sound nursing and education theory. Following careful investigation of King's TGA and Knowles' theory of SDL, this researcher discovered that neither theory, independently, was entirely satisfactory for application to nursing education. Rather, a blend of these theories best explained the teaching and learning practices in nursing education. The usefulness and relevance of these two theories for future research were enhanced and supported by this study. The personal system aspects of King's theory along with the educational aspects of Knowles' theory provided a theoretical basis for the study and evolved and advanced present knowledge and understanding about SDLR in nursing education. This research serves as a foundation for further exploration and investigation of SDLR in nursing education. In addition, this study in unique, as it is the first study in the U.S. using the

Autonomous Learner Index as an instrument to measure learner independence of prelicensure sophomore baccalaureate nursing students.

Nursing Education

The overarching aim of researching SDLR in prelicensure sophomore baccalaureate nursing students was to influence nursing education and to improve the ways in which educators identify when and if a student is ready to learn nursing. Evidence from this research provides a better understanding of SDLR in nursing education, and also helps when developing and testing educational interventions of SDL. The variables of motivation to learn and learner independence were found to be significant predictors for SDLR. Nurse educators, as well as students, now have an insight of the essential characteristics that were found to be valuable for students to successfully gain and comprehend new knowledge and skills in nursing.

As one example, when nurse educators identify students who were unsuccessful in meeting course objectives either in classroom or in clinical, they will be able to refer to these above-mentioned predictors for prescriptive action. Nurse educators are able to inspire their students to be motivated to learn and demonstrate learner independence by enhancing, revising, or expanding on current classroom and clinical assignments and activities. As another example, nurse educators advising nursing students may be provided with student midterm course evaluations that identify students who fall below academic expectations, indicating they may not possess sufficient readiness for SDL. These students may benefit from taking a lower credit hour semester, or taking a semester off to resolve the issues causing the academic challenges. Attrition and retention issues

may be alleviated by identifying, supporting, and assisting students with addressing the challenges that they face.

The SDLR of prelicensure baccalaureate nursing students is also important for nurse educators to consider when designing and developing curricula, sequencing learning materials, and presenting complex nursing learning activities. The outcomes and knowledge gained from this research can be integrated into the teaching responsibilities of nurse educators, by providing insight and understanding of a student's motivation to learn, learner independence, and intellectual curiosity, and the predictive relationships that exist between motivation to learn and learn independence for SDLR for nursing.

Nurse educators have the responsibility of educating nursing students. They are held accountable by schools of nursing to guide, support, and lead by example. Educators with expectations that students have motivation to learn, be independent learners, and demonstrate intellectual curiosity must also demonstrate these same characteristics in themselves. This can be accomplished by advancing their knowledge of nursing by actively pursuing an advanced degree in nursing education and/or practice, staying current of nursing trends by reading nursing journals, conducting and participating in nursing research, and presenting research findings at local, regional, and international venues for nurses and other healthcare professionals.

The National League for Nursing (NLN) 2008 priorities for nursing education research include innovations in nursing education (creating reform), evaluating research in nursing education (evaluating reform), and developing the science of nursing education (evidenced based reform). Creating reform includes the creation of new teaching

pedagogies, and student/teacher learning partnerships that focus on the process of reforming nursing education. Evaluating reform includes program evaluation models, best practices in schooling, teaching, and learning, and quality improvement processes. Evidenced based reform includes the importance of analyzing concepts related to the innovation of nursing education, and the validation through research of key concepts related to evidenced-based teaching practices. Researching the concept of SDLR may advance and revise the traditional methods in which nurse educators provide guidance and support to nursing students. The NLN priority of advancing nursing education through research is significant, because it corroborates the importance of investigating concepts that will ultimately advance knowledge and understanding of the current responsibilities of a nurse educator/nurse researcher. Additionally, there is currently no published literature that has investigated a nursing student's intellectual curiosity. Therefore the findings of this study impact and advance nursing education knowledge and literature regarding this study variable.

Chapter Summary

In SDL the student takes both the initiative and the responsibility for what occurs. Students choose, manage, and assess their own learning needs, which can be pursued at any time, in any place, through any means. In colleges and universities, nurse educators can disseminate knowledge of the importance of SDL for success in nursing. It is necessary that nurse educators not only teach but demonstrate themselves SDL skills. For the student, SDL involves initiating personal challenge activities and developing the personal qualities to pursue them successfully.

Studying the phenomenon of SDLR of sophomore baccalaureate nursing students was relevant. It was important to investigate relationships of variables that predict SDLR because much is not known about this unique phenomenon. The problem that drove the research is that some nursing students enter schools of nursing with a lack of SDLR ability, are unsuccessful in core science and nursing courses sophomore year, and end up leaving this major. Consequently, attrition rates rise, graduation rates decline, and the shortage of qualified profession nurses continues. Additionally, these research findings impact the ways in which nurse educators teach, organize curriculum, and identify students who need guidance and support to learn nursing.

By investigating and analyzing specific predictor variable relationships, this researcher determined that motivation to learn and intellectual curiosity predicted the outcome variable of SDLR, better than any one variable alone. Imogene King's (1981) TGA and Malcolm Knowles' (1975) SDL theory provided a theoretical framework for this study. Key concepts of learning and self, which are contained in King's TGA and the concepts of proactive learner and learner initiative, in Knowles' SDL theory overlapped with the study predictor variables of motivation to learn and learner independence. Human interaction and goal attainment that are exemplified in King's theory are created in association with a nurse and client relationship. This relationship reflects the relationship that develops between a nurse educator and a prelicensure baccalaureate nursing student. Individuals that take the initiative for their learning needs, identify and obtain resources for learning, and evaluate learning outcomes is embodied in Knowles' (1975) theory of SDL. The findings from the study of SDLR in nursing

advanced nursing science by adding to current knowledge and understanding of SDLR, and provide evidence to nursing educators to effectively guide and support the academic efforts of prelicensure sophomore baccalaureate nursing students.

Chapter 2

Literature Review

The following literature review includes peer reviewed research, anecdotal, and theoretical articles in the disciplines of nursing, psychology, and education. This chapter begins with a discussion of literature on self-directed learning. It then continues with a comprehensive literature review of SDLR. Self-directed learning readiness is defined as a state in which a nursing student demonstrates enthusiasm for gaining knowledge and skills, displays self-confidence in own ability to succeed, and easily adapts to environments that offer new educational experiences (Grandinetti, 2010). A summary of SDLR literature is then presented. A review of theoretical and empirical literature for learner independence, motivation to learn, and intellectual curiosity follows. A chapter summary brings closure to this review, representing the current body of knowledge of SDLR, and its three predictors.

Search of the Literature

The first database used to explore the concept of SDLR was the Cumulative Index to Nursing and Allied Health Literature (CINAHL). Using the search terms learning and readiness, 107 hits initially resulted from this search. The time frame set provided by the search engine was 1983 to 2012. This timeframe was altered to only include peer reviewed research publications dating back to no later than 2008, a five year time span. This resulted in 30 hits, clearly an insufficient amount for a thorough examination. The time frame was again changed to reflect a 10 year time span; 2002 to 2012. This search

of learning and readiness resulted in 53 hits. Each one of these studies was examined for reliability, integrity, and usefulness of information.

The second database used to explore the concept of SDLR was Psych INFO, a database of abstracts of literature in the field of psychology which is produced by the American Psychological Association (APA). The search engine set the time span of peer reviewed scholarly research articles between the years of 1921 and 2008, close to 90 years. This resulted in 11 hits. The time frame was adjusted twice; 2002 to 2012 resulted in 32 hits, while 2008 to 2012 revealed 21 hits. All 21 peer reviewed articles published in this database since 2008 were read and reviewed.

The third database used for SDLR was Education Resources Information Center (ERIC). This search resulted in 437 hits between the years of 1996 to 2011. The time frame was narrowed to include only peer reviewed research publications during the years of 2007 to 2011. This narrowed the number of available articles to 136. These articles were reviewed for usefulness in investigating SDLR. This database included relevant articles in both education and business.

Additionally, when the modifier of self-directed was included in these searches, there was little to no difference in the number of hits received. The researcher determined that the variables of learning, readiness, and self-directed learning are mutually associated.

Learner independence was explored in CINAHL. Initially, three hits resulted from this search. The time frame set provided by the search engine was 2007 to 2012. This timeframe was altered to only include peer reviewed research publications dating back to no later than 2002, a 10 year time span. This resulted in four hits, a low number of

articles to examine. The time frame was again changed to reflect a 15 year time span; 1997 to 2012, which resulted in five hits. Although a low number, each one of these articles was examined for reliability, integrity, and usefulness of information.

Learner independence was also explored in the database ERIC. The search engine set the time span of scholarly research articles between the years of 1969 and 2011. The filter was set to include none other than peer reviewed articles. This resulted in 31 hits. The time frame was adjusted twice; 1996 to 2011, which resulted in 17 hits, and then again between the years of 2006 to 2011, which resulted in eight hits. All 25 articles that were peer reviewed research publications published since 1996 were reviewed and examined for reliability, integrity, and usefulness of information.

Motivation to learn was explored in CINAHL. Initially, 76 hits resulted from this search. The time frame set provided by the search engine was 1987 to 2011. This timeframe was altered to only include peer reviewed research publications dating back to no later than 2001, a 10 year time span. This resulted in 47 hits. The time frame was again changed to reflect a five year time span; 2006 to 2011, and students were included in the search. This resulted in 10 hits. Each one of these 10 articles was examined for reliability, integrity, and usefulness of information.

Motivation to learn was also explored in the database, ERIC. The search engine set the time frame of peer reviewed scholarly research articles between the years of 1936 and 2012. This resulted in 826 hits. The time frame was adjusted to search between the years of 1992 and 2012. This resulted in 223 hits. Both students and college were added to the search, which resulted in 69 hits. All articles that were peer reviewed research

publications published since 1992 that involved motivation to learn, students, and college were reviewed for useful information.

Intellectual curiosity was explored in CINAHL. Initially, 18 hits resulted from this search. The time frame set provided by the search engine was 1990 to 2011. This time frame was altered to only include peer reviewed research publications dating back to 2001, a 10 year time span. This resulted in 13 hits. Each one of these articles was examined for reliability, integrity, and usefulness of information.

Intellectual curiosity was also explored in PsychINFO. Initially, 13 hits resulted from this search. The time frame set provided by the search engine was 1928 to 2011. This timeframe was altered to exclusively include peer reviewed research publications dating back to 2001, a 10 year time span. This resulted in four hits. The time frame for this search was again adjusted from 1971 to 2011 and resulted in 17 hits. Each of these articles was examined for reliability, integrity, and usefulness of information. Two articles provided clarification and reason to intellectual curiosity.

Self-Directed Learning

In a classic study conducted more than 70 years ago, Lynch (1940) reported that "one of the fundamental problems connected with the theory of curriculum is to determine as nearly as possible the order in which learning objectives should succeed each other" (p. 337). He further reported that the problem of self-directed learning is the inability to give an exact definition of a prerequisite. Lynch stated that prerequisites to learning are not "definite" or "fixed", but rather they must be mature in nature. Lynch indicated that "a learned product that has matured is relevant, and can only be attained

with a sufficient number of practices" (p. 442). He further reported that "it is only when a learning prerequisite matures can it possibly influence future learning in a positive manner" (p. 447). This particular article was relevant because it addressed the concept of self-directed learning with clarity and simplicity.

Early research and writings devoted to SDL by Houle (1961), and later by Tough (1967) established a foundation for Malcolm Knowles' (1975) influential theory of SDL. Knowles' theory also flourished from his efforts in researching and writing of andragogy; the art and science of helping adults learn. According to Knowles, andragogy is based on crucial assumptions about the characteristics of adult learners that differ from child learners (pedagogy). He theorized that a learner's self-concept, experience, readiness to learn, and orientation to learning impact the ability for SDL. As a person matures, the self-concept of this person moves from being a dependent personality toward one of being self-directed. Further, he added that experience becomes an increasing resource for learning, that readiness to learn becomes oriented increasingly to the developmental tasks of social roles, and that time perspective changes from one of postponed application of knowledge to immediacy of application. Learners demonstrating SDL are individuals who intentionally engage in learning activities outside the classroom in order to gain knowledge, skills, and experience to augment their classroom learning activities. As mentioned above, Knowles' theory of SDL says that learners become increasingly self-directed as they mature cognitively.

Given the continuous changes and advances in the health sciences, health professionals have the responsibility to demonstrate SDL to stay up to date and

knowledgeable about current evidence. They also have the responsibility to their patients, the students that they teach, and most importunately to themselves, to be life-long learners. Levett-Jones (2005) wrote a paper that explored and explained the origins of SDL and discussed the relevance of SDL to Knowles' (1975) theory. Her paper was based on a collection of anecdotal evidence from a number of adult education theorists (Knowles; Nolan & Nolan, 1997; Tough, 1967). Her efforts enabled her to highlight the limitations and implications of SDL with regard to undergraduate nursing education in particular. According to Levitt-Jones, "while SDL may enhance nursing education curricula, there is an increasing awareness that SDL is not universally applicable for all learners and all situations", making this a limitation of SDL (p. 365). Preparation of teachers and students is needed prior to the successful introduction of SDL into curricula. Both parties must have an understanding and respect for SDL, and realize the importance of its presence in higher education. There must be a balance between teacher-directed and student-directed learning, along with an agreement between students and teachers as to mutual role expectations and learning preferences (Levett-Jones). This negotiation and commitment between teacher and learner is paramount to the success of the learning process, and identified as an implication of SDL.

Although investigated in a differ student population, and in the vein of SDL, Regan (2003) conducted a study to identify what motivates nursing and midwifery students towards SDL. Regan defined SDL as "all learning undertaken by students outside the classroom context" (p. 593). The overall aim of her study was to gain a greater understanding of the nature of SDL from both a student and tutor perspective and

to highlight any discrepancies between them. Regan expected to impact teaching practice by informing academic faculty of study findings, and to ultimately improve the learning experience of students. Regan's concern was that SDL has become an increasing expectation of students in higher education. Although this has been supported by empirical evidence from an educator's perspective, it is scarcely studied from a student's perspective.

The study was conducted in two phases. The first phase used focus groups in which interviews were conducted with both pre-registered nursing and midwifery students (n = 12), and student tutors (n = 8). Rather than analyzing the data collected from this phase, Regan (2003) used the raw data to construct a questionnaire for the second phase of the study. Drawing from the same student and tutor population as the first phase, pre-registered nursing and midwifery students (n = 97) and student tutors (n = 18) completed the questionnaire. Using a 5-point Likert scale, students responded to 19 items answering to what motivates them towards SDL. Data extracted from completed questionnaires was analyzed to identify interrelationships between motivation and SDL. Regan reported that the most outstanding result was that 100% (N = 97) of student respondents agreed that a good lecture motivated them to direct their own learning. It was also noted that 93.8% (n = 90) of students agreed that having clear guidance and feedback from nursing educators regarding expectations of SDL is motivating. Other strongly agreed responses included: interesting subject, relevant to nursing, a good mentor in clinical practice, wanting to pass the assignment, and wanting to be a nurse. Regan discovered that students' scores were much higher than the scores of the student tutors. Regan

contributes this to the age and generational differences of education between the students and tutors, representing a limitation of the study. Since no biographical data were collected on the questionnaire, and only a small number of students were part of the first phase of the study, saturation was not reached, and therefore findings were inconclusive for the general population of nursing and midwifery students. The research instrument that was used to collect data in Regan's study was not tested prior to its use. As a result, there is no evidence of its validity or reliability.

Self-directed learning is an approach to learning that relies heavily on students being responsible for, and possessing the ability to be self-directed in their own learning (Fisher, King, & Tague, 2001; Smedley, 2010). The need for nursing students to be self-directed learners pursuing the necessary knowledge and skills to practice the profession of nursing is a critical aspect in their role as students (Smedley). Many students enter Bachelor of Nursing programs directly from high school. This has sparked many discussions in nursing literature, primarily related to the interest and eagerness of young adults to take the responsibility for their own learning, to be self-directed learners. Students who are self-directed essentially take control and accept the freedom to learn what they personally view as important for themselves. The degree of control learners are willing to take over their own learning will most often depend on their attitude, abilities, and personality characteristics (Fisher et al.).

Self-Directed Learning Readiness

Self-directed learning readiness is the phenomenon that was examined in prelicensure sophomore baccalaureate nursing students. Theoretical and empirical

evidence of SDLR was reviewed and included in the review of literature. The personal characteristics demonstrated by individuals with readiness for SDL emerged from this review. Over the years, SDL has generated considerable interest in the adult education literature. This has been fueled by the development of the Self-Directed Learning Readiness Scale (SDLRS) (Guglielmino, 1977), a scale designed to measure a person's readiness for self-directed learning. According to Guglielmino, SDLR is the degree to which one perceives oneself ready to possess the attitudes and skills needed to be an effective self-directed learner. A student's readiness for SDL is what is significant and warrants investigation. This researcher found relevant studies that investigated readiness for SDL in health profession education and business literature.

Self-Directed Learning Readiness in Health Profession Education Literature

Hendry and Ginns (2009) conducted a study exploring the SDLR in students enrolled in a hybrid problem-based learning medical program. They additionally investigated the usefulness of the SDLRS, developed by Fisher et al. (2001) with medical students. The study took place in 2007 and the questionnaires were distributed exclusively to first year students during their orientation week ($N = 232$). Study findings not only concluded that the SDLRS is a valid and reliable instrument in schools of medicine, but also determined that students who entered the program began with high confidence in their SDL ability. Hendry and Ginns concluded in saying "It is not uncommon that students reflect their over-confidence in their SDL ability at the beginning of a course" (p. 918).

Exploratory factor analysis was conducted by the researchers to determine the factor structure of the instrument. Items were assigned to one of four extracted factors; critical self-reflection, learning self-efficacy, self-determinations, and effective organizations. These four items were then compared to the three factor structure of self management, desire for learning, and self-control developed by Fisher, King, and Tague (2001). Cronbach alphas for these four factors were .72, .89, .72, and .79, respectively (Hendry & Ginns, 2009). These four factors showed evidence of suitable levels of internal consistency and reliability of the SDLRS. It was also determined by these researchers that factors of 'critical evaluation' and 'learning self-efficacy' did not correspond well with those reported by Fisher et al. This suggests that further research is needed to identify SDL items and factors in this instrument that are stable across different post-secondary learning settings (Hendry & Ginns). A limitation of this study which positively skewed the data was that questionnaires were completed by participants on the first day of a medical course. Students rated themselves as being highly ready for engaging in SDL, suggesting that a student's self-confidence in SDL is at one's highest point at this time. This study reveals the need for further research exploring SDLR of medical and nursing students on a day different that the first day of a course. Strength of this study was the validation of overall usefulness of the SDLRS with medical students.

Kocaman, Dicle, and Ugur (2009) conducted a study to analyze the SDLR of nursing students who were enrolled in a problem based curriculum program. These researchers reported that problem based learning, with its emphasis on SDL, is viewed as an appropriate method for developing the attitudes and skills necessary to cope with ever-

changing environments. The development of SDL in the same nursing student cohort throughout their four years of nursing education was the focus of this study. The study was conducted at a school of nursing located in Turkey. A longitudinal correlational design was used with early program nursing students ($N = 50$). The SDLRS designed by Fisher et al. (2001) was adapted to Turkish and was used to collect data. The scale was initially pilot tested in Turkish for validity and reliability (Kocaman, Dicle, Ustan & Cimen, 2006) prior to its use in this study. There is no English translation of this pilot study for review. The questionnaires were administered during the first month of every academic year, and upon students' completion of the nursing program. This accounted for a total of five completed questionnaires from each participant. Differences of SDLR scores during the study period were tested with repeated measures analysis of variance.

The results of the comprehensive study revealed that there were increasing differences in the mean SDLR scores of nursing students according to year in the program. The first year ($M = 160$), second year ($M = 175.2$), third year ($M = 184.2$), the fourth year beginning ($M = 183.68$), and the fourth year end ($M = 186.94$) scores, all greater than 150, indicated a readiness for SDLR (Kocaman et al., 2009). The researchers reported that their findings were congruent with similar findings from qualitative research that has been performed in the past, where students described changes in perception and satisfaction with SDL over time. Evidence from this study corroborated the findings of similar studies. The participating nursing students reported the important role of nursing educators guiding and supporting them during the transformation period to becoming effective and satisfied self-directed learners.

Klunklin, Viseskul, Sripusanapan, and Turale (2010) conducted a descriptive study in Thailand that investigated the level of readiness for SDL among Chiang Mai University (CMU) undergraduate nursing students. The researchers also explored the differences in SDLR among nursing students in first, second, third, and fourth year levels. Students were recruited for participation in the study from each class year by proportional stratified random sampling from the total population of 552 students undertaking a 4-year undergraduate nursing degree at CMU. More than half of these undergraduate nursing students participated in the study ($N = 272$). There was an acceptable distribution of participants across years 1, 2, 3, and 4; 22.1%, 20.2%, 23.5%, and 34.2% respectively. The instruments included a demographic questionnaire and the SDLRS (Guglielmino, 1977). Items pertaining to openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibility for one's own learning, creativity, and the ability to use basic study skills and problem solving skills were examined. Study findings revealed the SDLR of participants in general was at a moderately high level ($M = 3.57$ to 3.27), while SDLR as expressed in love of learning and positive orientation to the future was at a moderate level ($M = 3.12$ to 3.27) (Klunkin et al.).

What was most important was that SDLR scores among nursing students in year 4 were significantly higher than those is years 1, 2, and 3 ($p = .05$). The higher scores on the SDLR scale were attributed to the Thai policy on education that emphasized student-centered learning that supports teaching and learning processes to promote self-directed learners. Scores on the love of learning and positive orientation to the future were at

moderate level. Researchers speculated that because the majority of the participating nursing students ranged between the ages of 18 and 22 years, young learners were less likely to rank love and learning and future-orientation highly because their lack of maturity and life experiences (Klunkin et al., 2010). Researchers suggested that SDLR continue to be investigated beyond nursing students' academic years, into their professional practice role after graduation, to determine if the level of readiness for SDL increases simultaneously with one's maturity and gain of professional experience. This study was specific to Thai nursing students. Researchers included the discussion on Thai culture and policy on education in the study that helped explain high scores for SDLR. Nurse educators and researchers from different cultures may also identify similar findings within their own population of nursing students. It is not clear when the questionnaires were completed by the students. Perhaps the results may have not been as high as they were reported to be if data were collected at a different point in the semester. For example, the reporting of a student's SDLR following a course examination or clinical testing event may be different than on the first day of a nursing course. Further study to investigate the impact that culture has on SDLR of nursing students is recommended by this researcher.

Self-Directed Learning Readiness in Business Literature

Guglielmino's (1997) SDLRS is a research instrument that can be used to explore dynamics of learning in business environments. The findings of these studies provide information and insights which are valuable tools for educators, business leaders and human resource personal.

Maddox, Forte, and Boozer's (2000) anecdotal paper focused on the SDLR of individuals related to experiential learning. The authors explored the level of readiness for experiential learning, and the extent in which learning readiness was taken into account in experiential learning practices. They discussed SDLR as "the degree to which learners, in both management education and training have prerequisite cognitive, emotive-attitudinal, behavioral attributes, and skills and orientations that will prepare them for involvement in active experiential learning contexts" (Maddox et al., p. 272).

"This paper emerged secondary from an exploratory survey research effort into the perspectives of experiential practitioners regarding this and other fundamental issues in experimental learning" (Maddox et al., 2000, p. 272). The scale presented in this paper was explained in the context of learning readiness, with three related dimensions: cognitive readiness, emotive-attitudinal readiness, and behavioral readiness dimensions of individuals. This scale framed SDLR using a social learning theory concept. Twelve variables flowed from these three dimensions. The variables of emotional readiness for learning, enthusiasm for learning, willingness to adapt for learning, comfort with self-directed and autonomous learning, and appreciation for value of learning stemmed from emotive-attitudinal readiness. The variables of possessing cognitive and critical thinking skills for learning, awareness of strengths and limitations, making connections between classroom learning and "real world" applications, awareness of personal values and willingness to disclose them during the learning process, and the ability to integrate concepts and tools from various academic disciplines developed from cognitive readiness. The variables of willingness to function in a partnership with learning peers

and facilitators, and being adept at organizing time demands to achieve learning goals branched off from Behavioral Readiness. Researchers reported that some of the broad factors in Guglielmino's (1977) SDLRS influenced the selection of these variables.

This paper emerged secondarily from an exploratory research effort into the perspectives of experiential practitioners regarding this and other fundamental issues in experiential learning using this newly developed scale. In the study, two experiential learning questionnaires were distributed to two random member samples from both business and management organizations in DeLand, Florida. Self-directed learning readiness was explored using a 4-point scale Likert scale, ranging from "not typical" to "very typical" with 58 responses (Maddox et al., 2000). On average, "respondents indicated that their learners possess some, but not all, of the critical cognitive, emotive-attitudinal, and behavioral attributes necessary for engaging in experiential learning" (Maddox et al., p. 277). According to Maddox et al., the goal of this paper was to "refine the model of learning readiness dimensions, specify clearer indicators of each dimension for use in subsequent date gathering, and broaden the sample to include a more diverse group of respondents" (p. 277).

Cho and Kwon (2005) conducted a descriptive correlational study to explain and predict the impact of Korean business employees' readiness for SDL on organizational commitment. More specifically, the study explored whether employees who possess a higher level of readiness for SDL have significantly greater organizational commitment. The Korean version of Guglielmino's (1977) SDLRS was utilized in the study. Data were collected from four large and five middle-size companies located in Seoul, Korea (*N*

= 209). The researcher's questions explored the SDLR relationships to three domains of organizational commitment, and relationships among SDLR, job position level, and length of service in the workplace serve as predictors for organizational commitment. The three domains of organizational commitment included affective commitment, continuance commitment, and normative commitment. Some personal actions measured within this study included individual growth and development, independent learning ability, reaching personal goals, and collaborating with group goals. These individual traits helped Cho and Kwon recognize the impact SDLR has as an antecedent of organizational commitment.

Results showed that "SDLR was weakly related to continuance and normative commitment respectively, and was moderately, positively correlated to affective commitment" (Cho & Kwon, 2005, p. 146). In simple terms, business employees who possessed skills and knowledge to be self-directed in their learning stayed at their organization not because they needed to do so, but because they wanted to do so. There was a significant relationship ($r = .478$, $p < .001$) between affective commitment and the independent variables. These researchers reported that study findings support a relationship between employees' learning experience and their organizational commitment, which has already been addressed in prior studies (Ahmad & Baker, 2003; Bartlett, 2001). The study findings were said to have also supported the theoretical assumptions of SDL in the literature review.

Avolio and Hannah (2008) developed a framework for examining developmental SDLR in individual leaders. Assessing readiness of individual leaders involves

examining learning goal orientation, developmental efficiency, self-awareness, leader complexity, and meta-cognition ability (Avolio & Hannah). "Learning goal orientation is when individuals see challenges as ways to improve oneself" (Avolio & Hannah, p. 336). This can be accomplished when a learner willingly embarks on challenges that will knowingly lead to growth and development of oneself. When individuals have self-concept clarity, confidence and surety emerge, this leads to developmental SDLR.

Payne, Flynn, and Whitfield (2008) were interested in exploring student SDLR and outcomes for capstone business courses. Data were collected for 8 years from 40 formal qualitative interviews with capstone students. These interviews took place both prior to, and after the end of each semester. Although not specified, it was mentioned that the questions used for interviewing were written to provide insight for capstone course instructors on how they might better understand and cope with students' dispositions that influence their learning processes and outcomes. Payne et al. were successful in identifying two key concerns related to the assessment of students' readiness for advanced capstone business courses. The first concern seen was "a students' ability to retain relevant knowledge and skills" (Payne et al., p. 142). The second was "a student's disposition or motivation for retrieving and applying such learned knowledge and skills for higher level learning in capstone courses" (Payne et al., p. 142).

The researchers focused on these concerns because they felt that inadequate initial learning can be a major handicap for students striving for more advanced stages of transfer of learning. "Without some depth of initial learning, students do not have the capacity to retrieve needed concepts or skills and are not prepared for higher order

learning in advanced classes" (Payne et al., 2008, p. 142). Characteristics of individuals identified in the study which helped identify student SDLR included; the need for achievement, desire to succeed, self-efficacy, self-confidence, self-understanding, emotional intelligence, self-control, acceptance of personal responsibility, and the curiosity to achieve higher learning challenges (Payne et al.). The abilities to critically think, confidence in learning, as well as social, physical, and cognitive maturity are mentioned as attributes of SDLR. During the eight years of collecting and analyzing information from in-depth student interviews, the researchers were able to revise and add interview questions to their previous assessment survey. These plausible improvements enhanced the understanding of a student's SDLR and outcomes for capstone business courses, and provided strength to the study.

Summary of Self-Directed Learning Readiness Literature

In summary, Knowles (1975) identified that students learn best when they are simply ready to learn. When readiness is viewed within the context of learning, readiness to learn refers to a student's willingness and ability to receive teaching and to develop new skills to practice (Dalton & Gottlieb, 2003). Although readiness has been conceptualized as either a state or a process, readiness is found to be both of these things (Dalton & Gottlieb). Nursing educators need to assess the self-directed readiness of nursing students, understand the factors that enable it, and intervene when necessary to facilitate this readiness (Smedley, 2010).

The SDLR is a concept that has been defined and explored in several disciplines, and has been studied more commonly in health profession education and in business.

Although SDLR of nursing students has been researched, there is currently no published study that explores specifically, the SDLR of prelicensure sophomore baccalaureate nursing students. There are many researchers (Hoffman, Vargas & Santos, 2008; Palmer, O'Kane & Owens, 2009; Rosenbaum & Becker, 2011) that have studied the actions and success of first year college students as they transition from high school into college. There are also studies (Brazer & Bauer, 2009; Gardner, 1999; Miller & Nolan, 2003) that investigated both junior and senior students as they enroll in courses that are specialized towards their major, as they prepare for their professional career after graduation, and leadership and internship roles and opportunities they may participate in during college. These students are just beyond their freshman year, and are expected by their educators to demonstrate self-directed learning behaviors. Relevant studies that investigated readiness for SDL were found more in health profession education and business literature as compared to nursing literature.

Motivation to Learn

Motivation to learn was a predictor variable of SDLR in the study. Motivation is an internal state that arouses, directs, and sustains human behavior and plays a fundamental role in learning (Glynn, Aultman, & Owens, 2005). Motivation to learn can be defined as the urge or push to carry out specific actions and behaviors for the purpose of satisfaction and pleasure one receives from engaging in those activities (Brouse, Basch, LeBlanc, McKnight & Lei, 2010). Motivation has been positively related to the achievement of learning outcomes, and positive learning outcomes have been correlated with increased retention in higher education (Rose, 2011). Students' motivation to learn is directly

related to the desire for new knowledge, and most often leads to SDL behaviors (Rose). This researcher determined, through concept analysis of SDLR that motivation to learn is a principal antecedent to this phenomenon (Grandinetti, 2010). Motivation to learn is a variable that was interconnected with the key concept of learner in King's (1981) TGA as well as with the key concept of proactive learner in Knowles' theory of SDL.

Motivation to Learn in Health Profession Education Literature

Motivation is a major contributor to the success of learning and achievement, and a powerful incentive for decision making and acting (Pelaccia et al., 2009). Prior to examining the impact of training periods on the motivation of health care students to learn in the field of emergency medicine, these researchers reviewed and synthesized literature on motivation. From this, they determined that intrinsically motivated learning behaviors, such as engaging in an activity for self-enjoyment, are associated with increased cognitive engagement, greater persistence on task, and enhanced performance (Pelaccia et al.). They explored whether perceived task value is influenced by prior confrontation with emergency events, and if self-efficacy perception and control of learning beliefs are influenced by the occurrence of negative outcome events. The purpose of the study was to assess the impact of training periods in the emergency department (ED) on the learning motivation of health care students in the field of emergency medicine. A 26-item cross-sectional five subscale survey was completed by undergraduate second and third year baccalaureate nursing students ($N = 192$) (Pelaccia et al., 2009). These nursing students were scheduled to attend an emergency nursing academic program. The survey assessed motivation orientations of participants prior to

the start of the program. Students were sorted into three groups; one group with no prior training in the ED, a second group having training in a ED with no negative outcome events, and a third group having training in a ED with negative outcome events.

The Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Garcia, and McKeachie (1991) was self-administered by the participants and is comprised of five subscales assessing intrinsic motivation (four items), extrinsic motivation (four items), perceived task value (VAL) (six items), self-efficacy perception (EFF) (eight items), and control of learning beliefs (CTR) (four items) of students. The researchers reported that this instrument was both valid and reliable, and has shown positive correlations between motivational determinant scores and final scores in many previous studies (Pintrich et al., 1991; Pintrich et al., 1993; Pintrich & Schunk, 1996).

The findings revealed that VAL ($M = 6.32$), EFF ($M = 5.53$), and CTR ($M = 5.61$) enhanced intrinsic motivation ($M = 6.09$), which is associated with better learning performance by students. The researchers stated that the internal consistencies of the five subscales of the MSLQ assessing intrinsic motivation, VAL, EFF, CTR, and extrinsic motivation were acceptable ($\alpha = .69, .90, .92, .68, .63$), however, three of the five subscale alphas are below the minimum expected .70 (Pelaccia et al., 2009). They further reported that experience prior to attending a corresponding academic course impacts a student's degree of motivation for success. "Nurse educators often underestimate or neglect the importance of motivation in learning tasks and its possible influence on this major component of learning and achievement, as a key element to student learning" (Pelaccia et al., p. 468). This study is useful because it examined the motivation of

healthcare students to learn and achieve in the ED, an area of nursing in which motivation is under-researched. An oversight of the study is that a pilot study was not conducted following the translation of the Motivated Strategies for Learning Questionnaire from French to English prior to its use in the study.

Rose (2011) conducted a literature review in the discipline of nursing, looking to learn more about the motivation of students in nursing education. Motivation, classified as being either intrinsic (motivated to learn to satisfy personal inquisitiveness), or extrinsic (motivated to satisfy the desire of others), plays a role in a student's success in nursing education (Rose). Intrinsically motivated students might report "I have always wanted to be a nurse because I want to help others", while extrinsically motivated students might report "My parents have always wanted me to become a nurse" (Rose, p. 182). Understanding of the types of motivation nursing students utilize throughout their nursing program can be beneficial to nurse educators when assisting students through challenges in their nursing education.

The researcher reported that recruitment, retention, and academic success of nursing students are directly impacted by a student's motivation to learn. The researcher recommended that nurse educators measure student motivation upon entering nursing programs, and throughout nursing programs using a valid and reliable tool that measures motivation such as the Academic Motivation Scale (Vallerand et al., 1992). Rose (2011) reviewed and synthesized a collection of 12 papers and research studies between the years of 1992 and 2010, discussing learner motivation and academic success. She reported that students who possess intrinsic motivation upon entering nursing education

have more cognitive ability; the ability to learn, remember, solve problems, and pay attention, as compared to students motivated by way of extrinsic factors. Also, students who were driven by intrinsic motivation experienced overall greater success in nursing academics. Rose summarized by saying "Intelligence is not the only predictor of academic achievement, academic success, and retention for nursing students; in fact, motivation and engagement in learning have consistently led to increased levels of student success" (p. 183).

Motivation to Learn in General Higher Education Literature

Motivation is an internal state that arouses, direct, and sustains human behavior, and plays a fundamental role in learning (Glynn, Aultman, & Owens, 2005). College environments that traditionally offer students flexible learning environments often find students needing to challenge themselves. Initial difficulties arise when motivating themselves to pursue learning goals. Glynn et al. presented a report bringing awareness to students' motivation to learn in general education programs. They were able to identify, organize, and interpret orientations and constructs that were relevant to the fostering of a student's motivation to learn. When encouraging academic motivation in college students, instructors, and administrators are often asked to guide students to identify connections with their learning and their personal goals. This provided a degree of control to students as to what they are learning and how they will learn it. These connections can be fostered by assessment methods that are authentic and performance-based such as interviews, exhibits, demonstrations, and portfolios (Glynn et al.). All of these characteristics

and behaviors were said to significantly impact and promote motivation in college aged students.

Brouse, Basch, LeBlanc, and McKnight (2010) conducted a study to describe college students' gender, year in school, and source of tuition funding in relation to their academic motivation. The purpose of this study was to assess if there were differences in students' motivation to learn based upon their gender, academic year of study, and who was paying for their college experience. The Academic Motivation Scale (Vallerand et al., 1992) was used to measure students' intrinsic and extrinsic motivation, as well as amotivation in this cross-sectional study. Cluster sampling was used to select the study sample at a moderately sized university in Western New York. The sampling frame included all classes offered in a semester during fall 2008. Out of 167 qualifying courses, 30 courses were randomly selected. Of 1052 distributed surveys, 856 surveys were completed and returned by full-time students within these selected courses.

Study findings revealed that female students ($M = 54.69$, $SD = 13.73$), reported a higher level of intrinsic motivation for learning as compared to male students ($M = 50.91$, $SD = 14.54$), ($p < .001$). It was also determined that both intrinsic and extrinsic motivation to learn declined with years in college, and academic motivation was relatively weaker in students whose education was self-funded as compared to students whose education was funded by government and student educational loans, needing to be paid over many years after graduation. The absence of external motivators, such as loans to pay or tuition paying parents to please, may be contributing factors to this finding.

Brouse et al. (2010) suggested that educators and advisors provide feedback and active dialogue with students to increase or at least maintain student satisfaction with learning throughout the college years. This will ultimately impact their level of motivation for learning. This study was unlike other studies, in that it examined gender differences of intrinsic motivation for learning. The researchers did not offer explanations for the gender differences on intrinsic motivation scores. It is important to mention that at the time this study was conducted there were no published studies of undergraduate students' levels of motivation assessing differences in academic motivation based on sources of college funding.

Summary of Motivation to Learn Literature

Recruitment, retention, and academic success of nursing students are directly impacted by a student's motivation to learn. Intrinsic and extrinsic motivational factors contribute to a student's success in nursing education. The motivation to learn leads to achievement and advancement in nursing education. The feedback and active dialogue that nurse educators provide to their students positively impacts student satisfaction and motivation for learning. Student motivation is a catalyst for identifying learning goals, and consistent motivation is vital in the pursuit and attainment of these goals. Furthermore, when students observe nurse educators who demonstrate life-long learning behaviors, they are likely to be motivated to learn themselves. Educators in higher education should take into consideration that motivation is a key element of student learning.

Learner Independence

Learner independence can be defined as having a clear self-consciousness: the sense of wanting and being able to act and learn as an individual person (Lockhorst, Wubbels & Oers, 2010). This researcher has determined through a concept analysis of SDLR, that learner independence is a principal antecedent to this phenomenon. Guglielmino (1977) contended that individuals need to possess initiative and independence in learning to be considered ready to pursue SDL. Nursing students and new graduates are taught to be self-directed in their approach to learning, to critically think, and to demonstrate independent learning skills (Klunklin, Viseskul, Sripusanapan, & Turale, 2010). Learner independence is a variable that is interconnected with the key concept of self in King's (1975) TGA as well as with the key concept of learner initiative in Knowles' (1975) theory of SDL.

Learner Independence in Health Profession Education Literature

Löfmark, Carlsson, and Wikblad (2001) conducted a study to investigate Swedish students' perception of independence of supervision during clinical nursing practice. Although this study focused on student independence during clinical, it is worthwhile to mention given that nursing education includes both theoretical and clinical practice. In fact, practicing tasks under the supervision of experienced nurses during clinical rotation has traditionally been the way to educate students to be independent in their nursing practice (Löfmark et al.). A self-assessment form was completed by participants from two university nursing education programs of study in Sweden during their first clinical course ($N = 60$). The instrument was created based on the objectives and subject areas in

the curriculum of the two colleges. Mulder's (1992) description of the assessment factors knowledge, skills, and attitudes was used as a framework and a structure for the classification of the different tasks. The response format was a 100 mm visual analogue scale (VAS). Students indicated their assessment from the highest (100 mm) 'I can do this on my own (totally independent of supervision)' to the lowest (0 mm) 'Not at all on my own (totally dependent of supervision)' (Löfmark et al.). Students ranged in age from 19 to 47 years ($M = 25$), with 53 females and 7 males.

At the end of three years of clinical experiences, during their final clinical course, students completed this same self-assessment form ($N = 48$) (Löfmark et al., 2001). Because of attrition and student absence, 12 students did not complete the final form. Differences between the first and last assessment for each clinical course were examined using a paired *t*-test. Results of this study showed that most students perceived themselves to be able to practice independently of supervision at the point of their last clinical course. Students reported having developed independence in knowledge, skills, and attitudes (Löfmark et al.). Their level of independence increased gradually from their first to their final clinical course. This natural and expected occurrence potentially weakens the overall interpretation of results in the study. The researchers concluded that learner independence, as evidenced by self-assessment scores, although identified as being important to students, is an under researched concept in both nursing practice and nursing education.

Abu-Moghli, Khalaf, Halabi, and Warman (2005) conducted a descriptive study based upon the fundamental understanding that the profession of nursing has changed

drastically over the past 30 years. Nurses need to have a greater level of autonomy when delivering care in nursing care units and to be independent decision makers and learners. Nursing education is faced with continuous challenges to prepare the kind of nurse who can accept the ambiguities of the modern healthcare world in which uncertainties necessitate frequent independent judgments with ethical and moral dilemmas (Abu-Moghli et al.). These researchers mentioned the prevailing feelings among teaching staff at the faculties of nursing in Jordan who frequently reported little student preparation and participation in classroom discussion and sessions, leading to the belief that nursing students have little learner independence.

A structured self-administered questionnaire, the Autonomous Learner Index (ALI) was administered to students in four nursing universities in Jordan ($N = 420$) (Abu-Moghli et al., 2005). The purpose of the study was to determine the independent learning behaviors of nursing students. The level of participating students ranged from first year to fourth year. There were 226 male students and 194 female students who participated. The majority of the students attended public schools of nursing ($n = 368$), and the average grade point average was a C+ ($n = 186$). Although 72.3% ($n = 303$) of the participants indicated that they felt comfortable in their independent learning, 66.2% ($n = 278$) indicated that they felt little assistance from the nurse educator, and 25.9% ($n = 108$) indicated that they do the minimum for any course. However, only 41.7% ($n = 175$) of the students reflected feelings of independence during theoretical courses. A relatively higher percentage of these students, 59.8% ($n = 251$), reflected feelings of learner independence during clinical courses.

Although the results of the study revealed that the baccalaureate nursing students perceived themselves as independent learners, a considerable percentage of the students verbalized their confusion with the difference between dependent learners as compared to independent learners during survey completion. The strength of the study was that data were collected consistently at schools of nursing with the collaboration of the researchers themselves. "Consistency of data collection was assured and bias was controlled as the researchers worked as a group throughout the research project and, thus, developed a collective feeling and a consensus regarding each step" (Abu-Moghli et al., 2005, p. 42). Students who misunderstood items in the study may have answered survey items incorrectly, therefore compromising the results of the study (Abu-Moghli et al.).

The researchers recommended that nurse educators design learning experiences in which cooperative learning is encouraged, where students are challenged, and actively involved in their own learning. They suggested that nurse educators should provide positive reinforcement of students' active involvement in their learning, which will stimulate continued learner independence (Abu-Moghli et al., 2005).

Learner Independence in General Higher Education Literature

"Breaking the cycle of learner dependence and passivity in our classrooms may require a reexamination of our own understanding and commitment to the concept of learner autonomy, and a willingness to consider ways of sharing the power" (Myers, 1990, p. 77). Myers subjectively reported that learners who are less dependent on educators are pushed to develop new skills in learning how to learn; they are challenged to reflect upon their own learning strengths and weaknesses and to discover the wide

variety of learning resources and opportunities which exist outside of the classroom content.

Myers (1990) recommended that teachers share the responsibilities of assessment, formulating objectives, designing and carrying out learning activities, and evaluation with their students. A needs assessment can be identified by inviting learners to map out a typical day, indicating those places or situations in which they regularly use English and feel an immediate need for increased competency. Formulating objectives for learning can be accomplished by suggesting that learners create specific and manageable goals to learn English. Learners input into decisions regarding the process and content of language learning can be encouraged through support for activities suggested by learners themselves, and by ones that are designed and directed by educators. Evaluation of student learning can be determined from reflective learner diary entries, showing evidence that language learning is in the process (Myers). These actions were said to promote learning independence in students.

Critical thinking and decision-making skills are inherent to the learners themselves. Myers (1990) also suggested that learners assume greater responsibility for their individual goal-setting by engaging in learner contracts; written agreements that obligate students to perform certain tasks and/or reach certain learning objectives independently. Learner independence can also be developed when students gather in small groups, explore their needs as well as the needs of others students, and then initiate a learning responsibility independently (Myers).

Myers' (1990) statements were based upon the day-to-day activities of students in adult English as second language classrooms. "Students were dependent, passive, and sometimes even resistant learners, who were only too willing to let teachers assume total responsibility for their learning" (Myers, p. 77). These behaviors may certainly be related to students' diverse cultural backgrounds and beliefs. Myers said "breaking the cycle of learner dependence and passivity in classrooms require instructors like myself to reexamine our own understanding and commitment to the concept of learner autonomy, and a willingness to consider ways of 'sharing the power" (p. 77).

Hawker's (2000) anecdotal paper explored the process of changing paradigms from a traditional teacher dependent- classroom to an independent learning environment. Hawker described this process as a "transformation of attitudes, beliefs, and actions – for both the learner and the teacher – through understanding, acquiring and applying fundamental independent learning principles, skills and attitudes, as well as overcoming learning and teaching barriers" (p. 2). Both teacher dependence and independence learning were defined. Hawker defined independent learners to be those who are in control of their own learning. They can make informed choices, act reflectively, take responsibility for the learning process and outcome, and are active participants in their own learning. Hawker further explained that becoming an effective independent learner takes skill, training, and practice, supplemented by opportunities for independent action. "It also takes the right frame of mind and attitude, on the institutions, teachers' and learners' behalf," and perhaps most importantly, "it takes the belief that, however difficult, it is possible to achieve" (Hawker, p. 7). Hawker defined dependent learners to

be those in a traditional teacher dependent setting, where the teacher has control of the teaching process, and the student has none.

Warring (2010) conducted a study exploring learner independence amongst Chinese international students completing an Applied Business Studies Degree in a New Zealand higher education institution. Warring based her research on Grows' (1991) Staged Self-Directed Learning model. Grows' model characterizes four stages of independent learning: dependent, interested, involved and self-directed. To help explain learner independence and expand on her idea that SDL is the degree of choice that learners have, she used Cotteralls' (1995) definition of autonomous learning; the extent in which learners set goals, choose materials and tasks, plan practice opportunities and monitor and evaluate progress.

A newly developed questionnaire, that was not previously pilot tested, at time of use was administered three times to a class of marketing major students ($N = 27$). The first time the participants completed the questionnaire was upon entry of the program of study 81% ($n = 21$), at the end of the first year 60% ($n = 16$), and at the time of program completion 70% ($n = 19$). Warring used this anonymous questionnaire to measure students' level of learner independence on 5-point scales: motivation, confidence, ability and beliefs. Students' independence at the beginning of the program revealed students' motivation ($M = 3.3$; $SD = .34$), confidence ($M = 3.1$; $SD = .43$), ability ($M = 2.8$; $SD = .42$) and beliefs (M = 3.1; SD = .36). These findings identified students showing evidence of learner independence. Students' independence at the end of the first year revealed students' motivation ($M = 3.1$; $SD = .34$), confidence ($M = 2.9$; $SD = .52$),

ability (M = 3.1; SD = .59) and beliefs (M = 3.0; SD = .26). These results indicated that overall student learner independence was marginally above average. Finally, students' independence at the end of program study revealed students' motivation (M = 3.1; SD = .41), confidence (M = 3.4; SD = .49), ability (M = 3.0; SD = .59) and beliefs (M = 3.3; SD = .40). These results showed evidence that overall learner independence remained between average and marginally above this. While the scores of motivation declined slightly by the end of program, the scores of confidence increased, suggesting to Warring that students believed that they were more responsible for learning independence. Warring also reported that "although complete learner independence had not been achieved, comparison from program beginning to program end students had greater confidence and believed they had greater responsibility for learning" (p. 391). Although the questionnaire used in the study had no evidence of validity or reliability, the study is relevant in measuring learner independence at different times in a higher education program of study, where there is currently little empirical evidence.

Summary of Learner Independence Literature

Nursing education includes both theoretical and clinical practice. Löfmark et al. (2001) study showed evidence that nursing students who practice skills under the supervision of experienced nurse educators and staff nurses during clinical rotations is a way in which students may demonstrate learner and practice independence. At the point of their last clinical course, most students reported the ability to practice independently of supervision, as they had developed independence in knowledge, skills, and attitudes (Löfmark et al.; Warring, 2010). Meanwhile, Abu-Moghli (2005) provided evidence of

learner independence of nursing students in face-to-face classroom environments. Study outcomes showed evidence that nursing students reported themselves as having learning independence in the classroom. Nonetheless nursing educators are encouraged to develop and assign independent learning assignments and activities that present students with opportunity to demonstrate learner independence (Abu-Moghli et al.; Löfmark et al.; Myers, 1990). Nurse educators are also encouraged to continuously challenge students to recognize the importance and long-term value of becoming actively involved in their own learning (Hawker, 2000).

Intellectual Curiosity

Intellectual curiosity is a positive emotional-motivational system associated with the recognition, pursuit, and self-regulation of novel and challenging opportunities (Kashdan, Rose & Fincham, 2004). A culture of learning and curiosity contributes to an individual's comfort with seeking ongoing education and practicing life-long learning behaviors (Eason, 2010). This researcher determined, through concept analysis of SDLR that intellectual curiosity is a principal antecedent to this phenomenon (Grandinetti, 2010). Intellectual curiosity is a variable that is interconnected with the key concept of growth and development in King's (1981) TGA as well as with the key concept of psychological development in Knowles' (1975) theory of SDL.

Intellectual Curiosity in Health Profession Education Literature

Kashdan, Rose, and Finchman (2004) stated "A highly curious individual is someone who has the propensity to recognize, pursue, and become absorbed in novel and challenging experiences" (p. 292). They reported that curiosity is an important

motivational component that links cues reflecting novelty and challenge that most often leads to both personal and professional growth opportunities. Curiosity prompts proactive, intentional behaviors in response to stimuli and activity with the following properties: novelty, complexity, uncertainty, and conflict (Kashdan et al.).

Curiosity is the willingness, and perhaps the desire, to continually accumulate new abilities and experiences; it captures people's propensity to stretch their capabilities (Kashdan, Rose & Finchman, 2009). These authors proposed that curiosity be defined as recognizing, embracing, and seeking out knowledge and new experiences. Research studying the benefits of curiosity is only beginning to accumulate in literature, most commonly in the discipline of psychology (Harrison, Sluss, & Ashforth, 2011; Mussel, Spengler, Litman, & Schuler, 2012). Curiosity is suspected to play a role in a person's development of intelligence, wisdom, happiness, meaning in life, distress tolerance, and satisfying and engaging social relationships (Kashdan et al.). Although curiosity has overlapping attributes with intrinsic motivation and interest, there are certainly unique characteristics of curiosity (Kashdan et al.). Researchers led by Kashdan identified curiosity as the willingness, and perhaps the desire to continually accumulate new abilities and experiences, recognizing, embracing, and seeking out new knowledge and new experiences. Curiosity was also reported to play a role in the development of intelligence, wisdom, happiness, meaning of life, distress tolerance, and satisfying and engaging social relationships. These statements were based upon study findings.

Kedge and Appleby (2010) analyzed three theories repeatedly linking nursing competency with curiosity in nursing. The first of the theories said that curiosity is seen

as an unpleasant primary drive in its own right that promotes exploratory behavior (Dashiell, 1925; Harlow, Harlow & Meyer, 1950). The second theory said that curiosity is viewed as a response to reduce unpleasant environmental stimuli as a sensation of "stimulus conflict' or 'incongruity' (Berlyne, 1955). The third theory said that curiosity is associated with the desire to achieve an optimal level of arousal (Loewenstein, 1994). All three theories were said to be influenced by either internal or external factors and are often demonstrated by nurses in clinical practice.

According to White (1959) when a person demonstrates competency, curiosity most often follows. This process is often represented as a cycle of interactions a person has with the environment. Kedge and Appleby (2010) said that a helpful mentoring relationship (nurse educator with student) has the potential of reinforcing this cycle. Positive emotional support is said to enhance competency and promote curiosity. The authors reported that competency is absolutely central to nursing, and its importance is taught early to students in nursing education. The implication for educators in the clinical learning environment is that student curiosity can be promoted in two ways: first, by allowing the student as much input into decision making that is safe; and second, by identifying and emphasizing where competent clinical performance had made a positive impact on the welfare of the patient (Kedge & Appleby). Both ways are said to unconsciously promote curiosity and learning in students.

Eason's (2010) essay discussed the importance of lifelong learning in nursing and ways in which curiosity can be cultivated in its members. Demonstrating life-long learning in nursing allows individuals to develop critical thinking skills, expand their

knowledge related to clinical treatments, procedures, and practices, and promotes personal curiosity, enhancing nursing knowledge, both essential to skill and practice (Eason). Eason reported that health care organizations often maintain a culture of curiosity for lifelong learning in nursing, providing both mandatory and voluntary educational opportunities for learning. However, it is the responsibility of nurses themselves to maintain a culture of curiosity for lifelong learning.

Evidence based practice has successfully connected the concepts of nursing education, nursing practice, and nursing research. All of these elements are necessary when learning nursing. Eason (2010) recommended that nurses conduct or participate in nursing research, review and learn from nursing journal articles, attend conferences, and collaborate with other health care professionals. According to Eason, all of these actions are said to contribute to curiosity in nursing.

Dyche and Epstein (2011) conducted a theory-driven conceptual exploration and qualitative review of the literature on curiosity and medical education. The purpose of this review was to identify common barriers to and facilitators of curiosity in the education of doctors. A synthesis of the literature helped identify factors that diminish curiosity in medical students and include: rapid program of study, suppression of negative emotions, overconfidence, and passive learning (Dyche & Epstein). The authors reported that these four factors are encouraged unintentionally by medical educators, while being preoccupied in teaching practice skills and course content. They also identified from the research of others that medical students find themselves hesitant in

expressing their curiosity in the risk of criticism from educators or humiliation from their peers (Dyche & Epstein).

Elements that positively contributed to the development of medical student curiosity included; patience, a habit of inquiry, emotional candour, intellectual humility, and the recognition of benefits to be gained in learning from peers (Dyche & Epstein, 2011). The authors discovered that curiosity can be nurtured by educators in both classroom and clinical teaching environments by asking students to reflect, to critically examine one's assumptions, and to listen carefully to others. If students learn how to ask themselves questions during the reflective process, curiosity will surge. The curiosity of medical students flourished in educational environments that supported student accountability for personal learning, attentive reflection, and openness to new learning possibilities (Dyche & Epstein).

Summary of Intellectual Curiosity Literature

Nurse educators teaching in the clinical environment can promote student curiosity by allowing and promoting student input into decision-making. Nursing students are encouraged early to think and look beyond the confines of their assignments, seeking out new knowledge and experiences. Intellectual curiosity is expanded when students conduct or participate in nursing research, read nursing journal articles, attend conferences, and start collaborating with others. Students' initial and sustained intellectual curiosity in the classroom and in clinical is essential for successful academic progression.

Literature Synthesis and Chapter Summary

Self-directed learning readiness is the degree in which individuals identify themselves ready to possess the attitudes and skills needed to be an effective self-directed learner (Dalton & Gottlieb, 2003; Fisher et al., 2001; Guglielmino, 1977; Smedley, 2010). A critical aspect in the role of a nursing student is to actively pursue necessary knowledge and skills to practice this profession (Fisher et al.; Smedley). Students identified their SDLR at its highest at the inception of a nursing course, or better yet, the first day of a new academic school year (Hendry & Ginns, 2009; Payne et al., 2008). Nurse educators are entrusted with the important role of promoting, guiding and supporting SDLR of students (Fisher et al.; Smedley).

Learner independence in nursing is when a student demonstrates critical thinking and problem solving skills independent of the supervision of nursing faculty and clinical instructors (Abu-Moghli et al., 2005; Löfmark et al., 2001). Nurse educators who design learning experiences where students are challenged and actively involved in their own learning facilitate learner independence (Abu-Moghli et al.; Löfmark et al.). Learning dialogues between faculty and their students also fosters student independence when learning is the goal.

Motivation to learn in nursing students has been determined to impact the recruitment, retention, and academic success of nursing students (Pelaccia et al., 2009; Rose, 2011). The presence of intrinsic, extrinsic, and amotivation varies with students, with intrinsic motivation as what more often propelling students towards academic success (Brouse et al., 2010; Rose; Vallerand et al., 1992). Active dialogue and feedback

on student performance provided by nursing faculty has been found to motivate students to continue to learn, unconsciously advancing their nursing knowledge and practice skills (Brouse et al.; Rose). Motivation plays a fundamental role in learning and achievement (Glynn et al., 2005; Pelaccia et al.; Vallerand et al.).

Curiosity is when individuals recognize, pursue, and become absorbed in novel and challenging experiences (Dyche & Epstein, 2011; Eason, 2010; Kashdan et al., 2004). Curiosity has the potential to thrive in environments that promote student responsibility for personal learning and the openness to new learning experiences (Dyche & Epstein; Kedge & Appleby, 2010). Curiosity in students can be fostered when faculty encourage students to explore information beyond their classroom and clinical material, promoting life-long learning with the continual pursuit of new knowledge and skills (Eason; Kashdan et al., 2009).

This chapter included the review and synthesis of literature from peer reviewed research, anecdotal, and theoretical articles in health profession education, business, and general higher education literature. A literature synthesis provided a summary of the current body of knowledge for SDLR and its three predictors, motivation to learn, learner independence, and intellectual curiosity. Evidence from both current and past research supports the position that SDLR is an under-researched phenomenon, one that merits further investigation specifically in the area of nursing education.

Chapter 3

Methodology

This chapter begins with a discussion of the methodology and research design of the study. It continues with the description and characteristics of the sample and setting. The research instruments are explained in regards to their validity, reliability, and means of scoring. The manner in which data were collected and analyzed is discussed. Means to protect the rights of human subjects who choose to participate in the study are presented. A chapter summary provides an overview of methods of research collection and analysis.

The purposes of this research study were to provide answers to the two research questions. The first was: What are motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness scores of prelicensure sophomore baccalaureate nursing students? The second was: What are the relationships among motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness in prelicensure sophomore baccalaureate nursing students? The second research question was tested by the hypothesis that: The linear combination of motivation to learn, learner independence, and intellectual curiosity will predict self-directed learning readiness in prelicensure sophomore baccalaureate nursing students better than any one variable alone.

Research Design

A descriptive correlational design was used to explore the relationships of motivation to learn, learner independence, intellectual curiosity, and self-directed

learning readiness (SDLR). A descriptive correlational design is appropriate when the researcher is examining the predictive relationships among study variables (Burns & Grove, 2009). This design is able to examine relationships that exist in a particular situation and identify the interrelationships that exist among study variables (Burns & Grove). This study was multivariate since it included more than two variables. Multivariate correlational procedures are considered to be more complex analysis techniques that examine the linear relationships among three or more variables (Burns & Grove, 2009).

Description of Sample and Setting

The target population was prelicensure sophomore students in baccalaureate nursing programs across the U.S. The accessible population was 4-year colleges and universities accredited by the CCNE or by the NLNAC, that held chapter membership in STTI, the International Honor Society of Nursing. STTI is a professional nursing organization that recognizes nurses who devote their time and efforts to research. Through a wide variety of publications, courses and initiatives, STTI helps nurse researchers disseminate vital information in order to put knowledge into practice. Schools of nursing that hold chapter membership in STTI may value the importance of nursing research and advancing the science of nursing in comparison to schools of nursing who do not hold chapter membership. Schools of nursing that held chapter membership in STTI were asked to participate in this study because these schools are members of an international organization that focuses on supporting nursing research. The sample was drawn from schools that were selected randomly from the accessible

population. The accessible eligible population was 200 U.S. 4-year colleges and universities accredited by the CCNE or by the NLNAC that held chapter membership in STTI.

Characteristics of Sample

The sample for this study included 154 prelicensure sophomore students in baccalaureate nursing programs across the U.S. The students who were invited to participate in this study met the inclusion criteria of being male or female, age 18 or older, prelicensure sophomore students, who were currently, enrolled in nursing courses on either a part-time or full-time status in a 4-year baccalaureate nursing program. The possible types of nursing courses included classroom instruction format, as well as courses that combined classroom instruction and clinical instruction. Exclusion criteria were: nursing students under 18 years old, freshman, junior, and senior students, students who already held an RN license, and students seeking a second degree in nursing.

Descriptive statistics of categorical demographic data were computed for frequency and percent (Table 1). Nominal and ordinal variables included gender, ethnicity, marital status, cohabitation with children, enrollment status, state nursing school located, place of residence, preferred method of study, ways in which learning is accomplished, weekly study hours, and if employed during the academic year.

Descriptive statistics of scale demographic data were computed for mean, standard deviation, and range (Table 2). Ratio level variables included age in years, number of children living with, and number of hours worked in a week during the academic year.

Table 1

Descriptive Statistics of Categorical Demographic Data (N = 154)

Variable	Category	*n*	%
Gender	Female	139	90.3
	Male	15	9.7
Ethnicity	American Indian	4	2.6
	Asian	4	2.6
	Black	12	7.8
	Hispanic/Latino	6	3.9
	Hawaiian/Pacific Islander	1	.6
	White	126	81.8
	Other	1	.6
Marital Status	Single	138	89.6
	Married	14	9.1
	Divorced	2	1.3
Living with Children	Yes	16	10.4
	No	138	89.6
Enrollment Status	Full-time	150	97.4
	Part-time	4	2.6
State of School	Indiana	32	20.8
	Louisiana	57	37.0
	Pennsylvania	65	42.2
Place of Residence	On campus alone	5	3.2
	On campus with roommate	62	40.3
	Off campus alone	6	3.9
	Off campus with roommate	13	8.4
	Off campus with spouse/SO/child	24	15.6
	Off campus with parents	44	28.6
Study Preferences:	Alone	108	70.1
	With 1 or 2 friends	42	27.3
	With a small group	4	2.6

(Table continues)

Variable	Category	*n*	%
Learning Preferences:			
Reading the Textbook	Yes	103	66.9
	No	51	33.1
Listening to Lectures	Yes	87	56.5
	No	67	43.5
Taking Notes	Yes	127	82.5
	No	27	17.5
Reading Journals	Yes	3	1.9
	No	151	98.1
Surfing Internet	Yes	15	9.7
	No	139	90.3
Weekly Study Hours	0 – 8 hours	39	25.3
	9 – 16 hours	75	48.7
	17 – 24 hours	23	14.9
	More than 24 hours	17	11.0
Work During Year	Yes	86	55.8
	No	68	44.2

Table 2

Descriptive Statistics of Scale Demographic Data

Variable	Mean	*SD*	Range
Age in Years *(N = 154)*	22.2	6.5	19-54
Number of Children (*n* = 16)	1.7	1.1	1-5
Weekly Work Hours (*n* = 86)	17.6	7.9	3-40

Sample Size

The minimum sample size needed for the study was determined based on an a priori power analysis. Power analysis has four main components: statistical power, significance level (*p*-value), sample size, and effect size (Burns & Grove, 2009).

Type II errors occur when the researcher accepts a null hypothesis when it is a false fact. Beta reflects the chances of committing a Type II error, and is generally set at .20 which results in a statistical power of .80 (Munro, 2005). The desired statistical power for this study was .80, indicating an 80% probability of detecting a relationship, if such a relationship exists between the three predictor variables and one outcome variable.

The *p*-value is the reported result of a significance test, and will enable the researcher to judge the extent of evidence against the null hypothesis (Munro, 2005). Type I errors occur when the researcher rejects the null hypothesis when it is true, and concludes that the relationship among the study variables is not significant (Burns & Grove, 2009). The acceptable *p*-value for this study was .05. The *p*-value was set at .05, so that the researcher would be 95% confident that the rejected null hypothesis was false (Munro).

According to Cohen (1988), an anticipated medium effect size of .13 is appropriate for multiple regression analysis. Effect size is the degree to which the null hypothesis is false, that is, the magnitude of the effect of a predictor variable on the outcome variable (Munro, 2005). The expected effect size for this study was .13.

When planning a study, the desired power, acceptable significance level, and expected effect size are determined first. These three parameters are then used to

determine the necessary sample size (Munro, 2005). With a desired power of .80, an acceptable significance level .05, and an expected effect size of .13, a minimum necessary sample size for this study was 76 subjects, as determined by the computerized Sample Power Version 2 program (SPSS, 2004). The actual sample size obtained ($N = 154$) was more than sufficient to meet the power needed for this study.

Setting

The settings for this study were 4-year colleges and universities accredited by the CCNE or by the NLNAC, that held chapter membership in STTI. There are 454 U.S. baccalaureate nursing educational programs with chapters of STTI (STTI, 2012). Of these 200 were eligible. There are 15 regions in the U.S. designated by STTI. These regions were collapsed into four groups, combining chapters with similar state and region affiliation (Table 3).

Schools that were eligible to participate had a 4-year prelicensure baccalaureate program with required nursing courses during the sophomore year. Two hundred schools of nursing met these inclusion criteria. The states of Indiana and Pennsylvania were divided across two collapsed groups; therefore, they were represented in two of these groups. All other states were represented in a single group. One school from each of the four groups was randomly selected and solicited to participate in this study.

An online random number generator (www.randomizer.org) was utilized to randomly select these four schools of nursing. If any or all randomly selected schools of nursing declined to participate in the study, or the number of participants was not sufficient to meet the necessary sample size, another eligible school of nursing was

selected from the associated group. This process was continued until one school of nursing from each group was a willing participant. The survey research booklet was designed to be administered in an on-campus classroom at each selected school of nursing; therefore, participants completed it in an environment that was familiar to them.

Table 3

STTI Regions Collapsed into Four Groups

Group and Regions	*N*	States		
Group 1: Regions 1, 2, 5, 6	50	Arizona Arkansas California Illinois Indiana	Louisiana Missouri Montana Nevada New Mexico	Oregon Texas Washington
Group 2: Regions 3, 4, 9, 10	50	Colorado Indiana Iowa Kansas Michigan	Minnesota Nebraska N. Dakota Ohio Oklahoma	S. Dakota Utah Wisconsin Wyoming
Group 3: Regions 7, 8, 11, 14	53	Alabama Florida Georgia Mississippi New Jersey	New York Pennsylvania S. Carolina Tennessee	
Group 4: Regions 12, 13, 15	47	Connecticut Delaware District of Columbia Maine Maryland	Massachusetts New Hampshire N. Carolina Pennsylvania	Rhode Island Vermont Virginia W. Virginia

Four randomly selected schools of nursing were asked to participate in the study. One of the schools asked agreed to participate in the study. Three of the four initially selected schools who were asked to participate in the study, declined the researcher's request. Two of these schools of nursing had undergone recent revisions to their nursing curriculum, having nursing classes commence in the first semester of junior year, rather than the sophomore year. As a result, these two schools did not meet the setting criteria for the study. A third school of nursing had newly appointed an Acting Director of Nursing, and respectively declined to have the time to arrange participation in the study. As a replacement for these three schools of nursing, three alternative schools of nursing were randomly selected. All three of these schools of nursing agreed to participate in the study. Schools of Nursing #1 and #3 were located in Pennsylvania. School of Nursing #2 was located in Indiana. School of Nursing #4 was located in Louisiana.

Study Sample

School of Nursing #1 was mailed 39 research booklets. A total of 37 booklets were returned. Eight of these did not meet inclusion criteria for this study; five students already held licensure and three students already held a degree in another discipline. A total of 29 completed useable booklets were obtained from this school.

School of Nursing #2 was mailed 62 research booklets. A total of 45 booklets were returned. One booklet did not meet inclusion criteria for this study because the student already held licensure. There were 12 blank research booklets returned. The school anticipated needing 62 research booklets, but when data were collected they did

not have this number of students to complete all research booklets. A total of 32 completed useable booklets were obtained from this school.

School of Nursing #3 was mailed 39 research booklets. A total of 39 booklets were returned. There were two booklets that did not meet inclusion criteria for this study because the students already held a degree in another discipline. There was one booklet that was removed. This booklet was missing more than 10% of data from the SDLRSNE. A total of 36 completed useable booklets were obtained from this school.

School of Nursing #4 was mailed 62 research booklets. A total of 61 booklets were returned. There were four booklets that did not meet inclusion criteria for this study because one student was not a sophomore student, and three students already held a degree in another discipline. A total of 57 completed useable booklets were obtained from this school.

Of the 202 total number of research booklets that were mailed, 182 (90%) were returned. There were 154 (85%) research booklets that met the inclusion criteria for this study, and were confirmed by this researcher to be complete. The raw data from these research booklets were used for this study.

Instrumentation

The study used five research instruments: 1) Demographic Questionnaire (DQ), 2) Academic Motivation Scale (AMS), 3) Autonomous Learner Index (ALI), 4) Curiosity and Exploration Inventory II (CEI II) and 5) Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE). These five instruments were organized and assembled into one attractive research booklet, for ease of subjects' completion. With the exclusion

of the demographic questionnaire, a summary of each scale and associated subscales for the four remaining research instruments are presented in Table 4.

Table 4

Summary of Item Numbers, Reversed Items, and Possible Range of Scores for Four Instruments

Scale and Subscales	Item Numbers	Items to be Reverse Scored	Possible Range of Scores
AMS	1 – 28		28 – 196
Intrinsic Motivation			
Knowledge		2, 9, 16, 23	4 - 28
Stimulation		4, 11, 18, 25	4 - 28
Accomplishment		6, 13, 20, 27	4 - 28
Extrinsic Motivation			
External Regulation	1, 8, 15, 22	1	4 - 28
Introjected Regulation	7, 14, 21, 28		4 - 28
Identified Regulation	3, 10, 17, 24	5, 12, 19, 26	4 - 28
Amotivation	5, 12, 19, 26		4 - 28
ALI	1 – 24		24 – 120
Dependent Learning	8, 9, 10, 12, 14 16, 19, 20, 24	16, 19, 20, 24	9 - 45
Independent Learning	1, 2, 3, 4, 5, 6, 7 11, 13, 15 17, 18, 21, 22, 23	17, 18, 21, 22, 23	15 – 75
CEI – II	1 – 10		10 - 50
Exploration	1, 4, 6, 7, 9		5 - 25
Absorption	2, 3, 5, 8, 10		5 - 25
SDLRSNE	1 - 29		29 - 145
Self-Management	1 - 10	2	10 - 70
Desire for Learning	11 - 19	15	9 - 63
Self-Control	20 - 29	21	10 - 70

Demographic Questionnaire

The Demographic Questionnaire (Appendix A) included 16 items that described the sample. Four items determined eligibility or ineligibility for the study. Participants who met one or more exclusion criteria were thanked for their interest in the study, and received a message that their participation was completed. Items that were included in the demographic questionnaire were: current enrollment status, academic year, licensure status, degree status, age, gender, ethnicity, marital status, number of children, state attending course, living arrangements, learning preferences, hours of week of study, and employment status. It was intended to gather as much demographic detail as possible using unambiguous and clear questions. The demographic variables that were selected described the sample and determined the population for generalization of the findings. Item numbers for each scale and subscale are listed.

Academic Motivation Scale

Description

The Academic Motivation Scale (AMS) (Vallerand et al., 1992) (Appendix B) was designed to measure motivation toward education. The AMS instrument is based on the tenets of self-determination theory, and is comprised of 28 items that can be divided into 7 subscale scores assessing 3 types of intrinsic motivation (knowledge, stimulation & accomplishment), 3 types of extrinsic motivation (external regulation, introjected regulation & identified regulation), and amotivation, as well as calculating a total score for motivation.

Intrinsic motivation (IM) is at the end of the "motivation spectrum" and reflects the highest degree of self-determination. Actions and behaviors that are intrinsically motivated are carried out for the purpose of self-satisfaction. These actions and behaviors are carried out voluntarily for personal satisfaction and may or may not produce material rewards (Vallerand et al., 1992). In contrast, actions and behaviors that are extrinsically motivated (EM) are carried out as a means to an end rather than an end in itself (Vallerand et al.). When individuals choose to perform a behavior or action because they come to value that behavior as important, performing a behavior that is aligned with one's values and that has no external pressure, or carrying out behaviors in order to avoid external conflict with others they are demonstrating extrinsic motivation. Vallerand et al. described amotivation as; with the absence of intrinsic and extrinsic motivation, having no self-determination, being non-motivated.

An established 7-point Likert scale was used to indicate to what extent each of the items presently corresponds to one of the reasons why the subject goes to college with 1 = does not correspond at all and 7 = corresponds exactly. This instrument was developed from the French scale, Echelle de Motivation en Education (EME) (1988) by the same authors of the AMS. The EME was translated in English in 1992 through appropriate methodological procedures by university students. Because the EME was only validated in French, Vallerand et al. (1992) conducted a study to determine the validity and reliability of the scale in English, and renamed it the AMS.

Validity

Preliminary content validity for the EME and validation studies (Vallerand et al., 1992), which involved more than 3,000 students, revealed that the EME represents a valid measure of IM, EM, and amotivation. The construct validity of this scale was supported by a series of correlational analyses among the seven subscale scores, as well as among these scales and other psychological constructs relevant to education, such as interest toward school, time spent in academic activities, being distracted in class, academic satisfaction, and positive emotions in the classroom (Vallerand et al.).

The renamed instrument, the AMS, was completed by 745 university students from the province of Ontario. Students were told that the researchers were interested in understanding better the reasons why they attend the university. The statistical analysis conducted by researchers included confirmatory factor analysis. The factor model was statistically significant ($p < .001$) (Vallerand et al., 1992). Researchers indicated that the results replicated similar validity findings of the original EME version.

Reliability

Vallerand et al. (1992) assessed the internal consistency of the AMS subscales using Cronbach alpha. The values varied from .83 to .86, indicating adequate levels of internal consistency. There was a high index of temporal stability (a mean test-retest reliability of .75) over a one month period. Based on the study, the AMS demonstrated a high degree of internal consistency reliability.

Horyna and Bonds-Raacke (2012) investigated the differences in students' motivation to attend college: large versus small high schools. Information regarding

participants' motivation was obtained through the completion of the AMS (Vallerand et al., 1992). The translation of the EME to the AMS was performed by Fort Hays State University students, and included a three-step, cross-sectional procedure. They found the "internal consistency ($\alpha = .81$) and temporal stability (mean test-retest correlation of .79) of the AMS to reach satisfactory factor analysis over a period of one month" (Horyna & Bonds-Raacke, p. 714). They reported that the results obtained using a confirmatory factor analysis verified the structure of the measure's seven subscales. These results indicated that the AMS has adequate factorial validity and reliability and is useful in the research of academic motivation.

This study revealed a high Cronbach's alpha internal consistency reliability for the AMS ($\alpha = .91$) (Horyna & Bonds-Raacke, 2012). All items except item #1 contributed positively to the internal consistency reliability. Item 1 had an item-to-item correlation of -.21, however, alpha would not increase if the item was deleted, therefore, it was retained for all analyses.

Scoring

Scoring was based on individual responses to 28 items on a 7-point Likert scale. Subjects' responses were summed to yield a total score. Given that the instrument consists of both positive and negative phrased items, all negative phrased items (1, 5, 12, 19, and 26) were recoded prior to summing the total score. Possible scores could range from 28 to 196, with higher scores indicating greater motivation for learning.

Autonomous Learner Index

Description

The Autonomous Learner Index (ALI) (Abu-Moghli et al., 2005) (Appendix C) was designed to measure both independent and dependent learning behaviors. The ALI instrument contains 24 statements, 9 of these indicate dependent learning and 15 indicate independent learning. An established 5-point Likert scale was used to measure these 24 learning items with 1 = strongly disagree and 5 = strongly agree.

The descriptive study was conducted at four of six Jordanian universities offering a baccalaureate degree in nursing. All nursing students enrolled in these four universities were solicited for the study ($N = 420$). Consent for participation was confirmed by the subjects' acceptance to fill out the questionnaire as was clarified in a cover letter. The data were collected by the researchers themselves. The average time that was needed to complete the questionnaire was 15 minutes, and was performed over one-month duration (Abu-Moghli et al., 2005). The analysis of the collected data was carried out using the most recent version of SPSS.

Validity

The ALI questionnaire was initially reviewed for content validity by a panel of nurse educators in Jordan prior to its use in this study. The questionnaire was then pilot tested on a sample of nursing students. The number of participating students, as well as their academic level in nursing education, was not identified. It was reported that all Jordanian universities that offer a prelicensure baccalaureate degree in nursing were asked to participate. Although exact statistical significance was not indicated, Abu-

Moghli et al. (2005) reported this instrument to be reliable when measuring learner independence in nursing students.

Reliability

When the questionnaire was pilot tested with the sample of nursing students, Abu-Moghli et al. (2005) reported that the tool was reliable ($\alpha = .89$). As previously mentioned, the number of participating students, as well as their academic level in nursing education, were not identified. The ALI is a 2005 research instrument that has been found to be reliable in measuring learner independence of baccalaureate nursing students. There is no identified U.S. published study using the ALI. This instrument is the only published scale investigating specifically the learner independence of prelicensure baccalaureate nursing students.

According to Munro (2005), a .70 Cronbach's alpha for a new research instrument is minimally acceptable. This study revealed a nearly minimal acceptable Cronbach's alpha internal consistency reliability for the ALI ($\alpha = .68$) (Abu-Moghli et al., 2005). The decision was made by this researcher and the dissertation committee that this instrument was valid, as the study's findings for Cronbach's alpha internal consistency was an acceptable minimal coefficient. Twenty-one of the 24 items had positive item-to-item correlations. Items 16, 17, and 22 had item-to-item correlations of -.13, -.24, and -.19 respectively. If these three items were deleted, alpha would increase to .74, however, since this is the first use of the ALI with U.S. students, this researcher and the dissertation committee made the decision to retain all items for all analyses.

Scoring

Scoring was based on individual responses to the 15 independent learner items on a 5-point Likert scale. The nine dependent learning items with negative factor loadings (16, 17, 18, 19, 20, 21, 22, 23, 24), were reversed scored prior to summing the total score. Subjects' responses were summed with total possible scores could range from 24 to 120, with higher scores indicating greater learner independence.

Curiosity and Exploration Inventory II

Description

The Curiosity and Exploration Inventory II (CEI II) (Kashdan, Gallagher, Siva, Winterstein, Breen, Terhar & Stegar, 2009) (Appendix D) was designed to measure the curiosity and exploration of individuals facilitating positive subjective experiences and personal growth opportunities. The 10-item CEI II was developed from the original 28-item Curiosity and Exploration Inventory (CEI). This initial instrument examined curiosity in individuals, and is comprised of two dimensions: exploration (enthusiasm for novelty and challenge), and absorption (full engagement in specific activities) (Kashdan, Rose, & Fincham, 2004). The subscales of exploration and absorption are retained in the 10-item CEI II instrument.

The major goal of research conducted by Kashdan et al. (2009) was to improve the initial version of the CEI, and to create a brief, valid, reliable measure of curiosity that expands the breadth of the construct. This study was based on people's curiosity, and the fundamental role curiosity takes in motivation, learning, and well-being (Kashdan et al., 2009). The CEI was renamed the CEI II, and was comprised of 10 items. An

established 5-point Likert scale will be used to determine how a participant generally feels or behaves with 1 = very slightly or not at all intellectually curious, and 5 = extremely intellectually curious.

Validity

A sample of 311 undergraduates from a large, public, Mid-Atlantic university was asked to participate in a study by Kashdan et al. (2009). Following the collection and analysis of data on the 10-item CEI II, the researchers determined that there was evidence of the scales ability to accurately measure curiosity ($p = .01$). Study results suggested that the CEI II is a valid assessment for researchers interested in exploring the effects of intellectual curiosity.

Reliability

After finding preliminary support for the 10-item CEI II, a series of analyses was computed to explore construct validity of the revised instrument. Based on the data from 311 undergraduate students, findings of this study determined that the CEI II had acceptable internal consistency reliability ($\alpha = .83$) (Kashdan et al., 2009).

This study revealed a high Cronbach's alpha internal consistency reliability for the CEI II ($\alpha = .89$). All 10 items contributed positively to the internal consistency reliability.

Scoring

Scoring was based on individual responses to 10 items on a 5-point Likert scale. Subjects' responses were summed with total possible scores could range from a total score of 10 to 50, with higher scores indicating greater intellectual curiosity.

Self-Directed Learning Readiness Scale for Nursing Education

Description

Originally developed by Dr. Lucy Guglielmino in 1977, and reviewed in 1989, the Self Directed Learning Readiness Scale (SDLRS) was an instrument consisting of subscales with 58 items measuring SDLR. This SDLRS was originally created to identify explicit characteristics of a student's SDLR. A number of researchers have utilized this measurement tool, and further built upon its foundation when carrying out specifically, quantitative research studies.

In the late 1990's, Fisher, King, and Tague (2001) recognized that this scale was not suited for nursing students, and redesigned the SDLRS to be nursing specific. They named this new measurement tool, Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE) (Appendix E). The SDLRSNE was developed to assist nurse educators in early detection of student learning needs, and to put in place teaching strategies to support and guide students towards academic success in nursing. The SDLRSNE tool consists of 29 items and 3 subscales (self management, desire for learning, and self control). Each item was deemed to reflect the perceived attributes, skills and motivational factors required of self-directed learners (Fisher et al.). This instrument was used in the study to measure SDLR. Participants indicated the degree each item reflects their own characteristics using a 5-point Likert scale, where a score of 1 = strongly disagree and 5 = strongly agree.

Validity

Fisher et al. (2001) set out to develop a valid instrument that could be used to measure SDLR for nursing education. The purpose of creating this scale was to allow educators in the discipline of nursing to diagnose student's attitudes, abilities, and personality characteristics, which were felt to be necessary for successful self-directed learning (SDL). The study was conducted in two steps. The first step was the utilization of the Delphi Technique to discover characteristics of SDL and to determine content validity of Guglielmino's SDLRS. The second step was distributing this instrument to undergraduate nursing students to determine if it had construct validity and internal consistency. A convenience sample of 201 baccalaureate level nursing students participated in this pilot study. Principal components of the SDLRS were analyzed using the Kaiser-Meyer Olkin (KMO) measure and scree test.

Fisher et al. (2001) determined that Guglielmino's SDLRS had inherent problems related to construct validity and reliability. As a result of this finding, a Self -Directed Learning Readiness Scale for Nursing Education (SDLRSNE) was developed to measure learning readiness for SDL in nursing students. With some researcher revisions during analysis, three SDLRSNE one-factor models which had standard regression weights were developed. Each model represented a different subscale: self-management, desire for learning, and self-control. Each of these subscale models lead to factor structure of the model. The research determined that the three resultant models provided reasonable evidence of construct validity for the three subscales of SDLRSNE, as well as the characteristics identified within this SDLRSNE.

Reliability

The internal consistency for each component of the scale was estimated using Cronbach coefficient alpha. "For the total item pool (n = 4), self-management subscale (n = 13), the desire for learning subscale (n = 12) and the self-control subscale (n = 15) were .92, .86, .85 and .83 respectively" (Fisher et al., 2001, p. 520).

Fisher and King (2010) later re-examined the factor structure of the three subscales within the SDLRSNE. The study results provided evidence of instrument reliability, measuring SDLR for nursing education (α = .87).

This study revealed a high Cronbach's alpha internal consistency reliability for the SDLRSNE (α = .92). All items contributed positively to the internal consistency reliability.

Scoring

Scoring was based on individual responses to the 29 items on a 5-point Likert scale. Three items with negative factor loadings (2, 15, and 21) were reversed scored prior to summing the total score. Subjects' responses were summed with total possible scores ranging from 29 to 145, with higher scores indicating greater learning readiness.

Data Collection

Following successful proposal defense, and Widener University Institutional Review Board (IRB) approval, data collection began. Administrators (deans, directors or chairpersons) in four randomly selected schools of nursing that held STTI chapter membership were contacted via a professional written letter (Appendix F). The letter included information about the research problem, research study, and method by which it

was to be investigated. The letter also requested the participation of sophomore students to complete the research booklets, and one sophomore nurse educator to administer the research booklets. This researcher made telephone calls to the administrators at each school of nursing one week following the expected receipt of the written letter. During this telephone conversation, additional information about the study was provided, and questions regarding the research were answered. Three of the four preliminary schools asked, either did not meet the setting criteria for the study, or declined to participate, therefore, three additional schools of nursing were randomly selected from their associated group. All three of these agreed to participate in the study.

The Administrators at two schools of nursing required approval by their Institutional Review Board (IRB) prior to the initiation of the study (Schools of Nursing #1 and #2). This researcher complied with their request, and sought and obtained permission for research prior to data collection at these institutions.

Following the verbal approval of administrators at the four schools of nursing, the name and contact information of a nurse educator at their school responsible for teaching the classroom theory component of one of their sophomore nursing courses was requested. These four sophomore nurse educators were first contacted via email (Appendix G), with an attachment of the Letter of Invitation and Explanation of the Study, which included an implied informed consent for student participation in the study (Appendix H). The nurse educators had the opportunity to review this attachment prior to receipt and distribution of the research booklets. A telephone call was made to these nurse educators five days following the expected receipt of the email. During this

telephone conversation, additional information about the study was provided, and questions regarding the research were answered. Inclusion criteria and length of time necessary to complete the research booklet was provided.

Subsequent to the verbal approval of the nurse educators at these four schools of nursing, arrangements were made to mail research booklets to the schools. Four individually colored covers (pink, blue, yellow, & green) were used to easily identify and organize the booklets from each of the four U.S. regions. Planning for their sophomore students to complete the study during the month of February 2013 was made with the educators, which ideally followed an exam, quiz, or classroom activity in which a student was evaluated. The necessary mailing materials (shipping labels and return envelope) were provided for the nurse educators to promptly return the completed research booklets. A sufficient number of copies of the Letter of Invitation and Explanation of the Study and the research booklet were mailed directly to the nurse educators. Mail that is tracked is more carefully accounted for, and is usually separated from regular mail, to avoid any confusion. For these reasons, the tracking was used for all correspondence.

Upon receipt of these items, nurse educators at these schools of nursing were asked to allocate 30 minutes of classroom time for students to complete the research booklet. Once the research booklets were completed, each participating student folded their research booklet in half and sealed it with an attached adhesive seal. All participating students were then asked to provide their email address on a blank colored index card (pink, blue, yellow or green). The nurse educators collected the completed research booklets and index cards from the students, packed them in the self-addressed

postage paid envelope provided by this researcher, and mailed the envelope. This researcher provided a $25 gift card to each nurse educator as a token of appreciation for their time and efforts to distribute, collect, and return the completed research booklets.

Upon receipt of the research booklets and index cards, this researcher randomly selected one index card from each of the four participating schools of nursing. An email message was sent to the corresponding email address on each of the four index cards, offering congratulations and announcing the winner of a new stethoscope (Appendix I). Each of the four selected index cards was attached to a new stethoscope and was mailed directly to the designated nurse educator in each of the four schools for distribution to the prize-winning student.

Protection of the Rights of Human Subjects

A certificate of completed training was obtained from the National Institute of Health Office of Clinical Research Training and Medical Education. The review of protection of the rights of human subjects was provided, and approval to conduct the study was obtained from Widener University's Institutional Review Board (IRB).

Ethical Issues

Risks. There were no known actual or potential risks to students while participating in the study. The Letter of Invitation and Explanation of the Study explained the option if participants wished to discontinue participation in the study at any time, and for any reason, without penalty to their course grade or standing in school. To this researcher's knowledge, no student withdrew from the study once data collection started.

Benefits. There were no direct benefits for the study participants. The benefits will be advancing nursing science and the current body of knowledge of SDLR in nursing education. Nursing educators and administrators will also benefit from study findings.

Compensation and Costs. Study participants were not individually compensated for their time or participation in the study. However, this researcher mailed each school of nursing colored index cards. Each participating student provided a personal email address on an index card. This researcher randomly selected one index card from each of the four participating schools. Four students, one from each participating school was awarded a new stethoscope as a token of appreciation. Participants were provided with the researcher's email address in the Letter of Invitation and Explanation of the Study. Participants could email the researcher to request a copy of the study findings. There was no cost to participants in the study.

Time Commitment. The Letter of Invitation and Explanation of the Study and research booklet were administered to students by the nurse educator during the classroom component of a sophomore nursing course. It was estimated that it would take approximately 30 minutes for participants to complete the research booklet.

Privacy and Confidentiality. All collected data were confidential and anonymous. In the Letter of Invitation and Explanation of the Study, participants were informed that no identifying data were collected. All responses on the research booklet and index card provided by the students were kept confidential in accordance with all applicable federal, state, and local laws and regulations. Participants were informed that data generated by the study may be reviewed by Widener University's Institutional

Review Board, which is the committee responsible for ensuring the welfare and rights of research participants, to assure proper conduct of the study and compliance with university regulations. Furthermore, participants were assured that any presentations of publications based on the study will not include any identifying information of study participants.

Storage of Data. All completed research booklets are stored in a locked file cabinet in the researcher's home. This place of residence is armed with a home security system when family members are not present. Only the researcher and the dissertation committee had direct access to the raw data. Widener University's IRB retained the right to review all data. The SPSS file that was generated by this researcher is kept on an external drive at the researcher's home and will be kept by the researcher indefinitely. The completed research booklets will be destroyed in the researcher's home by shredding after completion of the study and successful final defense.

Informed Consent. The agreement to participate in the study was included in the Letter of Invitation and Explanation of the Study as an implied informed consent, by which the participants' submission of the completed research booklet indicated their consent to participate in the study. The informed consent assured that participants had an understanding of the purpose, description, risks, benefits, and confidentiality, compensation and participation implications of study completion (Appendix H). A Flesch-Kincaid reading level of the Letter of Invitation and Explanation of the Study was 12.0, and was appropriate for prelicensure sophomore baccalaureate nursing students, all

who have completed at least one year of baccalaureate academic preparation beyond high school.

Data Analysis

All data collected from the completed research booklets were entered into SPSS version 20. Participants' responses were examined for completeness prior to data analysis. Data analyses included descriptive and inferential statistics appropriate to answer the research questions.

Treatment of Missing Data

According to Munro (2005), the easiest and most direct method of managing missing data values is to analyze only those cases with complete data. This procedure is called "list wise deletion", and is the default procedure in most major statistical programs, including SPSS. All research booklets were examined for missing data. Missing demographic data were left blank in the SPSS raw data file. There were three research booklets that had less than 10% missing data on a research instrument. Each one had one data bit missing. The missing data bits were replaced with the sample's mean score on that missing item. This method of estimating missing data by imputation is conservative in nature, because the distribution mean as a whole does not change, and the researcher does not have to guess at missing values (Munro). There was one research booklet that had more than 10% missing data one of the research instruments, the SDLRSNE. This research booklet was removed from the raw data file prior to data analysis in the study.

Demographic Data

Analyzed demographic statistics provided a description of the study sample, otherwise known as "sample characteristics" (Burns & Grove, 2009). Non-parametric summary statistics, including frequencies and percentages, were used to describe the categorized nominal and ordinal level data. Ratio and interval level data were analyzed using measures of central tendency (mean, median, mode), and measures of dispersion (range, variance, standard deviation).

Demographic data were analyzed for the following items in the DQ: age in years, gender, ethnicity, marital status, having children, number of children, enrollment status, U.S. state in which School of Nursing located, place of residence, study preferences, methods of learning, weekly study hours, employment during academic year, and number of weekly hours worked. Statistical findings allowed this researcher to gain a description of the study sample.

Nominal and Ordinal Level Demographic Data

Frequencies and percentages were used to describe the categorized nominal and ordinal level data. The majority of the study participants were female, white, single, without children, and enrolled as full-time nursing students. Almost half of the participants lived in the state of Pennsylvania, lived on campus with a roommate, and preferred to study alone. Most participants indicated that they learned best by reading the textbook and assigned lectures, and by taking notes as they read and/or listen to music. Most spent between 9 to 16 hours studying a week, and at the same time, were employed during the academic year.

Ratio and Interval Demographic Data

Ratio and interval level demographic data were analyzed using measures of central tendency (mean, median, mode), and measures of dispersion (range and standard deviation). The descriptive statistics of continuous demographic data findings for age in years, number of children, and weekly hours worked during the academic year were previously presented in Table 2. These findings further detail the study participants. The average age of the participants was 22 years of age. The majority of subjects had no children. The subjects who are employed during the academic year (n = 86) worked an average of 18 hours weekly.

Research Questions

Research Question 1

The first research question asked: What are the motivation to learn, learner independence, intellectual curiosity, and SDLR scores of prelicensure sophomore baccalaureate nursing students? This question was answered by computing descriptive statistics for scores on each of the research variables. Descriptive statistics were used to describe the basic features of the data in the study: measures of central tendency including mean and mode, measures of dispersion including range and standard deviation, and shape of the distribution including skew and kurtosis.

Research Question 2

The second research question asked: What are the relationships among motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness in prelicensure sophomore baccalaureate nursing students? This

research question was answered by testing the hypothesis which stated that the linear combination of motivation to learn, learner independence, intellectual curiosity, predicts SDLR in prelicensure sophomore baccalaureate nursing students better than any one variable alone. This hypothesis was tested by computing a stepwise multiple regression analysis. Multiple regression analysis is based upon probability theory, and predicts differences in groups of variables (Burns & Grove, 2009). Multiple regression analysis is an extension of simple linear regression analysis, where more than one predictor variable is entered into the analysis. For this study, three predictor variables were entered individually: motivation to learn, learner independence, and intellectual curiosity. Multiple regression analysis determined if any or all predictor variables were able to predict the outcome variable, SDLR.

Additional Analyses

Pearson Correlations

Additional analyses were computed to explore relationships between the demographic variable of age and study predictor variables: motivation to learn, learner independence and intellectual curiosity. Pearson correlations were also used to examine the relationships between selected demographic variables, and the study outcome variable, SDLR.

Independent *t*-tests

Independent *t*-tests were used to compare differences between males and females in motivation to learn, learner independence, intellectual curiosity, and SDLR. Differences in students' enrollment status (full-time versus part-time) in motivation to

learn, learner independence, intellectual curiosity and SDLR were also tested using independent *t*-tests.

One-way Analysis of Variance

One-way analysis of variance (ANOVA) was used to examine differences amongst the schools in different states on motivation to learn, learner independence, intellectual curiosity, and SDLR.

Delimitations

Delimitations are factors that affect the study over which the research generally does have some degree of control (Burns & Grove, 2009). Participants in the study were limited to prelicensure sophomore level baccalaureate nursing students enrolled in four randomly selected 4-year colleges and universities that hold chapter membership in STTI. Data were collected from students in colleges and universities located in four schools of nursing nationwide.

Chapter Summary

This chapter presented the methodology of this descriptive correlational study, the instrumentation, data collection and analysis procedures, protection of rights of human subjects, ethical issues, time commitment, risks and benefits, as well as privacy and confidentiality. The researcher used stepwise multiple regression analysis to test the hypothesis to determine whether the linear combination of the predictor variables (learner independence, motivation to learn, and intellectual curiosity) was able to predict the outcome variable, SDLR, better than any of the predictor variables alone. This method determined that the predictor variables are associated with each other, and are able to

describe the present behavior and characteristics of prelicensure sophomore baccalaureate nursing students.

The study utilized a Demographic Questionnaire and four carefully selected research instruments. The demographic data of the participants were collected using a demographic questionnaire that was developed by the researcher. Motivation to learn was measured using the Academic Motivation Scale (Vallerand et al., 1992). Learner independence was measured using the Autonomous Learner Index (Abu-Moghli et at., 2005). Curiosity to learn was measured using the Curiosity and Exploration Inventory II (Kashdan et al., 2004). Self-directed learning readiness was measured using the Self-Directed Learning Readiness Scale for Nursing Education (Fisher et al., 2001). All instruments demonstrated that they are valid and reliable measurement instruments, as evidenced by prior research studies. These instruments were combined into an attractive, easy to use, research booklet.

A letter was sent to the administrators of four randomly selected U.S. 4-year schools of nursing holding chapter membership in STTI, offering a prelicensure baccalaureate nursing program, and having required nursing courses in the fall semester of sophomore year. A telephone call followed this letter, requesting permission of these administrators to allow their sophomore students and one nurse educator to participate in the study. Once permission to participate was granted, an email with an attached introduction letter and informed consent was sent to the nurse educator. The research instruments were disseminated by the nurse educator to eligible students during the classroom section of a sophomore level nursing course. A Letter of Invitation and

Explanation of the Study which included an implied informed consent to nursing student participants was provided to participating students prior to completion of the research instruments. Participants were given the opportunity to decline participation, and discontinue the study at any time for any reason without penalty. The research booklets were distributed and completed by students in all four schools of nursing during the month of February 2013.

Raw data were entered into SPSS version 20 and were examined for missing data. Research questions were answered, and relationships if any, were identified among study variables. Additional analyses with the study variables were explored.

Chapter 4

Findings

This chapter presents the findings of a study that investigated motivation to learn, learner independence, learner curiosity, and self-directed learning readiness of prelicensure baccalaureate nursing students. The findings are based on analyses of data collected from the Demographic Questionnaire (DQ), Academic Motivation Scale (AMS) (Vallerand et al., 1992), Autonomous Learner Index (ALI) (Abu-Moghli et at., 2005), Curiosity and Exploration Inventory II (CEI-II) (Kashdan et al., 2004), and Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE) (Fisher et al., 2001).

Results of Data Analyses

All data collected from the completed research booklets were entered into SPSS version 20. Participants' responses were examined for completeness prior to data analysis. All research booklets were examined for missing data. There were no missing data in the DQ, AMS, ALI, and CEI-II. There was one research booklet that had more than 10% missing data on the SDLRSNE. Therefore, this subject's data were removed from the raw data file prior to data analysis for the study.

Research Questions

Two research questions were investigated to explore self-directed learning readiness in prelicensure baccalaureate nursing students. Descriptive statistics were used to describe the scores on the research variables in the study, including measures of central tendency (mean and mode), measures of dispersion (range and standard deviation), and shape of the distribution (skew and kurtosis).

Research Question 1

The first research question asked: What are motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness scores of prelicensure sophomore baccalaureate nursing students? This question was answered by computing descriptive statistics scores for each of the four research instruments. Descriptive statistics for scores on all research instruments are presented in Table 5.

Table 5

Descriptive Statistics of Research Variable Scores (N = 154)

Variable	Mean	*SD*	Actual Range	Possible Range
Motivation to Learn	152.2	20.9	77 - 189	28 – 196
Learner Independence	86.2	10.1	55 - 105	24 - 120
Intellectual Curiosity	35.1	7.9	13 - 50	10 - 50
Self-Directed Learning Readiness	119.6	13.4	63 - 145	29 - 145

Motivation to Learn

For the total sample number of prelicensure baccalaureate nursing students (N = 154), and with a possible score ranging from 28 to 196, the total score of the AMS indicated that, on average, prelicensure sophomore baccalaureate nursing students had high motivation to learn. Scores approximated a normal curve with skew (-.81) and kurtosis (.75) within the acceptable range of plus or minus one.

Learner Independence

For the total sample number of prelicensure baccalaureate nursing students (N = 154), and with a possible score ranging from 24 to 120, the total score of the ALI

indicated that, on average, prelicensure sophomore baccalaureate nursing students were independent learners. Scores approximated a normal curve with skew (-.48) and kurtosis (.21) within the acceptable range of plus or minus one.

Intellectual Curiosity

For the total sample number of prelicensure baccalaureate nursing students (N = 154), and with a possible score ranging from 10 to 50, the total score of the CEI - II indicated that, on average, prelicensure sophomore baccalaureate nursing students were intellectually curious. Scores approximated a normal curve with skew (-.29) and kurtosis (-.48) within the acceptable range of plus or minus one.

Self-Directed Learning Readiness

For the total sample number of prelicensure baccalaureate nursing students (N = 154), and with a possible score ranging from 29 to 145, the total score of the SDLRSNE indicated that, on average, prelicensure sophomore baccalaureate nursing students had moderately high self-directed learning readiness scores. Scores differed from a normal curve in that, although the skew (-.84) was within the limits of normalcy, kurtosis (1.46) revealed a somewhat peaked curve.

Research Question 2/Hypothesis #1

The second research question asked: What are the relationships among motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness in prelicensure sophomore baccalaureate nursing students. This research question was answered by testing the hypothesis which stated that the linear combination of motivation to learn, learner independence, intellectual curiosity, would predict SDLR in prelicensure

sophomore baccalaureate nursing students better than any one variable alone. This hypothesis was tested by computing a stepwise multiple regression analysis. Two of the three predictor variables entered into the equation with learner independence accounting for 60% of the variance explained. The linear combination of the two predictors explained a total of 63.5% of the variance in self-directed learning readiness, with 36.5% residual variance unexplained. However, intellectual curiosity failed to enter the regression equation due to multicollinearity. Details of the stepwise multiple regression analysis are presented in Table 6.

Table 6

Stepwise Multiple Regression of Learner Independence and Motivation to Learn on Self-Directed Learning Readiness

Model	*R*	R^2	$R^2\Delta$	*F*	*df*	*p*
1. Learner Independence	.78	.601	.601	228.85	1,152	< 001
2. Motivation To Learn	.80	.635	.034	14.27	1,151	< 001

Additional Analyses

Additional analyses were computed to determine if relationships existed between selected demographic variables and the study variables. Further analyses were computed to determine if differences existed between female and male students, and part-time versus full-time enrollment status, and the study variables. Additional analyses were calculated to determine if differences existed among the four schools of nursing based on their state location, and the study variables. Pearson correlations, independent *t*-tests, and one-way analysis of variance were computed to determine relationships and differences.

Pearson Correlations

Pearson correlations were computed to explore the inter-correlations among the three predictor variables. Analyses revealed that the predictor variables were all significantly related with positive and moderately high correlations. These variables, motivation to learn, learner independence, and intellectual curiosity, shared from 29% to 34% of their variance (Table 5).

Table 5

Pearson Correlations of Motivation to Learn, Learner Independence, and Intellectual Curiosity (N = 154)

	Learner Independence		Intellectual Curiosity	
Motivation to Learn	*r*	.54	*r*	.58
	p	< .001	*p*	< .001
	r^2	.29	r^2	.34
Learner Independence			*r*	.57
			p	< .001
			r^2	.33

Pearson correlations were computed to determine if there were any significant relationships between selected demographic variables (age in years, number and children, weekly work hours), and the study variables of motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness outcome variable. Findings indicated that there were no statistically significant correlations between any demographic variable and the study variables.

Independent *t*-tests

Independent *t*-tests were computed to determine if there were differences between female students (n = 139), and male students (n = 15), and to determine if there are differences in enrollment status, full-time (n = 150), versus part-time (n = 4), on motivation to learn, learner independence, intellectual curiosity, or self-directed learning readiness scores. There were no statistically significant differences between any of the groups on any of the study variables.

One-way Analysis of Variance

One-way analysis of variance (ANOVA) was used to examine differences among the schools of nursing based on their location in the states of Pennsylvania (n = 65), Indiana (n = 32), and Louisiana (n = 57), on motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness scores. Descriptive statistics revealed a Mean and standard deviation score for each state for the four study variables.

With the exception of motivation to learn, findings indicated no statistically significant differences among the states on the remaining three study variables. Findings revealed higher motivation to learn scores in students who attended nursing school in Louisiana (M = 159.3, SD = 19.65) were higher ($F_{2,151}$ =5.98, p = .003) than scores for nursing students who attended nursing school in Pennsylvania (M = 146.68, SD = 19.85). However, motivation to learn scores of students who attended nursing school in Indiana (M = 150.78, SD = 22.29) did not materially differ from scores of students in Pennsylvania or Louisiana, as the Mean score of the nursing school in Louisiana was approximately midway between the Mean scores of the other two states.

Chapter Summary

This chapter presented the findings of a descriptive correlational study that investigated the motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness of sophomore prelicensure baccalaureate nursing students. Study findings reported in this chapter were based on the analysis of raw data collected from 154 research booklets at four schools of nursing across the U.S. A Demographic Questionnaire, Academic Motivation Scale, Autonomous Learner Index, Curiosity and Exploration Inventory II, and Self-Directed Learning Readiness Scale for Nursing Education were included in the research booklet.

Descriptive statistics for scores on each research instrument were computed. Stepwise multiple regression analysis, which tested the study's hypothesis, revealed that the linear combination of learner independence and motivation to learn predicts SDLR in prelicensure baccalaureate nursing students better than any one variable alone; however, intellectual curiosity failed to enter the regression equation due to multicollinearity.

Additional analyses explored relationships between selected demographic variables and the four study variables. Pearson correlations analysis did not yield statistically significant results.

Independent *t*-test analyses compared the differences between males and females, and between full-time and part-time students on motivation to learn, learner independence, intellectually curiosity, and self-directed learning readiness scores. The *t*-tests did not yield statistically significant results.

Lastly, findings from a one-way ANOVA that explored differences among the locations of the schools of nursing on motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness scores yielded statistically significant evidence that students who studied nursing in a Louisiana school of nursing had higher motivation to learn scores than students who studied nursing in schools located in Pennsylvania.

Chapter 5

Discussion, Implications, Conclusions, and Recommendations

This chapter presents a discussion of the findings of this study, exploring the motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness (SDLR) of prelicensure sophomore baccalaureate nursing students. The study's research questions, hypothesis, theoretical framework, and a reflection of established literature considerations are discussed. Methodological issues with data collection and limitations of the study are discussed and explained. Implications for nursing science and research and nursing education are presented, and conclusions are drawn. Recommendations for future research are detailed. A summary of the chapter provides closure to the discussion of the findings.

Discussion of Findings

Demographic Profile of Study Sample

The participants' responses on the demographic questionnaire were summarized and analyzed. These steps were done to profile the sample, so it could be compared to the general nursing population. Most study participants were white, female, and below the age of 30. The National League for Nursing (NLN) (2012) conducted an annual survey of U.S. schools of nursing. This survey examined essential data about applications, admissions and enrollment, retention, and graduation rates; and provided a comprehensive demographic profile of the current student population documenting ethnic-racial identity, gender, and age demographic for the 2010-2011 academic year. The NLN reported that 76% of nursing students were white, while the remaining students

were categorized as "minority". The percentage of students enrolled in nursing programs by gender was 86% female and 14% male; 76% were under the age of 30 years. This study's sample is reflective of the results of the NLN survey, lending credence for generalizability of this study's findings.

Research Question 1

The first research question in this study was: What are motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness scores of prelicensure sophomore baccalaureate nursing students?

Motivation to Learn

The scores on the Academic Motivation Scale (AMS) revealed that this sample of prelicensure sophomore baccalaureate nursing students have a high motivation to learn. According to Vallerand et al. (1992), participants' responses on this scale were designed to be reflective of the motivational reasons for why they decided to go to college to pursue higher education. There are a few possible explanations for why most of this study's participants scored on the higher end of the AMS scale. This study's participants were nursing students, enrolled in a school of nursing where the curriculum is sequenced such that nursing courses begin in the sophomore year. It is possible that these high scores represent that students were enthusiastic because they were in the early stage of a program of study that greatly interests them. Their excitement for learning may have led to a strong motivation to learn. Further, they may have been motivated by learning new things about a topic of study that is professionally challenging and personally rewarding.

These findings support and extend what is known from published literature associated with the motivation of students in higher education and health profession education. Vallerand et al. (1992) discovered that junior-college students go to class because they find it interesting and satisfying to learn more about certain subjects in their major area of study. Further, these researchers found that going to class, the pleasure and satisfaction of one's experiences while learning, exploring, or trying to understand something new in itself is motivating. This researcher concluded that students who extended their work beyond a written paper or presentation, for example, did so to experience cognitive, emotional, and motivational satisfaction while surpassing their individual expectations. Extended work activities may include reading scholarly journals, interviewing and learning from individuals with relevant health issues, and attending conferences that discuss current evidenced-based research on topic. The high scores for motivation to learn in prelicensure sophomore baccalaureate nursing students in this study are consistent with the results of Vallerand et al.'s study.

Similar findings about students' motivation to learn were described by Rose (2011). Rose synthesized outcomes from a collection of several papers and research studies that investigated the motivation to learn of nursing students in the early stage of programs of study. In these studies the early stage was defined as when students first entered nursing programs, or enrolled in beginning courses for this major. She reported that intrinsic motivation was present in students upon entering nursing education. She also discovered that students had the ability to learn, remember, solve problems, and pay attention. The attention and willingness to investigate, answer, and explain course

material was inherent in students who were leaving humanities courses and starting in nursing. Similarly, this study of prelicensure sophomore baccalaureate nursing students who were beginning their major courses had a high degree of motivation.

Pelaccia et al. (2009) examined the impact of training periods on the motivation of healthcare students. The researchers found that when students were presented with occupational training prior to the practice of skills, it enhanced their intrinsic motivation to learn and perform. Furthermore, Pelaccia et al. concluded that high levels of student motivation were a main reason for successful learning and achievement. This may be a reason for the high level of motivation of the prelicensure sophomore baccalaureate nursing students in the current study, as they are positioned in their course of study at a time in which training and practice of nursing skills are the routine. Similarly, these students had opportunities to learn and practice clinical skills prior to the provision of direct patient care. This may have had an effect on their motivation to learn. For this reason, the findings of the current study support the outcomes identified by Pelaccia et al..

The studies of Vallerand (1992), Pelaccia et al. (2009), and Rose (2011) revealed that college students had the motivation to learn during the beginning courses for their major. They reported that these students demonstrated their motivation by their willingness and interest in learning course content. Students found pleasure and satisfaction in their experiences of learning, sharing, practicing, and demonstrating things that were new to them. Their motivation to learn was driven by the recognition that their diligent scholarly efforts would facilitate the outcome of completion of study and their

ability to practice their career of choice. The sophomore students investigated in this current study were at a pivotal point in their college education, enrolled in first year nursing courses. Similar to study findings, they also identified that students had high motivation to learn nursing education.

Learner Independence

The scores on the Autonomous Learner Index (ALI) revealed that the prelicensure sophomore baccalaureate nursing students in this study had high learner independence. The participants responded to questions that were intended to identify their learning behaviors. The demographic questionnaire (DQ) included items that identified student learning preferences. The findings revealed that given the choice, most of these students preferred to study alone, rather than with other students. Two-thirds of the sample indicated that their learning preference was to read their assigned course textbook and take notes, even more so than listening to teachers' lectures. These data support and help explain the high scores for learner independence. These learning preferences are indicative of a preference for independent learning. Another possible explanation for the high scores for learner independence is the expectation of nurse educators that sophomore level college students take responsibility for their learning through independent study, reading, and writing. College courses are traditionally designed to evaluate student learning using quizzes, examinations, and written assignments which require students to perform independently to be successful. This may translate to students' perception that learner independence is an expected behavior of college students in their second year in higher education.

These findings support and extend what is known from published literature on learner independence of nursing students in both health profession education and in higher education. A study conducted by Löfmark et al. (2001) found that nursing students rated themselves as being independent of supervision. This independent behavior occurred during times when students practiced clinical nursing skills in the absence of supervision from a nurse educator. This independent behavior was reported to have first occurred during their beginning nursing clinical courses, and increased through more advanced clinical courses. Löfmark et al. remarked that this finding was not unexpected, since clinical nursing practice experience comes with the opportunity and expectation for nursing students to demonstrate learner independence. The students in the study, who identified themselves as being independent learners, reported that their independent actions were influenced most by learning experiences they encountered in the clinical setting. Under the supervision of experienced nurse educators and staff nurses during clinical rotations, nursing students demonstrated learner and practice independence.

Similarly, the learner independence of nursing students in the classroom setting was examined by Abu-Moghli et al. (2005). They investigated baccalaureate nursing students' perception of personal styles of learning using the Autonomous Learner Index. The students perceived themselves as independent learners. The researchers recommended that nurse educators continue to design learning experiences in which learner independence is encouraged. They suggested that independent student activities

will challenge students academically, and will allow them greater involvement and responsibility for their own learning.

Hawker (2000) reported that nurse educators should make every attempt to continuously challenge nursing students to recognize the importance and long-term value of becoming actively involved in their own learning. He further explained that becoming an effective independent learner takes skills, training, and practice, supplemented by opportunities for independent action. Hawker believed that when nursing students are engaged this way, it is likely they will demonstrate independence for learning, and will further develop their clinical practice skills. A goal of a competent nurse educator is to bridge classroom content to clinical practice. Likewise, nursing students exhibiting independent learning implement what is learned in the classroom in clinical practice.

The studies of Hawker (2000), Löfmark et al. (2001), and Abu-Moghli et al. (2005) revealed that learner independence in baccalaureate nursing students may be encouraged, developed, and nurtured by nurse educators. They reported that nursing students prefer to study alone, and appreciate opportunities where they can demonstrate learner independence in classroom and clinical settings. Additionally, curricula designed to challenge and invite nursing students to become actively involved in the learning process create an environment conducive to learner independence. Similarly, in the current study, it was revealed that sophomore baccalaureate nursing students had a high level of learner independence. As in reviewed literature findings, this current study found that nursing students have high learner independence in nursing education.

Intellectual Curiosity

The scores on the Curiosity and Exploration Inventory II (CEI II) revealed that prelicensure sophomore baccalaureate nursing students have high intellectual curiosity. The participants' responses were based on how accurately the instrument statements reflected the way they generally felt and behaved. During the first year in any program of study, in this case nursing, students must recognize, question, and pursue the information needed to understand and learn what is taught in both the classroom and in clinical. Nurse educators should continuously encourage and support these student actions of learner curiosity. It is expected that beginning nursing students think, feel, and respond in a curious manner. According to Eason (2010), learner curiosity is expected to be high at this time, in comparison with nursing students in their final year of study, when curiosity often tapers as confidence and knowledge increase. It is also likely that nursing students just beginning to learn about a profession that they find to be both new and exciting, will demonstrate learner curiosity.

There is limited health profession education literature on intellectual curiosity. Harrison et al. (2011) and Mussel et al. (2012) both acknowledged that research on intellectual curiosity, specifically in students, is only beginning to be reported in literature, most commonly in the discipline of psychology. For this reason, this study's findings on intellectual curiosity are a contribution to published literature in nursing education.

Intellectual curiosity, as reported by Kashdan et al. (2009), is distinctive, as it has overlapping attributes with intrinsic motivation and interest. Researchers led by Kashdan

identified curiosity as the willingness, and perhaps the desire to continually accumulate new abilities and experiences, recognizing, embracing, and seeking out new knowledge. These particular actions were found to stimulate learner curiosity. Similarly, Dyche and Epstein's (2011) theory-driven conceptual exploration and qualitative review of literature on intellectual curiosity of students in medical education found that intellectual curiosity flourished in educational environments that promote the student's responsibility for his or her own learning. In other words, students demonstrating learner independence are more likely to also have intellectual curiosity. Similar findings were reported in Eason's (2010) study, which examined ways to foster intellectual curiosity and lifelong learning in nurses. Eason also found that environments and cultures that support learning ignite intellectual curiosity. Related findings were reported in Von Stumm, Hell, and Chamorro-Premuzic's (2011) study, that investigated intellectual curiosity as a predictor of academic performance in higher education. It was found that curious students who were intellectually stimulated were likely to be more satisfied with their university experience and to enjoy their studies to a greater extent, that those who were not. Von Stumm et al. suggested that educators in higher learning take advantage of opportunities to enhance students' intellectual curiosity. It was found that educational settings and resources may be useful in facilitating, stimulating, and nurturing intellectual curiosity in students.

In this current study, nursing students were enrolled in foundation nursing courses. These beginning nursing courses are customarily designed to spark intellectual curiosity in students. Students' curiosity for learning nursing is expected to emerge in

environments where nurse educators discuss and teach course content that is new and directly related to their major of study. Nurse educators commonly challenge nursing students by asking questions about topics of discussion, often trying to promote student input into decision making, and encouraging them to look beyond their assignments. This current study found that nursing students have high curiosity to learn in nursing education.

Self-Directed Learning Readiness

The scores on the Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE) revealed that prelicensure sophomore baccalaureate nursing students have moderately high readiness for self-directed learning for nursing education. The participants' responses were based on their rating of their personal characteristics of learning. The findings revealed that sophomore baccalaureate nursing students are ready to be self-directed learners. The studies of Fisher and King (2009), Hendry and Ginns (2009), and Smedley (2010), discovered that students entering their first year of study, more specifically, their first week of class, reported themselves as ready to be self-directed learners. Being ready for self-directed learning includes taking the initiative and having self-understanding and acceptance of the responsibility of one's own learning. Hendry and Ginns reported that students enrolled in first year major courses, commonly have thoughts of self-confidence, and a strong belief in their ability to do well. They stated that college students often enroll in major courses if they feel that they are ready to learn the content needed to successfully pass the course. Similarly, the participants in

this study who were in one of their first major courses had a moderately high readiness for self-directed learning.

The study's findings support published empirical evidence literature on SDLR in health profession education and in the discipline of business. The SDLR of nursing students was researched by Kocaman et al. (2009) and Klunklin et al. (2010). They analyzed the SDLR of undergraduate nursing students enrolled in schools of nursing. They discovered that the SDLR of nursing students was at a high level, and increased from the first year of the program through the final year. In these two studies, nursing students were asked to complete the SDLRSNE on the first day of class in their nursing major. Unlike prior studies, the current study participants were asked to complete the scale in mid-second semester sophomore year. The consistent results in the studies are mutually supportive, as high and moderately high levels of SDLRNE were identified in participating students at the beginning as well as in the middle in their first year of study. As data were collected mid-semester with these sophomore students, the findings of this study extend what is known about self-directed learning readiness in nursing students.

The study's findings are also consistent with the published empirical evidence literature in the discipline of business. Avolio and Hannah (2008) and Cho and Kwon (2005) were interested in learning more of the readiness employees had for SDL in business organizational commitments and in roles of leadership in business organizations. The instruments used to measure SDL in the business literature were similar to those used in nursing. Both studies found that when individuals challenged themselves, and willingly took on challenges that knowingly led to growth and development, self-concept

clarity and confidence emerge and this readiness led to SDL. According to Levitt-Jones (2005), the most common flaw of SDL is the lack of adequate student preparation for it, being without readiness for SDL. Examining this "readiness" component for SDL was significant also to this researcher's study, since it is unclear in the review of literature if readiness for SDL is fully developed in students entering their major of study. Students in prior studies identified themselves as being self-directed learners, but researchers such as Fisher et al. (2001) questioned whether these same students had the attitude, ability, and personal characteristics necessary for SDL. The current study's results contribute to the review of literature of SDL of sophomore baccalaureate nursing students and their readiness for it.

Furthermore, the clinical experiences of nursing students traditionally start with the observation of nurse educators demonstrating clinical scenarios and the associated skills. The observation of instructional teaching leads to self-directed students practicing what they have learned, in preparation for clinical rotations. Maddox et al. (2000), in an anecdotal paper, focused on explaining the SDLR identifiers of individuals related to experiential learning. This type of "learning from experience" is similar to the culture in which nursing students learn. Maddox et al. discovered that readiness for experiential learning has prerequisites of cognitive, emotive-attitudinal, behavioral attributes, and skills and orientations that prepared them for active experiential learning contexts. Since prelicensure sophomore baccalaureate nursing students have similar opportunities for observing, learning, and training prior to practicing patient care nursing skills, it is

reasonable that study participants' responses also indicated a moderately high degree of SDLR.

Research Question 2/Hypothesis #1

The second research question asked: What are the relationships among motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness in prelicensure sophomore baccalaureate nursing students. This question was answered by testing hypothesis #1.

Hypothesis #1 stated the linear combination of motivation to learn, learner independence, and intellectual curiosity will predict self-directed learning readiness in prelicensure sophomore baccalaureate nursing students better than any one variable alone. The findings revealed that a significant relationship existed among the predictor variables of learner independence and motivation to learn. From this relationship it was determined that, together, the two variables of learner independence and motivation to learn predict the outcome variable, self-directed learning readiness. The predictor variable of intellectual curiosity failed to enter the regression equation due to high multicollinearity with predictor variable learner independence. This research hypothesis was supported, since the linear combination of learner independence and motivation to learn explained more variance than any one variable alone.

Learner independence has been predominantly investigated in the discipline of education, but has also been studied in nursing and in psychology. The purpose of Myers' (1990), Hawker's (2000), and Abu-Moghli et al.'s (2005) studies were to discover student perceptions of learner independence in the classroom or in clinical

practice settings. Also investigated were the styles of teaching and learning that ultimately were found to promote learner independence in students through organized self-development. In the review of literature, this researcher found learner independence to be a primary antecedent for SDLR. This study's findings revealed that learner independence was the single best predictor of SDLR.

The literature revealed evidence of educators having a reasonable degree of control over students' opportunities to demonstrate learner independence in structured and spontaneous environments for learning. Myers (1990), Hawker (2000), and Abu-Moghli et al. (2005) investigated the independent learning behaviors of students in controlled classroom settings. Myers determined that it is only when educators either "shared or released the power" of teaching did learner independence in students flourish. When learners were given the opportunity to provide input into decisions regarding the process and content of the course, they became independent and self-directed. Hawker explained how different the role of a dependent learner is as compared to an independent learner in the classroom. She further explained that becoming an effective independent learner takes skill, training, and practice. This is supplemented by opportunities for students' independent actions of learning offered by educators. It is from these independent occasions that students were able to demonstrate self-directed behaviors. Abu-Moghli et al. discovered that the majority of sophomore nursing students investigated had greater confidence in their independence of learning in the clinical setting as compared to the classroom setting. They felt that independence, in the form of moving away from being dependent on the educator, resulted in being self-directed. The

students utilized learning resources which existed outside of the classroom, augmenting their learner independence. Löfmark et al. (2001) felt that it was important to measure learner independence in clinical practice settings as much as it was to assess its presence in the classroom setting. In clinical settings, students found greater ability to develop their independence in knowledge and skills more so than in the classroom. Their level of independence increased gradually from their first to their final clinical course. These independent learning opportunities led nursing students to be self-driven learners. These relevant findings for learner independence are suggestive that nurse educators facilitate the development of independent learning behaviors in students.

Motivation to learn in students has been primarily investigated in the discipline of education (Mitchell, 1992; Glynn et al., 2005; Brouse et al., 2007). It has also been studied in nursing (Pelaccia et al., 2009; Rose, 2011) and in psychology (Vallerand et al., 1992). Collectively, the purpose of these studies was to discover ways in which educators and leaders supported and advanced students 'motivation to learn'. These researchers determined that environments and situations where students' motivation to learn thrived, waivered, or became diminished were the consequences of students demonstrating, or not demonstrating motivation to learn. In the review of literature, motivation to learn was found to be a primary antecedent of SDLR.

Glynn et al. (2005) and Brouse et al. (2007) investigated the academic success of college students, citing motivation as an important aspect of optimizing learning experiences, promoting growth and development of knowledge during the college experience, and assisting students in reaching educational goals. Rose's (2011)

investigation of the role of motivation in nursing students found that it was positively related to learning outcomes. This followed Mitchell's (1992) work on motivation for learning. His investigation found that motivation was generally regarded as one of the most critical determinants of the success and quality of any learning outcome. Pelaccia et al. (2009) identified motivation as a significant contributor to the success of students and the importance of considering motivational needs in designing academic and work-based teaching sessions. Additionally, Vallerand et al. (1992) specifically measured the intrinsic motivation, extrinsic motivation, and amotivation of students. The collective presence of these was found to lead to persistence, learning, and performance in successful students. These relevant findings for motivation to learn are suggestive that nurse educators facilitate the development of motivational learning behaviors in nursing students.

Intellectual curiosity has been predominantly investigated in the discipline of health profession education (Eason 2010; Kedge & Appleby, 2010; Dyche & Epstein, 2011). The purpose of several of these studies was to discover techniques and teaching methods that initiate, promote and maintain intellectual curiosity in students. Also investigated were the styles of teaching and learning that encourage learner curiosity through proactive learning behaviors. In the review of literature, intellectual curiosity was found to be a primary antecedent for SDLR.

Kedge and Appleby's (2010) work was helpful in explaining how learner curiosity is a precursor for autonomous learning in students. They reported that an effective mentoring relationship (nurse educator with student) had the potential to

provide positive emotional support. At the same time, this mentoring relationship unconsciously enhanced the competency and curiosity in students. Likewise, Kashdan et al. (2009) discovered that curiosity was the willingness of students to continually accumulate new abilities and experiences. It is from this learner curiosity that students extended their capabilities of learning. This was done in a self-directed manner. Shortly thereafter, Eason's (2010) essay supported the necessity of lifelong learning in nursing and the elements promoting personal curiosity. Eason said that nurses who conduct nursing research and participate in independent and collaborative scholarly activities demonstrate learner curiosity. Their aptitude to be curious learners was facilitated by independent and self-directed efforts.

The current study supports and extends the work of researchers who have previously investigated learner independence, motivation to learn, and intellectual curiosity. Findings for learner independence extend the limited number of studies that have been conducted in nursing education, this being the case, given that the majority of research has been carried out in general education settings. Findings also support past research that has studied motivation to learn, identifying that its diminishing presence in students impacts their ability to successfully learn. Lastly, study findings for intellectual curiosity support prior studies in health profession education, concluding that students who demonstrate learner curiosity are also independent and self-directed.

Additional Analyses

In the current study, an examination of differences between motivation to learn in female nursing students as compared to male nursing students yielded no significant

statistical differences. These results must be carefully considered, however, as the percentage of female nursing students far exceeded the percentage of male nursing students in this current study, possibly impacting the analysis. In contrast, in a review of the literature, empirical evidence of female students demonstrating greater overall motivation to learn than male students was found (Vallerand et al., 1992; Brouse et al., 2010). Similarly, Boggiano et al. (1991), and Boggiano and Barrett (1992) reported female students exhibiting a greater degree of "intrinsic motivation" than male students in their studies. However, Cokley et al. (2001) reported that differences exist in the construct measurement and research traditions when exploring students' motivation to learn, and accordingly, it is unjustified for researchers to conclude that female students are more extrinsically or intrinsically motivated to learn than male students. This current study found no conclusive evidence of gender differences for motivation to learn, neither supporting nor contradicting the findings from these studies.

Theoretical Framework

The theoretical framework of this study was a blend of Imogene King's (1981) Theory of Goal Attainment (TGA) and Malcolm Knowles' (1975) Theory of Self-Directed Learning (SDL). Three key personal concepts in King's TGA (learning, self, growth and development) were coupled with three corresponding key educational concepts in Knowles' Theory of SDL (proactive learner, learner initiative, psychological development). Logical associations exist with the blended theories, matched concepts, and with the three study's predictive variables for SDLR of sophomore baccalaureate nursing students, learner independence, motivation to learn, and intellectual curiosity.

The theoretical framework for this study was designed to serve as a guide explaining the phenomenon of SDLR.

The findings of this study revealed significant relationships among the research variables. The linear combination of learner independence and motivation to learn was able to predict the SDLR of prelicensure baccalaureate nursing students. Although this study found that sophomore baccalaureate nursing students had moderately high intellectual curiosity, and intellectual curiosity was independently significantly related to SDLR, this predictor variable failed to enter the regression equation due to multicollinearity. As a result of the moderately strong relationship with the other two predictor variables, intellectual curiosity did not contribute sufficient unique explanatory power to the regression equation in predicting SDLR of sophomore baccalaureate nursing students. Therefore, only learner independence and motivation to learn were included in Figure 6 as predictors of SDLR, illustrating the Application of Blending King's (1981) TGA and Knowles' (1975) Theory of SDL to the findings of the study.

Intellectual curiosity is retained in Figure 6 to depict its significant relationships to the other two predictor variables. Although intellectual curiosity was found to be predictive of the outcome variable, SDLR, it failed to enter the regression equation due to multicollinearity, and therefore not having a significant relationship with the other predictor variables when predicting the outcome variable.

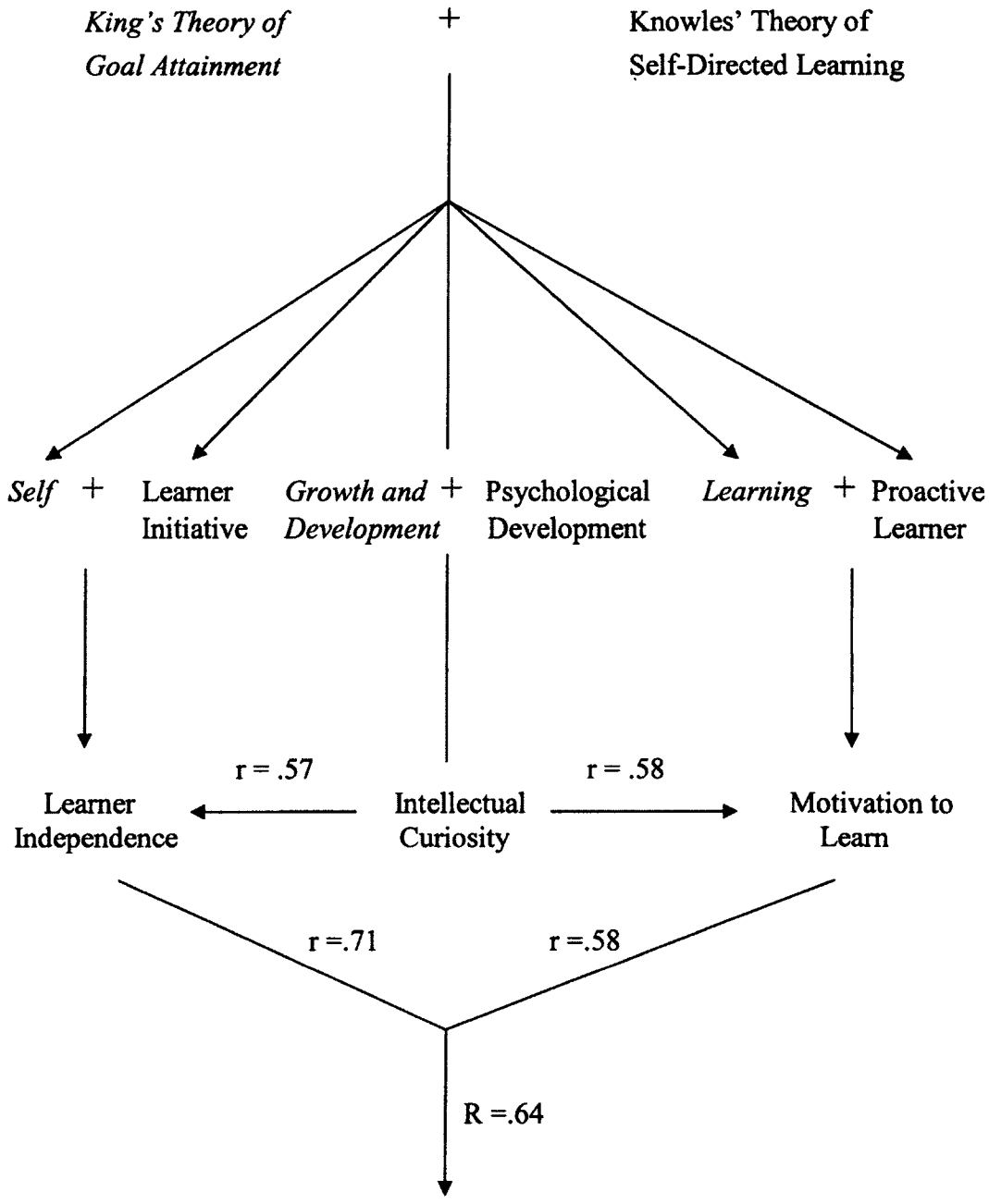

Figure 6. Application of Blending King's TGA and Knowles' Theory of SDL to the Findings of the Study

Note: King's concepts are in italics; Knowles' concepts are regular print.

This empirical evidence strengthened the theoretical framework of this study. It identified key concepts (self, learner initiative, learning, and proactive learner), in these two theories that were fundamental to explaining and understanding the two predictor variables. The study's findings contribute to existing literature of King's (1981) TGA and Knowles's (1975) Theory of SDL. The study's outcome variable, SDLR of baccalaureate nursing students, is associated with the interactional patterns and goals that govern the nurse-patient relationship in King's theory, and the responsibility the self-directed learner has in his/her own learning in Knowles's theory.

The outcomes of this study extend the application of King's (1981) TGA beyond nursing practice to nursing education. This theory had been primarily utilized only in clinical settings of nursing. However, it may now be additionally associated with academic settings in nursing, relevant in the student-nurse educator relationship. The findings also support and extend existing literature that has utilized these theories in empirical and anecdotal research.

Furthermore, this study is innovative within the investigation of SDLR in the context of nursing education, as it blended a nursing and educational theory for its framework. Figure 6 illustrates how this blending of King's TGA (1981) and Knowles' (1975) Theory of SDL, and the key concepts extracted from these theories, led to explaining the predictor variables. The linear combination of these two predictors explained SDLR of baccalaureate nursing students.

Methodological Issues

Data Collection

Data for this study was collected during the month of February 2013 with the assistance of nurse administrators and sophomore nurse educators at four participating schools of nursing. During this time this researcher identified two methodological issues; the written letter mailed to administrators, and the setting in which data was collected. Neither of these issues is believed to have impacted the collection of data.

Written Letter. Administrators (deans, directors or chairpersons) in four randomly selected schools of nursing that held STTI chapter membership were contacted via a written letter. The letter included information about the research problem, research study, and method by which it was to be investigated. This researcher made telephone calls to the administrators at each school of nursing one week following the expected receipt of this written letter. At the time of these calls it was discovered that three out of the four administrators did not have access to this letter. The written letter that was sent by postal mail was not readily available for reference during our conversation. Upon the request of these administrators, this letter was re-sent as an email attachment. They subsequently provided their permission for data collection. Electronic transmission of the letter versus the sending by postal mail did not influence the decision of these administrators as to whether or not this researcher would be granted access to sophomore baccalaureate students as study participants.

Setting. The settings for this study were 4-year colleges and universities accredited by the CCNE or by the NLNAC, that held chapter membership in STTI.

There are 15 regions in the U.S. designated by STTI. These regions were collapsed into four groups, combining chapters with similar state and region affiliation. Two hundred U.S. baccalaureate nursing educational programs with chapters of STTI met the study's inclusion criteria. The states of Indiana and Pennsylvania were divided across two collapsed groups; therefore, they were represented in two of these groups. All other states were represented in a single group. One school from each of the four groups was randomly selected and solicited to participate in this study. An online random number generator was utilized to randomly select these four schools of nursing. Of the four schools of nursing that gave their permission for data collection, Schools of Nursing #1 and #3 were located in Pennsylvania, School of Nursing #2 was located in Indiana, and School of Nursing #4 was located in Louisiana. These 200 U.S. baccalaureate nursing educational programs with chapters of STTI could have been collapsed differently from the 15 designated regions. This may have prevented the states of Indiana and Pennsylvania from being divided across two collapsed groups. Therefore, there would have been the possibility of greater geographical difference in the sample of schools selected among all U.S. states. If the online randomizer selected four eligible schools of nursing from a random sample of all eligible schools, rather than from four collapsed groups, there may be a greater chance for variety of schools. This alternative method of school selection may have offered more of a variance in the data that were collected, possibility impacting study findings.

Limitations of Study

A limitation of this study included external validity, or the generalizability of the study. Of the four schools of nursing who participated in the complete study, each was a college or university located in the eastern region of the United States (Pennsylvania, Indiana, and Louisiana). In addition, only schools of nursing whose curriculum is designed to include nursing courses in the sophomore year of study in 4-year programs of nursing were included in the online randomizer as potential participants for this study. To some degree these study limitations may have influenced how generalizable the data findings were for all 4-year baccalaureate nursing schools in the U.S.

Implications

The implications of this study may have an impact on nursing science and research, and nursing education. The total scores on instruments used in this study found sophomore baccalaureate nursing students having high learner independence, high motivation to learn, and high intellectual curiosity for nursing education. Furthermore, it was discovered that the linear combination of two predictor variables predicted SDLR in prelicensure sophomore baccalaureate nursing students better than any one variable alone. Consequently, nurse educators and nursing students may now have a better understanding of SDLR for nursing education.

Nursing Science and Research

The development of nursing as a science continues to be an important aspect of the growth of the profession. This study yielded statistically significant results, in support of the linear combination of learner independence and motivation to learn to

predict SDLR in prelicensure sophomore baccalaureate nursing students. Through this research, future research initiatives can be identified, as mentioned in recommendations for future research later in this chapter. These study findings also contributed to nursing science and research by extending what is known about the phenomenon of SDLR in prelicensure sophomore baccalaureate nursing students.

Literature about motivation to learn and learner independence was reviewed as part of a concept analysis and were determined to be primary antecedents of SDLR. The inclusion of the predictor variable of intellectual curiosity made this study unique to this phenomenon, even though it was identified as having high multicollinearity with another predictor variable, learner independence. This study represents a scientific process that validated and refined existing knowledge of SDLR, and more specifically, generated new knowledge about the relationships the two predictor variables, learner independence and motivation to learn, have for SDLR of prelicensure sophomore baccalaureate nursing students. Study findings can also directly influence the ways in which nursing education is provided to students. Nurse educators can design curriculum, and amend current methods of teaching and learning in the classroom and clinical settings supporting and enhancing the learner independence and motivation to learn in their nursing students. By doing so, SDLR will most likely be demonstrated by nursing students and be identified by nurse educators.

The blended theories of Kings' (1981) Theory of Goal Attainment and Knowles' (1975) Theory of Self-Directed Leaning made up the theoretical framework for this study. This researcher asserts that these theories provided credence to the importance of

SDLR of sophomore baccalaureate nursing students. Also, in this study, the phenomenon of SDLR was presented to participating schools of nursing in the context of these blended theories.

The use of a blend of Kings' (1981) and Knowles' (1975) theories in this study was important, considering nursing education research is most often interconnected with sound nursing and education theory. The usefulness and relevance of these two theories for future research is enhanced and supported by this study. The interpersonal aspects of King's theory along with the educational aspects of Knowles' theory provided a theoretical basis for the study, evolving and advancing present knowledge and understanding about SDLR in nursing education. Additionally, this study is planned to be the first published study in the U.S. using the ALI as an instrument to measure learner independence of sophomore baccalaureate nursing students.

Nursing Education

The overarching aim of researching SDLR in prelicensure sophomore baccalaureate nursing students was to influence nursing education by identifying predictors of SDLR, and to improve the ways in which nurse educators identify when and if a student is ready to learn nursing. The current study found that relationships exist between learner independence and motivation to learn. Collectively this relationship predicted SDLR in sophomore baccalaureate nursing students.

Nurse educators have the primary responsibility of educating nursing students. Nursing students have responsibility for their learning. Nurse educators are held accountable by schools of nursing to guide, support, and lead by example. Nurse

educators wishing to develop learner independence and motivation to learn in their students must demonstrate both of these characteristics to their students. One way that this can be accomplished is by educators advancing their knowledge of the profession of nursing. This may be realized by actively pursuing an advanced degree in nursing education and/or practice, staying current of nursing trends by reading nursing journals, conducting and participating in nursing research, and presenting research findings at local, regional, and international venues for nurses and other healthcare professionals. Other ways include creating new courses for nursing education, and incorporating innovative teaching and learning techniques in classroom and clinical settings. Students may admire these professional efforts, and see them as innovated and self-directed. As a result, nursing students may be more likely to emulate these and other similar behaviors.

Nurse educators are role models for nursing students. Nursing students likely perceive them as experienced, skilled, and knowledgeable of all aspects of the nursing profession. It is a recommendation that nurse educators look beyond assigned textbook material, discovering alternative scholarly resources that can be integrated in nursing courses. Examples include guest speakers, live and prerecorded educational videos, and visual models. Nursing students may view this extracurricular effort as particularly beneficial to their learning experience. Courses can also be designed to enhance students' readiness for SDL. This can be accomplished by identifying obstacles to learner independence and/or motivation to learn, and offer methods to diminish or overcome them. This will promote an educational climate that will foster learning principles, student autonomy, and mutual responsibility for learning (Fisher et al., 2001).

Patterson et al. (2002) proposed that the use of SDL in teaching was to provide students with the necessary competencies to become lifelong learners. This can be encouraged through teaching strategies and assessment processes enabling students to take control of their own learning. Nurse educators can also synthesize several teaching pedagogies and develop student/teacher learning partnerships focusing on the demonstration of the study's predictive characteristics for SDLR. Nurse educators who design ways to support motivated students and encourage learner independence will create an atmosphere conducive for SDLR in their nursing students. Giving students a sense of control and responsibility for their learning, creating a welcoming learning environment, encouraging self-reflection, making educational goals high but attainable, providing opportunities for success, and making content interesting and enjoyable to learn are ways for nurse educators to accomplish this.

Nurse educators often have insight of the characteristics in nursing students that will help them meet course objectives. They will now be able to refer to these above-mentioned predictors, learner independence and motivation to learn, for prescriptive action. Nursing educators who identify students falling below academic expectations may detect lack of learner independence and/or a decrease in their motivation to learn, and therefore are without readiness for SDL. Nurse educators may intervene early once this is identified. Students may be connected with college and university academic support services to assist with test taking, note taking, and study techniques. Additionally, the support services can also offer targeted developmental learning activities promoting independence and motivation. The research findings for SDLR

contribute and augment traditional methods of teaching, guidance and support for nursing students.

Nursing Administrators, Deans, and Chairpersons in schools of nursing are in positions of leadership. According to Kirkpatrick (1994), they have both authority and responsibility for planning, budgeting, scheduling, personnel matters, curriculum, instruction, development and other academic matters. They are held accountable for their academic leadership and the quality of education their school provides to nursing students. They are guided by their school's philosophy, mission, and vision, and their role is to ensure that their nursing curriculum reflects all of these. Administrators are seen as persons who facilitate positive relationships, increase faculty productivity, and empower faculty. They support nurse educators advancing their knowledge in nursing through continued education, reward teaching excellence, and encourage them to have supportive relationships with nursing students.

The findings of this study led to implications for nursing education. Namely, to develop nursing curriculum, sequence learning materials, and present assignments and activities that support their students' learner independence and motivation to learn. It is suggested that nursing administration be supportive of the actions of nurse educators teaching within their school of nursing. This support is especially recommended when nurse educators revise and design curriculum enhancing learner independence and motivation to learn in their nursing students. At the same time, nurse educators must act as leaders for their students, demonstrating these same characteristics. In creating this

optimal environment for SDLR, it is necessary that nursing administration and nurse educators work cohesively.

Conclusions of the Study

The following conclusions can be drawn from this study:

1. There is evidence that sophomore baccalaureate nursing students are independent learners.
2. There is evidence that sophomore baccalaureate nursing students are motivated learners.
3. There is evidence that sophomore baccalaureate nursing students are intellectually curious.
4. There is evidence that sophomore baccalaureate nursing students are ready for self-directed learning.
5. There is evidence that the combination of learner independence and motivation to learn predict self-directed learning readiness in prelicensure sophomore baccalaureate nursing students.
6. There is evidence that students who attend nursing school in Louisiana have slightly higher motivation as compared to students who attend nursing school in Pennsylvania.
7. There is evidence that students who attend nursing school in Indiana have similar high motivation to learn as the students who attend nursing school in the state of Pennsylvania or Louisiana.

8. There are no relationships between selected demographic variables (age in years, number and children, weekly work hours) and the study variables of motivation to learn, learner independence, intellectual curiosity, and the outcome variable, self-directed learning readiness.
9. There are no differences between female students and male nursing students on motivation to learn, learner independence, intellectual curiosity, or self-directed learning readiness.
10. There are no differences between part-time versus full-time enrollment status on motivation to learn, learner independence, intellectual curiosity, or self-directed learning readiness.
11. There is no evidence that differences exist among the participating schools of nursing based on their state location on motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness.

Recommendations for Future Research

Recommendations for future research are proposed based on findings from this study. The following suggestions are intended to support, contribute, and advance the current body of knowledge of self-directed learning readiness in nursing science and research and nursing education. The investigation of self-directed learning readiness in nursing education should not cease with this study, rather, it warrants further attention and research efforts.

1. Replicate this study with students in other years of study as well as over the entire course of the 4-years of higher education.

2. An interventional study, with random assignment to intervention and control groups, could be conducted exploring the self-directed learning readiness of nursing students before and after formal changes are made to nursing curriculum.
3. Rather than limiting selection to 4-year nursing schools that hold chapter membership in Sigma Theta Tau International, all 4-year nursing programs would be considered, with one school from each four census regions of the U.S. be randomly selected and solicited to participate.
4. A study that re-examines the validity of the Autonomous Learner Index for a non-Arabic population, paying close attention to the three items with negative item-to-item correlations.
5. A study exploring the subscales of the Self-Directed Learning Readiness Scale for Nursing Education (self-management, desire for learning, self-control).
6. A study further exploring the extension of King's Theory of Goal Attainment from clinical nursing practice into nursing education.
7. A study of intellectual curiosity of nursing students, examining its influence when determining academic success in nursing education.
8. A study of self-directed learning readiness with the purpose to create a new educational practice theory applying to nursing education with possibilities for use in the disciplines of education, psychology, or others.

Chapter Summary

This chapter presented a discussion of the statistically significant findings of this study that explored the motivation to learn, learner independence, intellectual curiosity,

and self-directed learning readiness of prelicensure sophomore baccalaureate nursing students. Answers to the study's research questions and hypothesis were explained, providing insight of how study findings contribute, support, and expand on the literature review of self-directed learning readiness. The ways the theoretical framework supported study findings were presented. Methodological issues involving the collection of data were then explained. Limitations of the study were addressed, and the implications for nursing science and research and nursing education were presented. Conclusions that were drawn from the study were numerically shown. Finally, several recommendations for future research for self-directed learning readiness were offered. This summary provides closure to the discussion of findings for self-directed learning readiness of sophomore baccalaureate nursing students.

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Appendix A

Demographic Questionnaire

Instructions: Please answer the following questions by selecting your response or writing in your response where indicated.

1. Are you currently enrolled in a nursing course?

   ❑ Yes

   ❑ No → **Thank you for your interest in this study, your participation is completed.**

2. Are you currently a sophomore student?

   ❑ Yes

   ❑ No → **Thank you for your interest in this study, your participation is completed.**

3. Are you currently licensed as an RN or LPN/LVN?

   ❑ Yes→ **Thank you for your interest in this study, your participation is completed.**

   ❑ No

4. Do you currently hold an earned college degree in any discipline?

   ❑ Yes→ **Thank you for your interest in this study, your participation is completed.**

   ❑ No

5. How old are you? _____ Years

6. What is your gender?
   - ❑ Female
   - ❑ Male
   - ❑ Transgender

7. What is your ethnicity?
   - ❑ Alaska Native
   - ❑ American Indian
   - ❑ Asian
   - ❑ Black
   - ❑ Hispanic/Latino
   - ❑ Hawaiian/Pacific Islander
   - ❑ White
   - ❑ Other (_____)

8. What is your marital status?
   - ❑ Single
   - ❑ Married/Civil Union
   - ❑ Divorced
   - ❑ Widowed

9. Do you have children living with you?
   - ❑ Yes How many _____?
   - ❑ No

10. What is your enrollment status in nursing education?
    - ❑ Full-time
    - ❑ Part-time

11. In what U.S. state is your School of Nursing located? _____

12. Where do you live?
    - ❑ On campus alone
    - ❑ On campus with roommate(s)
    - ❑ Off campus alone
    - ❑ Off campus with spouse/partner/significant other/children
    - ❑ Off campus with parents/family of origin

13. How do you prefer to study?
    - ❑ Alone
    - ❑ With 1 or 2 friends
    - ❑ With a small group of students
    - ❑ With a large group of students

14. How do you learn? **(check all that apply)**
    - ❑ Reading the textbook and assigned materials
    - ❑ Listening to teacher's lectures
    - ❑ Taking notes as I read and/or listen to lecture
    - ❑ Reading nursing journals
    - ❑ Surfing the Internet for new information

15. How many hours a week do you study?
    - ❑ 0 – 8 hours
    - ❑ 9 – 16 hours
    - ❑ 17 – 24 hours
    - ❑ Greater than 24 hours

16. Do you work during the academic year?
    - ❑ Yes How many hours a week? _____
    - ❑ No

Appendix B

Academic Motivation Scale

Instructions: Using the response key below, indicate to what extent each of the following items presently corresponds to one of the **reasons why you decided to go to college.**

Does not Correspond at all		Corresponds a little		Corresponds moderately		Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7		

1. Because with only a high-school degree I would not find a high-paying job later on.	1	2	3	4	5	6	7
2. Because I experience pleasure and satisfaction while learning new things.	1	2	3	4	5	6	7
3. Because I think that a college education will help me better prepare for the career I have chosen.	1	2	3	4	5	6	7
4. For the intense feelings I experience when I am communicating my own ideas to others.	1	2	3	4	5	6	7
5. Honestly, I don't know; I really feel that I am wasting my time in school.	1	2	3	4	5	6	7
6. For the pleasure I experience while surpassing myself in my studies.	1	2	3	4	5	6	7
7. To prove to myself that I am capable of completing my college degree.	1	2	3	4	5	6	7
8. In order to obtain a more prestigious job later on.	1	2	3	4	5	6	7
9. For the pleasure I experience when I discover new things never seen before.	1	2	3	4	5	6	7
10. Because eventually it will enable me to enter the job market in a field that I like.	1	2	3	4	5	6	7
11. For the pleasure that I experience when I read interesting authors.	1	2	3	4	5	6	7

Does not Correspond at all	Corresponds a little		Corresponds moderately	Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7

12. I once had good reasons for going to college; however, now I wonder whether I should continue.	1	2	3	4	5	6	7
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	1	2	3	4	5	6	7
14. Because of the fact that when I succeed in college I feel important.	1	2	3	4	5	6	7
15. Because I want to have "the good life" later on.	1	2	3	4	5	6	7
16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	1	2	3	4	5	6	7
17. Because this will help me make a better choice regarding my career orientation.	1	2	3	4	5	6	7
18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	1	2	3	4	5	6	7
19. I can't see why I go to college and frankly, I couldn't care less.	1	2	3	4	5	6	7
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	1	2	3	4	5	6	7
21. To show myself that I am an intelligent person.	1	2	3	4	5	6	7
22. In order to have a better salary later on.	1	2	3	4	5	6	7
23. Because my studies allow me to continue to learn about many things that interest me.	1	2	3	4	5	6	7
24. Because I believe that a few additional years of education will improve my competence as a worker.	1	2	3	4	5	6	7
25. For the "high" feeling that I experience while reading about various interesting subjects.	1	2	3	4	5	6	7

Does not Correspond at all	Corresponds a little		Corresponds moderately	Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7

26. I don't know; I can't understand what I am doing in school.	1	2	3	4	5	6	7
27. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.	1	2	3	4	5	6	7
28. Because I want to show myself that I can succeed in my studies.	1	2	3	4	5	6	7

Appendix C

Autonomous Learner Index

Instructions: Using the response key below, indicate to what extent each of the following items presently corresponds to your **personal style of learning.**

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

1. Desire to learn new things.	1	2	3	4	5
2. Have good study skills.	1	2	3	4	5
3. Need little assistance from teachers.	1	2	3	4	5
4. Feel comfortable in independent learning.	1	2	3	4	5
5. Curious to learn.	1	2	3	4	5
6. Work hard to find solutions.	1	2	3	4	5
7. Find references for any subject.	1	2	3	4	5
8. Like doing research.	1	2	3	4	5
9. Finish assignments before due date.	1	2	3	4	5
10. Identify own goals independently.	1	2	3	4	5
11. Use study time efficiently.	1	2	3	4	5
12. Enjoy problem solving.	1	2	3	4	5
13. Feel independent during theory courses.	1	2	3	4	5
14. Feel independent during clinical courses.	1	2	3	4	5
15. I am an independent learner.	1	2	3	4	5
16. Prefer help to solve problems	1	2	3	4	5

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

17. Prefer sequenced stable activities	1	2	3	4	5
18. Do the minimum for any course	1	2	3	4	5
19. Difficulty adjusting resources to needs	1	2	3	4	5
20. Cannot concentrate	1	2	3	4	5
21. Finish assignments only for the due date	1	2	3	4	5
22. Prefer textbook course	1	2	3	4	5
23. Study only for exams	1	2	3	4	5
24. I am a dependent learner	1	2	3	4	5

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Appendix D

Curiosity and Exploration Inventory II

Instructions: Using the response key below, rate the statements below for how accurately they reflect **the way you generally feel and behave.** Do not rate what you think you should do, or wish you do, or things you no longer do. Please be as honest as possible.

Not At All	Very Slightly or A Little	Moderately	Quite a Bit	Extremely
1	2	3	4	5

1. I actively seek as much information as I can in new situations.	1	2	3	4	5
2. I am the type of person who really enjoys the uncertainty of everyday life.	1	2	3	4	5
3. I am at my best when doing something that is complex or challenging.	1	2	3	4	5
4. Everywhere I go, I am out looking for new things or experiences.	1	2	3	4	5
5. I view challenging situations as an opportunity to grow and learn.	1	2	3	4	5
6. I like to do things that are a little frightening.	1	2	3	4	5
7. I am always looking for experiences that challenge how I think about myself and the world.	1	2	3	4	5
8. I prefer jobs that are excitingly unpredictable.	1	2	3	4	5
9. I frequently seek out opportunities to challenge myself and grow as a person.	1	2	3	4	5
10. I am the kind of person who embraces unfamiliar people, events, and places.	1	2	3	4	5

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Appendix E

Self-Directed Learning Readiness Scale for Nursing Education

Instructions: Using the response key below, rate the statements below for how accurately they reflect **your own characteristics.**

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

1. I am self-disciplined.	1	2	3	4	5
2. I am disorganized.	1	2	3	4	5
3. I set strict time frames.	1	2	3	4	5
4. I have good management skills.	1	2	3	4	5
5. I am methodical.	1	2	3	4	5
6. I am systematic in my learning.	1	2	3	4	5
7. I set specific times for my study.	1	2	3	4	5
8. I prioritise my work.	1	2	3	4	5
9. I can be trusted to pursue my own learning.	1	2	3	4	5
10. I am confident in my ability to search out new information.	1	2	3	4	5
11. I want to learn new information.	1	2	3	4	5
12. I enjoy learning new information.	1	2	3	4	5
13. I have a need to learn.	1	2	3	4	5
14. I enjoy a challenge.	1	2	3	4	5
15. I do not enjoy studying.	1	2	3	4	5
16. I critically evaluate new ideas.	1	2	3	4	5
17. I learn from my mistakes.	1	2	3	4	5

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

18. I need to know why.	1	2	3	4	5
19. When presented with a problem I cannot resolve, I will ask for assistance.	1	2	3	4	5
20. I am responsible for my own decisions/actions.	1	2	3	4	5
21. I am not in control of my life.	1	2	3	4	5
22. I have high personal standards.	1	2	3	4	5
23. I prefer to set my own learning goals.	1	2	3	4	5
24. I evaluate my own performance.	1	2	3	4	5
25. I am responsible.	1	2	3	4	5
26. I am able to focus on a problem.	1	2	3	4	5
27. I am aware of my own limitations.	1	2	3	4	5
28. I can find out information for myself.	1	2	3	4	5
29. I have high beliefs in my abilities.	1	2	3	4	5

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Appendix F

Letter to Administrator, Dean or Chairperson in Schools of Nursing

Dear Administrator, Dean or Chairperson,

My name is Maria Grandinetti. I am a doctoral candidate in the Doctor of Philosophy (PhD) program at Widener University School of Nursing and have been a nurse educator for 5 years. I am interested in advancing the current knowledge of self-directed learning readiness in nursing students. My dissertation research is centered on the predictors of self-directed learning readiness of prelicensure sophomore baccalaureate nursing students. Student participation is important to advance the current body of knowledge of self-directed learning readiness, and help determine variables that predict this phenomenon. Studying self-directed learning readiness of students in undergraduate nursing programs is also a strategy to address rising attrition in schools of nursing.

The proposal for doctoral dissertation research has already been approved by Widener University's School of Nursing, and participant solicitation and recruitment has been approved by Widener University Institutional Review Board.

I am requesting permission to collect data at your institution and will need the help of one sophomore level nurse educator in your school to assist with subject recruitment and data collection among students.

Students will be invited to participate in this study in order to examine self-directed learning readiness for their education in nursing. Student participation in this study is voluntary. There are no expected risks or direct benefits to students who complete the questionnaire. All participants will be permitted to discontinue the questionnaire at any

time during the study without penalty. There will be no individual cost or compensation for participation in this study. Index cards will be distributed by the nurse educator in your school to all survey participants. Each participating student will be asked to provide their email address on the index card. I will randomly select one index card from your school, and the corresponding student will receive a new stethoscope.

It is anticipated that it will take students approximately 30 minutes to complete the questionnaire booklet. All information collected in this study will be kept strictly confidential and anonymous. It is planned that study findings will be disseminated via a published doctoral dissertation.

I am planning on contacting you by telephone in approximately one week to ask your permission for student participation. At this time, I can provide you with further information about the study. I will then request the contact information of one sophomore level nurse educator at your institution so that I may explain the purpose of the study, and make necessary arrangements to mail the surveys to them. If you should have any questions or comments in the meantime, please feel free to email them to me at [redacted] In advance, thank you for your consideration in assisting with my study.

Sincerely,

Maria Grandinetti MS, RN, PhD (candidate)

Widener University School of Nursing

Chester, Pennsylvania 19013

Appendix G

Email to Sophomore Nurse Educator

Dear Sophomore Nurse Educator,

My name is Maria Grandinetti. I have been granted permission by your (Dean/Administrator/Chairperson) to contact you. I am a doctoral candidate in the Doctor of Philosophy (PhD) program at Widener University School of Nursing and have been a nurse educator for 5 years. I am interested in advancing the current knowledge of self-directed learning readiness in nursing students. My dissertation research is centered on the predictors of self-directed learning readiness of prelicensure sophomore baccalaureate nursing students. I request your assistance in data collection in the form of a questionnaire relating to prelicensure sophomore baccalaureate nursing students. The IRB at Widener University has approved the study.

I am asking that sophomore students in your classroom complete the questionnaire during the month of February 2013, ideally, following an exam, quiz, or classroom activity in which a student is evaluated. A sufficient number of copies of the Letter of Invitation and Explanation of the Study and the questionnaire will be mailed directly to you. It is anticipated that it will take students approximately 30 minutes of classroom time to complete the questionnaire. All information collected in this study will be kept strictly confidential and anonymous.

Once the questionnaires are completed, each participating student will fold the questionnaire in half and seal it with an attached adhesive seal. Each participating student will provide his/her email address on a colored index card which will be

provided. Your assistance is requested to distribute and collect the completed questionnaires and index cards from the students, place them in the self-addressed postage paid envelope, and promptly mail them back to me. It is planned that study findings will be disseminated via a published doctoral dissertation.

Student participation in this study is voluntary. There are no expected risks or direct benefits to students who complete the questionnaire. All participants will be permitted to discontinue the questionnaire at any time during the study without penalty. There will be no individual cost or compensation for participation. As a gesture of my appreciation, I will randomly select one index card from your school, and the corresponding student will win a new stethoscope. In addition I will provide you with a $25 gift card as my thanks for your time and efforts to distribute, collect, and return the completed questionnaires.

I plan to contact you by telephone in approximately one week to make arrangements to mail the necessary materials to collect and return the data and index cards. If needed, I can also provide you with further information about this study. If you should have any questions or comments in the meantime, please feel free to email them to me at [redacted]. In advance, thank you for your attention and assistance.

Sincerely,

Maria Grandinetti MS, RN, PhD (candidate)

Widener University School of Nursing

Chester, Pennsylvania 19013

Appendix H

Letter of Invitation and Explanation of the Study

Dear Nursing Student,

Hello, my name is Maria Grandinetti. I have been a Registered Nurse for almost 20 years and a nurse faculty member for five years. I am a candidate in the Doctor of Philosophy (PhD) program at Widener University School of Nursing, Chester Pennsylvania. I am interested in advancing the current knowledge of self-directed learning readiness of prelicensure sophomore baccalaureate nursing students. You are being contacted by one of your faculty members because you are male or female, 18 years and older, a sophomore nursing student who is enrolled in nursing courses on either a part-time or full-time status in prelicensure baccalaureate nursing programs across the nation.

Your school of nursing is one of the four randomly-selected schools in the United States chosen to participate in this study. Making your school even more special is their chapter membership in Sigma Theta Tau International, the Honor Society for Nursing. I am requesting your participation by completing a questionnaire.

There are no expected risks, direct benefits, or individual cost or compensation to you for completing this research questionnaire. You may discontinue your participation at any time during the study without penalty. Your decision to participate or not will not affect your course grade or standing in the school of nursing. All students who participate by completion of the research questionnaire will be entered in a drawing, with

the opportunity to win a new stethoscope. I am asking you to provide your email address on the enclosed index card.

It is anticipated that it will take you approximately 30 minutes to complete the questionnaire. Your nursing faculty member will provide you the time to do this during nursing class. Upon completion of the questionnaire, close it with the provided adhesive seal, and place it in the collection envelope. All information collected in this study will be kept strictly anonymous. Please do not write your name or other identifying information anywhere on the research questionnaire.

Completion and return of this research questionnaire will constitute your implied informed consent. If you have any questions or comments, please feel free to email them to me at [redacted]. If you have any questions regarding the inclusion of human subjects in this study please call the chairperson of Widener University's Institutional Review Board at [redacted] It is expected that knowledge gained from research will improve the ways in which baccalaureate nursing students learn the art of nursing, and assist nurse educators to better support the efforts of their students. Congratulations and continued success in your journey towards this wonderfully rewarding profession.

In advance, I would like to thank you for your participation.

Sincerely,

Maria Grandinetti MS, RN, PhD (candidate)

Widener University School of Nursing

Chester, Pennsylvania 19013

IMPLIED INFORMED CONSENT

INVESTIGATOR NAME: Maria Grandinetti MS, RN, PhD (candidate)

PURPOSE OF STUDY:

The purpose of this study is to explore how students feel about studying and learning. I am being asked to participate in the study because I am a sophomore level student actively enrolled in a 4-year baccalaureate nursing program.

DESCRIPTION OF THE STUDY:

This study will examine sophomore students' self-directed learning readiness for nursing. I will be asked to complete a series of questions about motivation to learn, learner independence, intellectual curiosity, and self-directed learning readiness (SDLR). I will also be asked some basic information about myself, such as age, gender, and program of study. Answers from this survey will help nursing educators to understand SDLR for nursing in sophomore students. The amount of time required to participate in the study is approximately 30 minutes. There are no costs or compensations to me for being in this study.

RISKS AND DISCOMFORTS:

As a participant in this study, there will be no actual or potential risks or discomforts. If I am uncomfortable reading or answering the questions I can discontinue participation in the study at any time, and for any reason, without penalty to me or my course grade. This can be done by simply returning the incomplete survey to the nurse educator.

BENEFITS:

I will receive no direct benefits from participating in this study. The advancement of nursing science will benefit from the findings of this study. Nursing educators and students will also benefit from the knowledge generated conclusion of study findings.

ALTERNATIVE PROCEDURES:

The alternative procedure is that I do not have to participate in the study. Once the survey is submitted, there will be no way to withdraw the anonymous survey from the data pool.

CONFIDENTIALITY:

All documents and information pertaining to this research study will be kept confidential in accordance with all applicable federal, state, and local laws and regulations. I understand that data generated by the study may be reviewed by Widener University's Institutional Board, which is the committee responsible for ensuring my welfare and rights as a research participant, to assure proper conduct of the study and compliance with university regulations. Only members of Dissertation Committee will have access to raw data. If any presentations or publication results for this research, I will not be identified by name.

This survey is anonymous, which guarantees that I cannot be identified by the researcher. This information will be kept on the researcher's personal, password protected computer. My confidentiality is protected by keeping all submitted responses anonymous. I will not write my name anywhere on the research booklet.

The computer file of data collected from my participation in this study will be kept indefinitely by the researcher. The printed research booklets will be destroyed by shredding, one year after completion of the study.

TERMINATION OF PARTICIPATION:

I may choose to withdraw from this study at any time for any reason prior to submitting my research questionnaire. If I choose to drop out of the study, I can stop completing the survey, and return the incomplete survey to my nurse educator. My research booklet cannot be destroyed after I submit it because my name will not be on the booklet.

COMPENSATION:

I will not receive payment for participating in this study. Participation is this study is strictly voluntary. There will be no cost to me for participating in this research. By completing the survey, I will be entered in a drawing to win a new stethoscope.

INJURY COMPENSATION:

Neither Widener University nor any government or other agency funding this research project will provide special services, free care, or compensation for any injuries resulting from this research. I understand that treatment for such injuries will be at the expense and/or paid through my medical plan.

QUESTIONS:

All of my questions have been answered to my satisfaction and if I have further questions about this study, I may contact [redacted] If I have any questions about the rights of research participants, I may call the Chairperson of the Widener University's Institutional Review Board [redacted].

VOLUNTARY PARTICIPATION:

I understand that my participation in this study is entirely voluntary, and that refusal to participate will involve no penalty or loss of benefits to me. I am free to withdraw or refuse consent, or to discontinue my participation in this study at anytime with penalty. By completing this survey I voluntary give my informed consent to participate is this research study. My completion and submission of this survey constitutes my informed consent to being a participant in the study.

Appendix I

Email to Winning Student

To Whom It May Concern,

Recently you participated in a research study that investigated the Self-Directed Learning Readiness of Prelicensure Sophomore Baccalaureate Nursing Students. Following the completion of the questionnaire you were asked to provide your email address on a blank index card. These cards were collected and returned to me. I randomly selected your index card. You are the winner of a new stethoscope. Congratulations!

Your new stethoscope will be promptly mailed via certified mail, return receipt requested, to the nurse educator who administered the study. Please contact this person to pick up the stethoscope. I would like to thank you for participating in this study.

Sincerely,

Maria Grandinetti MS, RN, PhD (candidate)

Widener University School of Nursing

Chester, Pennsylvania 19013