Advancing Interprofessional Education: A Quantitative Study Exploring Interprofessional Learning Orientations of Registered Nurses in a Post-Licensure and Advanced Practice Degree Program

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Abstract

The purpose of this quantitative study was to examine the interprofessional learning (IPL) orientations of registered nurses (RNs) returning to school to further their education. Among RNs, there was an association between the IPL mean score and the self-efficacy mean score. Participants on average scored similar IPL (4.032) and self-efficacy (3.820) mean scores. In addition, the standard deviations of IPL (0.763) and self-efficacy (0.673) were similar, indicating that there was an association between these two variables. The study also explored the relationships between interprofessional learning orientation (IPLO) and career variables, age, tenure in the field of nursing, workplace, and program of study. The data revealed that increased values of three of these variables (age, self-efficacy, and the dummy-coded variable representing the Masters of Science in Nursing (MSN)) were significantly associated with higher IPLOs. The other variables (tenure in the field of nursing and workplace) presented a less significant association. The former three variables allowed for a better prediction regarding the interaction between the student and IPL training.

Keywords: interprofessional, interprofessional learning, nursing education, collaboration
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Chapter 1 Introduction

This doctoral thesis seeks to explore the interprofessional learning orientation of nursing students enrolled in post-licensure and advanced practice educational programs. The organization of this chapter consists of several sections. First, there is a general overview of the topic, followed by a description of the problem of practice, the purpose of the study, and research questions and hypotheses. Next comes the conceptual framework, then a description of the methodology. The final sections include a discussion of the significance of the project, assumptions, definitions, and a summary.

Overview

The complexity and integrated nature of health-care delivery have increased over the past several decades for a myriad of reasons. Rapidly changing information and technologies together with an increase in the number of chronic conditions and the level of patient acuity in the hospital setting has challenged the traditional single-practitioner model for patient care, and added to the propensity for medical errors. The Institute of Medicine (Institute of Medicine [IOM], 2001) noted that as many as 98,000 preventable deaths occur per year due to the lack of interprofessional collaboration and effective communication. The Centers for Disease Control reported that, by 2030, the number of Americans aged 65 or older will rise to 72 million and will account for 20% of the U.S. population. This will cause an increase in health-care needs (Centers for Disease Control and Prevent [CDC], 2013). These numbers show the strain the single provider system faces in the coming years. This strain will increase the potential for medical errors, and suggests the need for interprofessional collaboration to provide improved health-care delivery initiatives (IOM, 2010). Subsequent reports discovered a thematic commonality within health care: The health-care workforce is unprepared to create health-care teams.
Educating students in discipline specific manner offers little opportunity for them to learn about the scope of practice of other professions or the creation of interprofessional teams. The silo structure of nursing education is a prime example of the potential barrier to successful interprofessional learning (IPL) endeavors (Meleis, 2016). As George Thibault, MD, president of the Josiah Macy Jr. Foundation, said in a press release from the Robert Woods Johnson Foundation: “We know that health care delivered in teams is better health care. But we will never be able to change the delivery system until we change how health professionals are educated” (RWJ, 2012).

**Problem of Practice**

There are more than 3.1 million registered nurses (RNs) in the United States, which makes nurses the largest single component of hospital staff, the primary providers of hospital patient care, and the group delivering most of the nation's long-term care (Bureau of Labor Statistics, 2014). The nursing staff is an intricate part in both patient-care and health-care teams. They traditionally spend more hours in direct contact with patients than most other professions do (Netherwood & Derham, 2014). Nursing, as a profession and an academic discipline, seeks to initiate IPL in order to prepare RNs for expanding their professional knowledge and understanding of what it means to be a part of a collaborative health-care team. The implementation and adoption of IPL has been successful in European, Canadian and Australian nursing and other health-professions programs, but the United States is still behind (Brandt & Schmitt, 2011). The structure of nursing education is an area that must be considered in order to identify possible barriers in the development of new IPL endeavors.

There are various levels of academic preparation available to become a registered nurse. A student may take the National Council Licensure Examination for Registered Nurses.
(NCLEX-RN) after completing a diploma program, associate, bachelor, or master’s degree (Spector, 2009). After becoming a registered nurse (RN), nurses may also elect to further their education after a basic licensure program. For example, a nurse with an associate’s degree may enroll in an RN to BSN program to earn a post-licensure degree (i.e., a BSN, a Bachelor of Science in Nursing). A nurse with a BSN may enroll in an advanced practice program, gaining an MSN (a Master of Science in Nursing), an FNP (Family Nurse Practitioner) degree, or a DNP (a Doctorate in Nursing Practice). Incorporating interprofessional learning activities into the nursing curriculum under this structure would bring those with a registered nursing license in the same classes with students from other disciplines who are not licensed, or have experience in their respective professions.

The multiple entry levels structure of nursing education, is only one of the points to consider. Another would be who is doing the teaching. Traditionally, nurses learn from nursing faculty who hold advanced degrees in nursing (MSN, DNP, and PhD). Students are “socialized” into their profession with an understanding of the roles and values pertaining to their profession (Curran, Sharpe, Flynn & Button, 2010; Love, 2010; Mooney, 2007). This silo approach to education may explain why nurses continue to lack the necessary skills required to be part of interprofessional teams (Reeves et al., 2008; Sullivan, Kiovsky, Mason, Hill, & Dukes, 2015). The silo mentality is an important consideration as the call for interprofessional education (IPE) increases in the United States.

The literature shows there is a growing amount of research associated with the implementation of IPL. Most of this research covers the attitudes regarding IPL of pre-licensure students in health-professions programs or of the faculty (Curran, Sharpe, Forristall, & Flynn, 2008; Davies, Harrison, Clouder, Gilchrist, McFarland, & Earland, 2011; Netherwood & Derham,
Also, there are studies about interprofessional collaboration and teams in the workplace (Alberto & Herth, 2009; Gehlert et al., 2010; Lee, Schneider, Bellefontaine, Davidson, & Robertson, 2012; Scarvell & Stone, 2010). While another group of studies looked at the success or failure of interprofessional teams in the workplace due to the communication and interaction between professions (Havyer et al., 2014; Heale, Dickerson, Carter, & Wenghoferet, 2014; Mills, Neily, & Dunn, 2008; Muller-Juge, et al., 2014; Reeves, Macmillan, & Van Soeren, 2010; Taplin, Foster, & Shortell, 2013; Weller, Boyd, & Cumin, 2014). These studies looked at the broad scope of health professions engaged in some intervention (a program of study, a specific class, or class activity).

The importance of building strong relationships in the academic setting could help decrease the negative interaction between the different healthcare professionals in the workplace. Several studies that looked at workplace issues found that there is still an adversarial relationships between nurses and physicians (Molleman & Broekhuis, 2012; Whitehead, 2011). A significant number of studies focuses on two areas: pre-licensure students engaged in interprofessional learning activities and post-licensure professionals after receiving IPL exposure. There are no studies that compare the results of programs aimed at RNs returning to school bringing the realities of the workplace versus academic IPL program initiatives. To study this population of students seems important in this context: Exploring the positive and negative experiences RNs encounter in the workplace, experiences that influence their ability to engage in IPL and thereby possibly challenge the tenets of IPL, would give researchers a more definitive understanding of the RNs’ attitude towards IPL. These results would allow researchers to explore how self-efficacy affects RNs’ attitude towards an IPL activity or program. Another consideration to ponder is the gap in the literature concerning the Career Factors of the RNs
returning to school and their interprofessional learning orientation. I found no research done on the RNs’ attitudes towards IPL based on age, place of employment or length of time in the field of nursing.

Interprofessional health-care teams provide better patient outcomes (IOM, 2010). As a means of producing collaborative teams, RNs—being the lynchpin of the medical community—are key participants, having the propensity to influence the success or failure of interprofessional teams (Sullivan, et al., 2015). The IOM and the World Health Organization (WHO) recommend the implementation of IPL to provide learning opportunities within the curriculum, in order to develop a better understanding of the roles and relationships between disciplines that support interprofessional teamwork in healthcare (Sullivan et al., 2015). The structure and implementation of such programs align with pre-professional or pre-licensure academic paths.

When RNs return to school for degree advancement, they will share their interprofessional experiences with students at the pre-licensure level. They’ll bring a different set of attitudes, drawn from experiences in the workplace, along with their views towards interprofessionalism. They could influence the educational environment in a positive or negative manner depending on their workplace experience, thus creating an atmosphere that would potentially challenge the tenets of interprofessional education and the IPL experiences designed by such programs. Therefore, the increasing numbers of RNs returning to the classroom may influence an IPL experience and warrants consideration.

**Purpose of Study**

The purpose of this quantitative doctoral thesis was to explore the interprofessional learning orientations of registered nurses enrolled in a post-licensure or an advanced practice degree program.
Research Questions and Hypotheses

The following research questions, based on the identified gap in the literature, were:

Question 1: Is there an association between a nurse’s self-efficacy and his/her interprofessional learning orientations?

H10: There is no association between a nurse’s self-efficacy and his/her interprofessional learning orientation.

H1: There is an association between a nurse’s self-efficacy and his/her interprofessional learning orientation.

Question 2: To what extent are the characteristics of age, workplace, tenure in the field, and program of study, associated with the interprofessional learning orientations of nurses seeking a post-professional or advanced practice degrees?

H20: There is no association between age and IPL.

H2: There is an association between age and IPL.

H30: There is no association between workplace and IPL.

H3: There is an association between workplace and IPL.

H40: There is no association between tenure in the field and IPL.

H4: There is an association between tenure in the field and IPL.

H50: There is no association between degree program and IPL.

H5: There is an association between degree program and IPL.

In order to critically evaluate an hypothesis it is important to build a conceptual framework that allows the researcher to explore the relationship between the variables (Creswell,
The next section will look at social cognitive theory as the conceptual framework for this thesis.

**Conceptual Framework**

RNs bring a wealth of knowledge and skills to the classroom based on their experiences in the workplace. However, they may or may not feel they have the self-efficacy to adapt to the IPL environment. In the workplace, the RN may have little say in team decisions because the physician is considered the primary decision maker with support from hospital administration. This type of scenario creates a negative outlook on interprofessional teams, which the nurses will bring to the learning environment. Nurses may feel they have no power in making changes due to what they see in the workplace. This attitude will influence their ability to learn when an interprofessional learning environment. Such attitudes (formed by the workplace environment), behavior, and unwillingness to embrace the tenets of the collaboration create barriers for faculty seeking to initiate IPL. Given that the scope and purpose of this study was to look at the interprofessional learning orientations of RNs, social cognitive theory was used as the theoretical framework for interpreting the findings of this study, because this theory is aligned with the goals and primary research questions that guided the inquiry of this study. Social cognitive theory was the most appropriate lens to explore the effects that age, place of employment, tenure in the field of nursing, program of study, and self-efficacy have on the IPL orientations of nurses.

**Social Cognitive Theory**

Social cognitive theory (SCT) is the final rendition of Bandura’s work on social learning theory including the construct of self-efficacy (Bandura, 1986). Based on the seminal work of Miller and Dollard (1941) and Rotter (1960), Bandura proposed that learning comes from the
interactions within a social context. He later adopted cognitive psychology concepts, expanding the theory into SCT, and concluding that an individual learns not only from general experience but from observing others’ actions and the benefit of those actions (Bandura, 1986).

The basic premises of SCT are that the reciprocal interactions among an individual’s personal, behavioral, and environmental situations influence behavior; and the level of motivation needed for success in these situations is based on elements of observational learning and modeling (Bandura, 1977, 1986; Glanz, Rimer, & Lewis, 2002). Each individual interacts through what Bandura (1986) referred to as the five basic human capabilities: symbolic, vicarious, forethought, self-regulation, and self-reflection. Edberg (2015) looked deeper into SCT factors, including those subcategories described in social learning theory. These attitudinal subcategories are consistent with applying the theory to practice. SCT is a theoretical framework used in health education and public health (Edbert, 2015).

The theory espouses a bidirectional influence that can change behavior; however, the factors might not affect behavior equally (Bandura, 1986). There are environmental factors that affect a person’s behavior. For example, a nurse who engages in an interprofessional learning experience may be strongly influenced by the interactions that occur in the health-care setting (workplace) or the type of program in which the nurse may be enrolled (environmental factor). The nurse bears the results of the interactions in terms of nurse’s behavior and attitude (positive or negative) towards the IPL experience, behavior and attitude that are perpetuated through the self-efficacy of the nurse.

Self-efficacy refers to an individual’s beliefs about his or her abilities and potential (Bandura, 1977, 1986) and is a construct of SCT. Poor performance can be emotionally rooted or stem from anxiety; it may hamper the confidence of a person, thus validating the relationship
between self-efficacy and an individual’s perception of his or her ability to be successful (Bandura, 1977). Bandura (2001) purports that unless individuals believe in themselves and their capabilities, they will not succeed; to succeed it is necessary to believe that one’s actions can produce results and have positive effects (Roessger, 2012). The importance of self-efficacy is supported by current research. In the context of health-care teams in the health-care setting, a nurse’s self-efficacy is influenced by the environment and personal factors such as age. In turn, a nurse’s self-efficacy influences the effectiveness of the interprofessional learning experience. Nurses who feel they are not members of a successful team may elect to discredit the effectiveness of health-care teams and create barriers to an interprofessional educational experience.

The literature reflects the use of SCT to explicate the behavior of both individuals and groups (Bandura, 1986, 1999, 2001; Benight & Bandura, 2004; Edberg, 2015; Pajares, 2002; Wallace, Buckworth, Kirby, & Sherman, 2000). SCT addresses individual attitudes regarding self-efficacy and personal abilities to perform behaviors to achieve desired outcomes. Advocates of SCT argue that behavior depends on the interaction of a triad of variables or factors, including personal factors, behavior, and the environment (Bandura, 1986).

SCT also acknowledges that the social environment can have a significant impact on behavior. The social environment was pertinent to the current study because the researcher explored the relationship between the attitudes of students towards IPL and the possible effects such attitudes have on the effectiveness of IPL academic programs. Figure 1.1 is a graphic representation of how SCT acts as the conceptual framework for this study. The relationship between the self-efficacy and IPL, and the bidirectional influence of environment, personal
factors, and behavior, are factors that this study can use to help understand the behaviors and attitudes of the RN towards interprofessional learning.

![Diagram]

Figure 1.1. Interprofessional learning based on SCT and the construct of self-efficacy.
**Research Overview**

The purpose of this quantitative research was to explore the interprofessional learning orientations of RNs enrolled in post-licensure and advanced degree programs. Quantitative research uses a systematic empirical investigation of social phenomena that describes trends and explains relationships among variables (Creswell, 2012).

The population in this study included nursing students within the Department of Nursing at Governors State University (GSU), an Illinois public university. The study was a convenience sample because GSU was the employer of the researcher engaged in the Interprofessional Education Initiative for the College of Health and Human Services and said researcher had access to the students in the nursing program. The researcher chose this group because of the uniqueness of the program: All students were RNs, and there were no pre-licensure students enrolled. The students were working RNs, currently enrolled in baccalaureate completion (RN to BSN), master’s in nursing (MSN and FNP), and doctoral (DNP) programs to advance their careers.

The Governors State University RN-BSN program is completely online and include students not only from Illinois but from other states as well. This was one of the main reason why the survey was made available online rather than paper-based. The researcher hoped that this method of distribution would make the survey more accessible and thus more students would participate. Creswell (2012) suggested that survey instruments should be kept short and that modest incentives should be used to improve response rates. Following Creswell’s recommendation, upon completion of the survey (26 questions and four Career Factors questions), the participants had the opportunity to enter a drawing for a Kindle Fire. Figure 1.2 offers a graphic depiction of the three phases of this study.
The study used a cross-sectional survey method that allowed for data collection and statistical analysis using a type Likert scaled closed-ended questionnaires and career factors data. The researcher used a modified version of two survey tools to collect data for this study: the combined Readiness for Interprofessional Learning Scale (RIPLS) survey, developed by Parsell and Bligh (1999) and modified by Curran, Sharpe, Forristall, and Flynn (2008); and the Generalized Self-Efficacy Scale adapted from Schwarzer and Jerusalem (1995). The 12 items from the GSE instrument are theoretically grounded in Bandura's concept of self-efficacy at task level, the 14 items of RIPLS are grounded in practice of Interprofessional Learning, and the final section includes factors associated with workplace, program of study, and age.

This study explored the association between the variables, in particular the degree and direction. The degree (correlation coefficient) pertains to how close the variables are associated; the direction of the relationship is stated in terms of positive (+) or negative (-). The survey consisted of 26 5-point Likert Scale questions and 4 career factor questions.
Significance

Previous studies concluded that it would behoove higher education program administrators beginning to create curricula inclusive of IPL (helping to prepare the health-care workforce for collaborative practice) to assess their existing programs to determine students’ current attitudes and perceptions on learning in an interprofessional environment (Curran et al., 2008; Mager & Lange, 2014). Previous studies in the field of interprofessional education and interprofessional learning focused on either the influence of IPL in the workplace, attitudes within the academic setting for IPL, or team dynamics predominantly from either the perspective of pre-licensure students or the perspective of faculty in pre-licensure program. In contrast, the purpose of this study was to explore the interprofessional learning orientation of registered nurses enrolled in post-licensure and advanced practice degree programs, that is of registered nurses enrolled in school in order to advance their education after being in the workforce.

As a scholar-practitioner, this researcher sought to contribute to the discourse, by providing insight into how to develop and improve the quality of the programs by looking at RNs interacting with other pre-licensure health professions and students. This doctoral thesis provided the department of nursing at a Midwestern university with data so it could make informed decisions on the implementation of IPL and adjustments to curricula based on the readiness of RNs coming from the workplace to engage in IPL activities. The study also provided a baseline for additional studies that might have a unique contribution to team research by exploring the relationships between professional education and the ability to work with others in interprofessional programs. Moreover, the present study added to a growing higher education research stream, by contributing new data to the overall outcome of nursing program development.
Assumptions

This study called for the assumption that the participants would be honest and forthright in answering the survey. According to Merriam (2005) and a social constructivist viewpoint, people interpret their lived experiences through different lenses at different points in time. The assumption was based on a social viewpoint. The researcher assumed that individuals socially construct meaning as they interact with their world. Hence, students returning to school will have varied attitudes depending on their personal experiences as RNs. The researcher also assumed that nurses would agree to participate promptly. Lastly, the researcher concluded that the administration of the survey instrument SurveyMonkey™ was proper.

Definitions

The literature shows that there is no one set taxonomy in reference to interprofessional learning. The terms *interprofessional education* and *interprofessional learning* are often used interchangeably, which may confuse the reader. Chapter 2 provides a robust discussion of the semantics, but at this point the researcher would like to clarify some of the language used in this thesis, in order to stay true to the spirit of the authors and organizations cited. The researcher chose to define the term *interprofessional education* (IPE) as an overall curriculum or program of study, and *interprofessional learning* (IPL) as the learning activity, course, experience, or basic interaction between two or more disciplines. However, the main focus of this thesis was the attitude of RNs towards IPL. Therefore, the researcher elected to use the term *IPL* to represent the concepts of IPE. The additional definitions used throughout this thesis are found in Appendix A.
Summary

This chapter provides an introduction, problem statement, purpose, research questions, conceptual framework, an overview of the research, definition of the key terms, and potential significance to the field. Academic nursing programs must follow the edicts of the discipline in order to be accredited, offering little opportunity to learn about the scope of practice of other professions or the creation of interprofessional teams. The silo structure of nursing education is a prime example of the potential barrier to successful IPL endeavors. Because of the increased numbers of RNs seeking advanced degrees, the researcher chose SCT as the conceptual framework in which to explore the interprofessional learning orientations of the RNs.

Chapter 2 offers an extensive review of the literature related to the constructs of interprofessional learning. Chapter 3 provides, in detail, the rationale for the methodology chosen and the process for conducting the study. Chapter 4 provides the analysis of the findings, and Chapter 5, the discussion of the findings obtained from the research questions.
Chapter 2 Literature Review

The purpose of this literature review was to explore the current research that follows the ethos of interprofessional learning, the association of IPL with social cognitive theory, and its implementation in nursing programs. The researcher used CHINAL, Proquest, EBSCO, PUBMED, JSTOR, Web of Science, and the Northeastern University library system to search the literature using the terms collaboration, interprofessional, interdisciplinary, interprofessional education, nursing education, social cognitive theory, and self-efficacy. The study specifically focused on nursing for two reasons. The first reason is that the structure of nursing education allows for multiple levels of entry to practice (licensure). The second reason is that there are a large number of registered nurses seeking additional education in order to advance their careers.

This chapter consists of three main sections. The first section explores the tenets of interprofessional learning (IPL), including insight into the semantics of interprofessional learning, academic silos, history, and current research in interprofessional education. The second details the conceptual framework this study employed to address the questions raised by the research questions. The third section looks, specifically, at nursing education and the research associated with IPL. The last part of this section identifies the gap between nursing education and interprofessional literature which was the reason of this study, which purpose was to feel this gap.

Interprofessional Learning

The United States health-care delivery system—consisting of public health, for-profit and nonprofit health care organizations, health-care professionals and employers—recognizes the importance of a team-based approach to health-care. In recent years, the health care has become increasingly more complex and integrated, meaning that the health care delivery has switched
from the traditional, single health-care provider to a patient-centered care provided by a health-care team. Research indicates that interprofessional teams improve the quality of care, lower the costs, lessen the length of the patient hospital stay, and decrease medical errors (Bauman et al. 2014; Légar, et al. 2013; Sullivan, Kiovsky, Mason, Hill, & Dukes, 2015). The concept of team requires collaboration on the part of health-care providers (Bauman et al., 2014; Légar et al., 2013; Freeth & Fry, 2005).

But despite the benefits that working in collaborative teams seem to provide, other studies have shown that, sometimes, health-care professionals fail to communicate and cooperate effectively, which has tragic consequences for the patients’ outcomes (Baker & Durham, 2013; Burley, 2011; Greenwood & Heninger, 2010). Health-care professionals continue to work within the boundaries or silos of their professions. Historically, the structure of health-care professional education is discipline-bound and reinforced in clinical training. Therefore, reversing the singular professional outlook is paramount in order to prepare health-care professionals to work in teams. Interprofessional education is one means of reversing the current silo system.

Interprofessional education (IPE) offers a pedagogical approach to educate students in an interactive, collaborative educational process. It provides an opportunity for students to be cognizant of the roles and responsibilities of other professions besides their own. By participating in IPE initiatives, students become aware of the possibilities of working together as members of interprofessional teams in a complex health-care delivery system. The implementation of IPE curricula provides a foundation for improving health-care delivery, increasing awareness of other professions, and creating new approaches to best practice in the clinical setting. This subsection explores the meaning of disciplinary silos; the history of IPE
including semantics, competencies, and standards; and the literature pertaining to the interprofessional experiences referred to as IPL.

**Brief History and Application of IPL**

As previously mentioned, interprofessional collaboration in the workplace and in education are not new topics. Articles referencing the need for collaboration between and among health-care professionals were published during World War II (Baldwin, 2007), at a time when it was imperative for the health-care providers to band together in a common cause for the delivery of the best health care possible both at home and abroad. This era marked the beginning of a broader scope approach to health care practice, which brought subsequent changes to the health professions, and placed a greater emphasis on primary-care practice and teamwork among health professionals (Barr, 2013).

During the 1960s and 1970s, the introduction of IPL predominately took place in the United Kingdom (U.K.) and United States (U.S.) (Barr, 2010). The Institute of Medicine broached the topic of interdisciplinary team-based education (IOM, 2003) first, then the World Health Organization (WHO) emphasized the education and training of health-care professionals (nurses and physicians) in a community and primary-care environment (World Health Organization [WHO], 1978). Concerns affecting the quality of care, patient safety (Mills et al., 2008), and the contentious relationships among health-care professionals pushed forward IPL (Anderson, Thorpe, & Hammick, 2011). The premise of the early initiatives was that teamwork and collaboration help not only to meet the patients’ needs, but to ameliorate the tensions among health-care professionals as well (Barr, 2009).

Throughout the 1980s, interprofessional programs became better recognized nationally and internationally. Ten years after the initial WHO publication (1978), a follow-up publication
asserted that interprofessional programs were a major factor in education because they prepare health-professional students meet the needs of the global health-care community (WHO, 1988). The Center for the Advancement of Interprofessional Education (CAIPE) was established in 1987 to encourage IPE efforts in the UK and elsewhere (Blue, Brandt, & Schmitt, 2010). In 1992, the creation of the Journal of Interprofessional Care (Barr, 2009; Buring et al., 2009) gave scholars and practitioners a venue in which to publish and discuss issues related to IPL. Deeply committed to interprofessional scholarship and learning, the journal help establish IPL as “a disciplined activity, grounded in scholarship and worthy of a place in academe” (Barr, 2009, p. 5).

In 2001, the IOM published Crossing the Quality Chasm: A New Health System for the 21st Century, urging the academy to consider the restructuring of health-professions education from a discipline-based format to an interprofessional practice. Again, in 2003, another IOM report, Health Professions Education: A Bridge to Quality, continued the charge and recommended that all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice quality improvement approaches (Committee on the Health Professions Education Summit, 2003). To do so required a concerted effort on the part of health-professions education faculty to introduce the concepts and interactive structure of interprofessional education to students as recommended by the IOM, breaking down the professional silos traditionally found in the academy (Frenk et al., 2010, Meleis, 2016).

But regardless of these strongly supported recommendations, health professions continued to educate in academic silos, allowing each discipline to control accreditation standards, create curricula, and teach content and clinical skills indicative of the profession
within the individual program (Frenk et al., 2010; Hogg, 2007; Smith & Clouder, 2010; Sullivan et al., 2015), making it difficult to integrate IPL into health-care academics. By creating a curriculum based on theories, language, history, and attitudes indicative to the specific discipline, the professions preserve the cultural boundaries that maintain their professional identities, scopes of practice, and roles within the health care industry. Academic programs must follow the edicts of the discipline in order to be accredited, which allows students—upon successful completion of the program—to sit for a licensure exam. Educating students in such a manner offers little opportunity to learn about the scope of the professional practice in other professions. The silo structure of nursing education is a prime example of the potential barrier to successful interprofessional learning endeavors.

**Disciplinary Silos**

Developing effective programs can be challenging given that the roots of the professional disciplines have long held a silo mentality (Barr, Freeth, Hammick, Koppel, & Reeves, 2006; Margalit et al., 2009). In order to understand better the professions and professional disciplines, it is imperative to be familiar with the scope of practice of the particular field of practice. Aram (2004, p. 38) described disciplines as “thought domains, quasi-stable, partially integrated, semi-autonomous intellectual amenities consisting of problems, theories, and methods of the investigation.” Becher and Trowler’s (2001) felt a discipline consisted of individuals with a shared interest and who have an explicit ordering or process of knowledge designed to explore particular areas of inquiry in the exchange and development of knowledge.

Disciplinary pedagogies create barriers to finding a common taxonomy that fosters the dialog required for interprofessional learning to take place (Meleis, 2016; Smith & Clouder, 2010). Disciplines within the health and human services domains—such as medicine, nursing,
physical therapy, psychology, social work, and occupational therapy—are labeled professions. Students are educated and socialized within these disciplinary systems. Upon graduation, they continue this process, being mentored through membership in corresponding professional associations, conferences, discipline-specific publications, and on-the-job mentor programs. This perspective views the discipline as a “heterogeneous social system composed of individuals with varying commitments to ideas, beliefs, and methodologies and each other” (Lattuca, 2001, p. 25). The result is a culture whose members embrace the same social norms regarding behavior and scholarship, and a culture with a distinct hierarchy that exists both within and across the different health-care professions. This dominant system impedes communication between and within disciplines, highlighting the need to establish a common language for an open dialogue to occur (Meleis, 2015; Smith & Clouder, 2010). The socialization process within disciplines promotes professional commitment and solidarity but impedes collaboration across disciplines.

Semantics of Interprofessional Learning

The health care field has a distinctive terminology, which is often confusing to the nonmedical person; likewise the field of education also has its own distinctive terminology. The interpretation of interprofessional collaboration and interprofessional education are essential to understanding the previous research in this area. However, there is not an official taxonomy that would ensure consistent meaning across all disciplines. Although some terms appear to be clear in one context, when used across disciplinary boundaries their meaning becomes confusing.

There are several types of teams mentioned under the collaborative umbrella with different titles. The interchangeable terms interprofessional and interdisciplinary used in the literature can bewilder the reader (Nancarrow et al., 2013). The term disciplinary is a designation primarily used in the academic research area. The prefixes multi-, inter-, intra- and trans-
indicate the number of disciplines participating in the team. The term *interprofessional* is prevalent in the workplace. However, *interprofessional* is becoming the term of choice when referring to health-professions education (Nancarrow et al., 2013).

The interpretation is not always the same, as there is no official definition of the meaning of the various teams. The most widely accepted definitions of the different types are those of Rosenfield (1992), who explained the differences among multidisciplinary, interdisciplinary and transdisciplinary teams. A multidisciplinary approach implies several areas of expertise or disciplines coming together—working independently or sequentially through the lens of their particular discipline—to exchange information without integrating the services (Reeves et al., 2008; Kenaszchuk, Reeves, Nicholas & Zwarenstein, 2010; Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). Based on the description of multidisciplinary and interprofessional, the literature noted the terms can be interchangeable. Both refer to members working in a coordinated manner, depending upon the patient’s needs, condition, or disease for the purpose of planning and implementing treatment programs for complex medical conditions (Brooks & Thistlethwaite, 2012). Alberto and Herth (2009) found that terms such as *teamwork, team, interdisciplinary, multidisciplinary, interprofessional, and transdisciplinary* are interchangeable with *interprofessional collaboration* in the literature. There is often confusion among professionals interested in collaborative initiatives on what type of project they are joining exactly, given the many terms used. Additionally, Alberto and Herth (2009) supported the definitions of multidisciplinary collaboration as being disciplines working side-by-side, anchored in their own respective disciplinary perspectives. Expanding on the multidisciplinary definition, transdisciplinary collaboration develops a shared conceptual framework between traditional discipline boundaries in order to respond to common problems (Alberto & Herth, 2009, p. 2).
The research purports that interprofessional collaboration moves beyond the scope of *transdisciplinary* by transcending separate disciplinary perspectives, integrating resources, skills, methodology, and procedures (Adler & Stewart, 2010; Alberto & Herth, 2009).

*Interdisciplinary* offers a greater exchange of information and closer coordination among researchers from various fields; however, researchers remain anchored in their respective disciplinary models and methodologies. Once again, this term is interchangeable with *interprofessional* and can again confuse the reader. *Transdisciplinary* provides the most integrative approach as professionals’ work assimilates and extends discipline-based concepts, theories, and methods creating new integrated knowledge (Adler & Stewart, 2010). By engaging in research to create innovative prevention and treatment methods, transdisciplinary teams align with academic health care centers.

*Interprofessional* has become the term most often associated with collaboration in health-care literature as the modernized version of the older terms *interdisciplinary* and *transdisciplinary* (Lomax & White, 2015). All the teams contribute to interprofessional collaboration to improve health-care outcomes. The underlying definition states that two or more disciplines learn from one another to share a common meaning to their problem-solving actions. While conducting the literature review, the researcher noticed that each author has his/her own interpretation of the semantics. Attempting to stay true to the spirit of the authors and organizations cited in this doctoral thesis, the researcher chose to define interprofessional education (IPE) as an overall curriculum or program of study and interprofessional learning (IPL) as a learning activity, course, experience or basic interaction between two or more disciplines. However, the main focus of this thesis was the attitude of the RNs towards IPL;
therefore the researcher elected to use the term \textit{IPL} to represent the concepts of IPE. Therefore, this study will use the terms interchangeably as they appear in the articles referenced.

IPL, although not a new concept, promises to be the catalyst for improving health (i.e., medicine, nursing, pharmacy, physical therapy) and human (i.e., social work, counseling, health administration) services, academic programs and health-care teams in the workplace, ultimately providing better patient outcomes. The WHO (2010, p. 13) considered IPL occurred when “two or more professionals learn about, from and with each other to enable effective collaboration and improve health outcomes.” Based on the work started by the WHO and IOM, new organizations specifically focusing on interprofessional collaboration and interprofessional education expounded on the meaning of IPL, giving a more robust definition. The Center for Advancement of Interprofessional Education (CAIPE, 2002) defined IPE as the process of teaching and learning, fostering collaborative work that improves the quality of care between two or more professions and occurs when students gain knowledge with, from, and about each other. The Canadian Interprofessional Health Collaborative (CIHC, 2010) went a bit further by expanding the CAIPE definition to include the concept of learning collaboratively within and across disciplines in order to attain the requisite knowledge, skills, and values necessary for working with health-care teams. Lastly, the Interprofessional Education for Collaborative (IPEC) added three action-driven components: (a) socialize health-care professionals to work together; (b) develop mutual understanding and respect for various disciplines; and (c) communicate the collaborative practice competencies; the IPEC thus made the definition more comprehensive (IPEC, 2011a; IPEC, 2011b).

D’Amour & Oandasan (2005) and Reeves et al. (2008) contained descriptions for IPE following the lines of CIHC and CAIPE, but expanding the interpretations to include the
intervention to achieve a less fragmented system of care where professionals cohesively practice
in an integrated format. D’Amour and Oandasan (2005, p. 9) deemed IPE to be the blending of
disciplines in order to “reflect and develop ways of practicing that provides an integrated and
cohesive answer to the needs of the client/family/population.” Reeves et al. (2008) felt that the
purpose of IPE was to be a means for working collaboratively to ensure patient care. They
defined IPL as any training, teaching, or learning activity with two or more disciplines
interactively learning as a means to collaboratively working towards effectively caring for
patients.

According to the literature, the lack of a concise definition of IPE or a full description for
a means of achievement means that the effective implementation will continue to be problematic
(D’Amour & Oandasan, 2005; Olenick, Allen, & Smego, 2010; Sullivan et al., 2015). To
complicate the situation, the two terms, interprofessional education (IPE) and interprofessional
learning (IPL), appear in the literature interchangeably depending upon the physical location of
the writers and researchers. Studies and articles from Europe reference IPL, while those from the
United States prefer IPE. The literature shows that there is no one set taxonomy for
interprofessional learning. In attempting to stay true to the spirit of the authors and organizations
cited, the researcher chose to use the terms interprofessional education (IPE) as an overall
curriculum or program of study, and interprofessional learning (IPL) as the learning activity,
course, experience, or basic interaction between two or more disciplines.

**Interprofessional Learning Research**

There is a growing body of research focused on the tenets of IPL. Van Schaik, Plant,
Diane, Tsang & O’Sullivan (2011) assessed a simulation-based IPL team-training program with
health professionals, and found a positive impact on the self-efficacy of medical residents and nurses after participation in a real code situation and an overall positive effect on the culture of team collaboration. The qualitative research done by Woodroffe, Spencer, Rooney, Le, and Allen’s (2012) further reported a positive shift in the attitudes of pharmacy, nursing, and medical students toward interprofessional teamwork. In contrast, Gallagher, Cooper, and Durand (2010) reported that students’ attitudes regarding a team approach to health care did not significantly change because of this experience. Two of these studies were done with pre-licensure students, and their results show two different findings. The third study was performed within a workplace environment with early career (medical residents) and registered nurses who had participated in an interprofessional learning experience.

Previous studies (Gallagher, Cooper, & Durand, 2010; van Schaik et al., 2011) explored student’s negative perceptions of other health professions, but had not fully explored these perceptions, nor how these perceptions might contrast with how students view their own future profession. Seeing this as a possible barrier to IPE, Michalec, Giordano, Arenson, Antony, & Rose (2013), conducted a survey study (based on social identity theory) of 638 students from six different health-profession educational programs, assessing their perceptions and stereotypes of their own and other health professions. ANOVA and MANCOVA analysis showed that regardless of the discipline, a high degree of variability existed in the students’ perception of each profession; however, students rated their own profession the highest. The authors suggested that “the lack of adequately formulated ‘professional-in-training’ identity, as well as the formidability of anticipatory socialization, help to foster and perpetuate these stereotypes and that IPE programs have the potential to exacerbate these negative perceptions” (Michalec et al., 2013, p. 202).
Comparably, Davies et al. (2011) conducted a study with 97 third-year students in the United Kingdom. The mixed method study aimed to ascertain the individual perceptions of IPL as well as the IPE experiences that these students—in the final year of their program—felt were beneficial. Davies et al. (2011, p. 141) discovered that 31% of the students felt that interprofessional learning helped them with other courses, 58% thought interprofessional modules were clinically relevant, and 69% found that interprofessional learning during clinical placement was significant. The results also identified that IPL had a positive impact on clinical relationships in 45% of the students, and that 47% found that working as part of an interprofessional team was beneficial. Interestingly, only 35% reported a better understanding of their professional role. Davies et al. (2011) concluded that there are benefits in interprofessional learning; such benefits include improved patient outcomes because practitioners were more knowledgeable and respectful of each other’s roles, leading to positive attitudes that promote a team approach to patient care. Unlike previous studies that surveyed more than one discipline, Davies et al. (2011) evaluated only physiotherapy students; but like previously mentioned studies, the students were at a pre-licensure status.

In addition, a study conducted by Ateah et al. (2011), based on Allport’s contact theory, considered whether attributes of health professionals were changed by interprofessional education. The sample of students was randomly assigned to a control group, a classroom education group, or an immersion group. Both the immersion group and the education group received a two-and-a-half-day didactic IPE experience; however, the immersion group also had a clinical experience. Pre- and post-test measures used the Student Stereotypes Rating Questionnaire (SSRQ) to measure interpersonal skills, professional competence, leadership,
academic ability, ability to be a team player, independence as a worker, confidence, decision-making abilities, and practical skills (Ateah et al., 2011, p. 210).

Similar to Michalec et al. (2013), Ateah et al. (2011) chose an ANOVA for comparisons between groups in order to identify demographic and learning-information trends. A two-way repeated measures ANOVA with post hoc tests explored differences between groups with 0.05 as probability. The results indicated no significant differences between demographic traits or programs of study. The results specific to physical therapy student confidence reported the average confidence of students at baseline for physical therapy was 4.14 and increased to 4.63; as compared to 4.29 to 4.56 for dental hygienists; 4.47 to 4.81 for dentists; 4.73 to 4.87 for physicians; 4.15 to 4.69 for nurses; and 4.23 to 4.63 for occupational therapists. Because of these findings, the researchers suggested that future studies should consider a study that compares the effect of an education or a clinical immersion intervention (Ateah et al., 2011, p. 211). The authors’ recommendations did not include conducting similar studies with post-licensure students or a mixture of pre- and post-licensure students.

Looking through the lens of professional identity, Makino et al. (2013) explored alumni who have studied in an IPE program at a pre-licensure stage and their ability to maintain a positive attitude toward collaborative practice (CP) in the postgraduate clinical experience. The cross-sectional descriptive study employed a modified version of the Attitudes Toward Health Care Teams Scale (ATHCTS) to explore the relationship between exposure to clinical practice and the attitudes toward interprofessional health-care teams. The results indicated that the overall mean score of alumni was significantly lower than that of undergraduate students. Students possessed a more positive attitude towards IPE than alumni, suggesting that exposure to actual clinical practice may influence the attitudes towards teams. The findings supported the idea that
changes in professional identity in a team might be due to contact with patients after graduation in the postgraduate clinical health-care experience. The authors recommended that in-service IPE activities might sustain attitudes and CP, increasing positive clinical outcomes.

Essentially, Curran et al. (2008) conducted a study looking at what attributes of pre-licensure (medical, nursing, social work, and pharmacy) students influenced their attitudes towards interprofessional teams and education, using a survey tool used in a previous study. The instrument was a compilation of three survey tools: Readiness for Interprofessional Learning Scale, or RIPLS, and Attitudes toward Interprofessional Education, or AIE having a 5-point Likert Scale from one (strongly disagree) to five (strongly agree). The survey was deemed valid and reliable (Curran et al., 2008). Each of the original authors of the instruments in the study by Curran et al. indicated there was no specific theory used in constructing the questions, but they did make reference to the use of a theoretical framework based on social and psychological theories of adult learning.

Summary of the IPL Research

The studies in this section looked at IPE through a variety of lenses. There is a growing trend in researching the tenants of IPL as demonstrated in Table 2.1. For the most part, the literature indicates that IPL is a benefit to the students engaged in an IPL experience. The attitudes towards the other professions is positively impacted, which supports the tenets of building an interprofessional curriculum. However, the mixture of pre-licensure and post-licensure students engaging in an IPL experience was still not examined.

Table 2.1

<table>
<thead>
<tr>
<th>Author</th>
<th>Purpose, Theory, Design</th>
<th>Findings</th>
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IPL Research Summary
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<tr>
<th>Authors</th>
<th>Question</th>
<th>Methodology</th>
<th>Findings</th>
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<tr>
<td>Ateah et al.</td>
<td>To answer the question: Are the attributes recorded at the time of initial assessment in the study changed by interprofessional education or practice-immersion experiences?</td>
<td>Theory: contact theory. Design: action research.</td>
<td>Three groups (n = 51) of pre-licensure students were given the Student Stereotypes Rating Questionnaire (SSRQ) of a 5-point Likert-type scale. Each group rated health professionals on nine characteristics: academic ability, interpersonal skills, professional competence, leadership, practical skills, independence, confidence, decision-making, and being a team player. Included in the SSRQ was a qualitative question that was analyzed separately. Those with immersion education and clinical experiences had a greater understanding of the role each profession plays in the health-care team.</td>
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<tr>
<td>Meleis (2016)</td>
<td>Develop and implement innovations to enhance collaborations and to facilitate the effectiveness of healthcare teams.</td>
<td>Theory: postcolonial feminist theory. Design: evaluation of the literature.</td>
<td>Recommended (a) breaking down silos that exists between schools and using an equity and justice framework in developing educational programs; (b) utilizing contemporary innovations in teaching that correspond with innovations in health-care systems; and (c) insuring investments in time, energy, and resources in interprofessional education.</td>
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<td>Michalec et al.</td>
<td>To answer the question: What are the potential barriers to interprofessional education (IPE)?</td>
<td>Theory: social identity theory. Design: survey study via modification of three validated and reliable scales reported in the literature.</td>
<td>The data provided evidence for the tenets of social identity theory raised in the relevant literature. The authors also suggested that the lack of adequately formulated “professional-in-training” identity, as well as the formidableity of anticipatory socialization, help to foster and perpetuate these stereotypes, and that IPE programs have the potential to exacerbate these negative perceptions.</td>
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<tr>
<td>Curran et al.</td>
<td>To answer the question: What are the attributes that may influence a health-professional student’s attitudes towards interprofessional teamwork and education?</td>
<td>Theory: There was no specific theoretical framework noted for this study, although the undertone of socialization theory seems to be prominent. Design: survey study via modification of three validated and reliable scales reported in the literature.</td>
<td>There were no significant differences identified between attitudes of medicine and nursing students towards interprofessional teamwork; however, both these student groups report significantly less positive attitudes towards interprofessional teams than pharmacy and social work students. Medical students reported significantly less positive attitudes towards interprofessional education than nursing, pharmacy, and social work students. Female students and senior undergraduate students reported significantly more positive attitudes towards interprofessional teamwork and interprofessional education, while students reporting prior experience with interprofessional education reported</td>
</tr>
<tr>
<td>Study (Year)</td>
<td>Purpose</td>
<td>Methodology</td>
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<td>Davies et al. (2011)</td>
<td>To explore final-year physiotherapy students’ perceptions and experiences of interprofessional learning in the university and placement setting. Theory: no specific theory was identified for this study. Design: focus group and mixed methods survey with third-year physiotherapy students at one university.</td>
<td>The majority of students identified an impact of interprofessional learning on their awareness and understanding of the issues. Interprofessional learning was effective in improving student physiotherapists’ (a) awareness of roles and issues, as well as (b) the ability to develop collaborative working relationships, thus potentially leading to improved patient care.</td>
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<td>van Schaik, Plant, Diane, Tsang, and O'Sullivan (2011)</td>
<td>To explore the barriers for simulation-based interprofessional team training is important to ensure high-quality, safe patient care. Theory: self-efficacy. Design: mixed methods.</td>
<td>A best-practice design of simulation education and interprofessional team training is feasible and sustainable. The program had a positive effect on self-efficacy in resuscitation skills among both residents and nurses at the authors’ institution and received widespread acceptance. A collaborative approach to design and implementation of interprofessional team training can lead to a sustainable program that serves both patient safety and training requirements set forth by professional organizations.</td>
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<td>Woodroffe et al. (2012)</td>
<td>To create a model program for an interprofessional collaborative orientation to the workplace for nurse practitioners (NPs), RNs, and physician assistants (PAs). Theory: none identified. Design: longitudinal pilot.</td>
<td>Feedback found NPs offered overwhelming appreciation for the orientation process, many stating that they “have never experienced an orientation like this” in their careers and that they “feel better prepared for practice.” Still, NPs did share that there is a need to improve the department-based components of the process, as this still varies widely from department to department and from facility to facility.</td>
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**Conceptual Framework**

This subsection introduces the theoretical framework that is most appropriate for this study’s purpose: to identify the IPL orientation (IPLO) of RNs enrolled in post-licensure and advanced practice programs. This subsection also identifies other theories used to understand interprofessional learning, in order to provide a holistic understanding of the topic. Many schools of thought can be applied to explore the research questions of this doctoral thesis. Social constructivism, as viewed by Vygotsky (1978), posits that learning is a social process. Vygotsky...
argued that individuals learn through the interaction of their existing knowledge; prior experiences; and new ideas, events, and activities with which they come in contact every day (Burr, 2003; Hedegarrd, 1990; Wertsch, 1985). According to this theory, knowledge is obtained through participation rather than through imitation or repetition (Philp & Geldard, 2011). The ethos of IPE explicitly ties with the constructivist activities characterized by active engagement, investigation, problem-solving, and collaboration with others. Based on this theory, IPE students learn about each other’s health professions; in the process of knowledge acquisition, both the students and the environment change. IPE is inquiry-driven, in which students are learning from the interactions with each other and their environment. They learn about other students’ roles and they also learn through teaching others about their roles; their professional identity solidifies as well.

Alternatively, social exchange theory suggests that the social interactions that occur within a group influence teamwork (Blau, 1964; Lawler, 2001; McGregor, Parker, LeBlanc, & King, 2010). Group behavior may also occur as a series of exchanges and negotiations for rewards. Individuals will join groups to get a particular benefit, and in exchange, each member helps the group accomplish its goals. Members bring particular knowledge, skills, and expertise to interprofessional groups and, in return, receive some reward. However, if members feel they are not getting enough benefit by being in the group, they will not likely add much to the group. Regarding IPE, students are forced to join groups due to course requirement or program requirement: one could argue that students must get enough educational rewards from these groups to give them their full attention (McGregor et al., 2010). Rewards can be grades (tangible), or positive experiences (nontangible) such as networking and learning the roles of
other professions; networking and learning about other professional roles may help the students later in their career progression.

While previous studies (Lawler, 2001; Martelli & Watson, 2016; Purzer, 2011) have explored IPL using Vygotsky’s (1978) social constructivist approach and Homan’s (1958) social exchange theory to provide insight on how learning is socially constructed and facilitated through social interactions, social cognitive theory provides a deeper understanding of this process by exploring how self-efficacy enables individuals to gain a better understanding through observation, mimicking, and reinforcement, all three of which enhance the learning process. Because previous studies have not addressed interprofessional learning through the lens of self-efficacy, or how observation among individuals can influence the learning process, this doctoral thesis will employ social cognitive theory as the most appropriate lens to interpret the findings of this study.

Social Cognitive Theory

Social cognitive theory (SCT) is the final rendition of Bandura’s work with social learning theory. According to SCT, an individual learns not only from experience but by observing others’ actions and the benefit these actions produce (Bandura, 1977, 1991, 1986). SCT is a broad theory that incorporates perceptions and beliefs as important elements in the prediction of behavior. According to Bandura (1986), economic and socioeconomic factors, as well as educational and family structure factors, do not directly affect human functioning. Pajares (2002) explained that instead, (economic, socio-economic, educational, and family factors) affect (human functioning) to the degree that they influence people’s aspirations, self-efficacy beliefs, personal standards, emotional states, and other self-regulatory influences (para. 7).
Bandura’s SCT identified five basic human characteristics and noted the symbolic, vicarious, forethought, self-regulatory, and self-reflective processes of human functioning. Table 2.2 gives details on the meanings of these areas.

Table 2.2

<table>
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<th>Bandura’s Five Basic Human Characteristics (1986)</th>
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<td><strong>Characteristic</strong></td>
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<td><strong>Symbolic</strong></td>
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<td><strong>Vicarious learning</strong></td>
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<td><strong>Forethought</strong></td>
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<td><strong>Self-regulation</strong></td>
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<td><strong>Self-reflection</strong></td>
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While other theorists argued that one of the factors (personal factors, behavioral factors, or environmental factors) was the main catalyst for human functioning, Bandura (1986) argued that the reciprocal interaction between an individual’s personal, behavioral, and environmental situations influence the level of motivation and behavior as a result of the reciprocal interactions. According to Pajares (2002),

“Bandura altered the label of his theory from social learning to social cognitive both to distance it from prevalent social learning theories of the day and to emphasize that cognition plays a critical role in people’s capability to construct reality, self-regulate, encode information, and perform behaviors.” (para. 2).

As demonstrated in Figure 2.1, Bandura (1986) argued that these influences are dynamic and in constant movement, with the strength of influence coming from any of the triadic factors.

![Figure 2.1. Social cognitive theory.](http://www.emory.edu/EDUCATION/mfp/eff.htm)

Bandura (1986) further explained that although a person may not have a choice in the physical and social nature of the environment, the individual does have authority over his or her personal response to it. The individual’s own ability to organize and control personal action is self-efficacy. According to Burney (2008), self-efficacy is the individual’s cognizance of the
ability to exercise control over one’s life. The concept exists within the triadic reciprocal process and is the basis for individual goal-directed activity and motivation (Bandura, 1999; Burney, 2008). Individuals who have a feeling of self-efficacy are much more likely to achieve personal goals in life and successfully manage any anxiety and worry that may otherwise lead to personal distress (Chan, 2008).

Bandura (1986) believed that every human has fundamental abilities, including the ability to symbolize, have forethought, learn vicariously, possess self-regulatory mechanisms, and be able to self-reflect. Humans model from others what they have observed using the process of symbolizing. Symbolizing also helps humans solve problems and conduct the process of forethought. Pajares (2002) indicated that having the ability of forethought allows humans to “anticipate the consequences of an action without actually engaging in it” (para. 8). Such forethought is sometimes based on what humans have learned through observation or through vicarious learning. Self-regulatory mechanisms allows one to change one’s own behavior based on self-observation and judgment. Self-reflection allows people to explore their own thoughts and complete the type of self-observation that is used by the regulatory mechanisms. On the importance of self-efficacy, Bandura (2001) believed that unless people believe in themselves and their capabilities, they will not succeed. People need to believe they are able to produce results and effects by their own actions.

Self-efficacy is the foundation of how an individual thinks, feels, makes decisions, and acquires motivation. The impact on the individual’s knowledge and skills, according to Bruney (2008), will vary according to the level of self-efficacy. Bandura (1999, pp. 28–29) wrote that “people act on their beliefs about what they can do as well as their beliefs about the likely outcomes of the performance.” Experiences of success enhance self-efficacy, while failure
decreases self-efficacy, especially in the early stage of the learning process. Bandura (1977, 1986, 2001) purported that unless individuals believe in themselves and their capabilities they will not succeed; it is necessary to believe that one can produce results and positive effects by their actions. For example, a nursing student would not have as great a sense of self-efficacy in specific procedures with patients at the beginning of a nursing clinical experience, as he or she would have at the completion of the experience. Therefore, the greater the comfort in knowledge and skills the individual has, the greater self-efficacy the person feels.

Bandura’s (1977) work on self-efficacy helped explain social learning theories including those espoused by Bandura and Walters (1963) and Miller and Dollard (1941), because it addressed a component that had been missing: the impact of one’s belief in oneself on one’s behavior. Self-efficacy refers to “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986, p. 391). These beliefs play an intricate role and have influence on a person’s optimism or pessimism, motivation, the determination of goals, and whether failures are motivating or demoralizing (Bandura, 1977; Schwarzer & Jerusalem, 1992).

**Research Studies**

Support for the relevance of SCT has been widely demonstrated in literature explaining human behavior and functioning in addition to learning and interprofessional education. Burney (2008) applied the model to explore theoretical implications in the development of curricular and educational experiences for gifted learners. Using cognitive theory, Burney developed recommendations to assure that learning strategies and goals, the social environment, and challenging opportunities and tasks were appropriate for the gifted student. Burney’s approach can also be applied to developing curricula for IPE programs and learning experiences.
Using self-efficacy as a theoretical framework to explore the behavioral interactions of students engaged in IPE, Mann et al. (2012) conducted a survey study with 209 pre-licensure health-professional students. Data comparisons used MANOVA in the analysis of the results from the 16-item survey, within and between groups. The highest scored items were those that required students to work with students from other professions; the lowest scores were for items related to communicating the role of a team and team feedback. The results indicated that interactions and role-modeling experiences strongly influenced self-efficacy, thus supporting Bandura’s (1977) philosophy. The research identified a notable relationship between the learning models of IPL and the cognitive and behavioral interactions of Bandura’s social learning theory.

Using a different approach to exploring IPL through the lens of Bandura’s theory, Hagemeier, Hess, Hagen, and Sorahet, (2014) conducted a quantitative study to evaluate and compare the interprofessional and interpersonal communication self-efficacy beliefs among medical, nursing, and pharmacy students. The students enrolled in pre-licensure programs using an interprofessional communication course. The design of the 33-item survey instrument was in accordance with the Interprofessional Education Collaborative (IPEC) core competencies and was administered pre- and post-enrollment in the course. The findings showed that nursing students entered the course with higher interprofessional and interpersonal communication self-efficacy beliefs than the students from other disciplines. The pharmacy students showed significant improvements in communication self-efficacy beliefs. The overall conclusion indicated that enrollment in the course had a positive impact on the students’ interpersonal and interprofessional self-efficacy.

Interprofessional simulation creates a safe environment in which to educate health-care students without potential risks for patients. Watters et al. (2015) compared “uniprofessional”
and “interprofessional” offerings of a simulation experience to see if there was improvement in the student’s self-efficacy. This mixed-methods study of nurses, midwives, and doctors, who were in the early years of practice, took place in a large urban hospital that also provided training for staff. The qualitative data showed improvement for doctors and nurses in communication, teamwork, and leadership because of simulation training. Both the qualitative analysis and the quantitative analysis findings indicated improved outcomes for nurses who were in the interprofessional compared to nurses who were in the uniprofessional course.

Table 2.3

Summary of SCT Research

<table>
<thead>
<tr>
<th>Author</th>
<th>Purpose, Theory, Design</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Hage et al. (2014)</td>
<td>The purpose of this study was to evaluate and compare interpersonal and interprofessional communication self-efficacy beliefs of medical, nursing, and pharmacy students before and after course participation. Theory: self-efficacy theory Design: survey</td>
<td>Nursing students entered the course with higher interpersonal and interprofessional communication self-efficacy beliefs compared to medical and pharmacy students. Pharmacy students, in particular, noted significant improvements in communication self-efficacy beliefs across multiple domains post-course.</td>
</tr>
<tr>
<td>Mann et al. (2012)</td>
<td>To develop and evaluate a scale to measure self-efficacy perceptions of pre-licensure students in medicine, dentistry, and health professions. Theory: self-efficacy Design: survey</td>
<td>Pre-licensure students (n = 209) participated in a pilot test of the instrument. Content validity was rated highly by the six judges; internal consistency of the scale (Cronbach's α = 96) and subscales 1 (α = 0.94) and 2 (α = 0.93) were high. Principal components analysis resulted in identification of two factors, each accounting for 34% of the variance: interprofessional interaction; and interprofessional team evaluation and feedback. The results indicated this scale can be useful in evaluating IPE interventions.</td>
</tr>
</tbody>
</table>
To answer the question: Do uniprofessional or interprofessional versions of a simulation education intervention improve trainees’ self-efficacy? Theory: self-efficacy Design: mixed methods

This study provided evidence that simulation training enhanced participants’ self-efficacy in clinical situations. Simulation training also led to increases in their perceived abilities relating to communication/teamwork and leadership/management of clinical scenarios. Interprofessional training showed increased positive effects on self-efficacy for nurses and doctors.

Summary

The first subsection of the literature review focused on the tenets of IPL, in order to explore the semantics of interprofessionalism and interprofessional education and its complexities due to interchangable terms and interpretations of the field. The second subsection of the literature review explored SCT as the conceptual framework for this doctoral thesis. Specifically, the evidence indicated that IPL has a positive influence on the self-efficacy of students, but once again, the research was done on pre-licensure students. Another observation noted was that none of the studies combined the RIPLS and the Generalized Self-Efficacy (GSE) scale to measure the self-efficacy of the students towards IPL prior to an experience with a mixture of pre-licensure and post-licensure students. The next subsection of this chapter explores the profession of nursing and nursing education.

Nursing

Examining the delicate balance of the interactions among health professionals is a challenge and opportunity for academic programs engaged in the development of IPL curricula. Health professions have a history of educating students in disciplinary silos and creating professional roles within a specific discipline. Because academic programs are seeking to implement new approaches to health-professions education by implementing IPL, it is paramount
to understand nursing roles, education, and academic standards to better meet the challenges and opportunities the students will encounter.

**Nursing Roles**

Since Florence Nightingale trained the first nurses during the Crimean War, both the nursing profession and nursing education have experienced a dramatic change. The early vocational training programs produced practical nurses trained under the direction of physicians (Keddy Gillis, Jacobs, Burton, & Rogers, 1986; Judd, Sitzman, & Davis, 2010). During the 1960s, nursing moved to an independent, autonomous, professional education format no longer with physicians but with seasoned nurse educators at the helm. Now, in the 21st century, with university programs engaging in rigorous academic curricula, nursing graduates expect to operate within the framework of equal decision-making and autonomy (Judd, 2010).

Over the past 30 years, advanced nurse education (MSN and DNP) has increased the knowledge-base of nurses, thereby preparing nurse consultants, nurse practitioners, and clinical nurse specialists to expand their scope of practice. In 2008, the American Association of Colleges of Nursing (AACN) reported that “13.2 percent of the nation’s RNs held either a master’s or doctoral degree as their highest educational preparation” (AACN, 2013). The current demand for nurses in advanced practice, clinical specialties, teaching, and research roles far outstrip the supply. Nurses earning advanced degrees also face the challenge of blurring the traditional boundaries of practice (Im, 2010; Lomax & White, 2015; Spector, 2009). Nurses in the U.S. with advanced practice degrees at the master’s or doctorate level have prescriptive authority, meaning that an FNP can independently prescribe nonnarcotic medications and see patients without a physician being present. The new roles nurses enjoy add to the tensions between the professions, especially between nurses and physicians (Bailey, Jones, & Way, 2006;
Jackson, Clare, & Mannix, 2002; Kneipp et al., 2014; Oxtoby, 2014; Whitehead, 2011). Nurses working with other professionals on direct patient care have found barriers not only to their ability to exercise their skill set, but also in their contribution to health-care teams (Makary et al., 2006; Reader, Flin, Mearns, & Cuthbertson, 2011; Voyer & Reader, 2013). This potential for tension in the workplace due to professional roles may influence a nurse who returns to the academic setting as a student.

**Nursing Education**

Students have multiple levels of educational opportunities that will allow them to take the state licensure exam and become RNs. As a means to address the complex demands of today’s health-care environment, the National Advisory Council on Nurse Education and Practice recommends that at least two-thirds of the basic nurse workforce hold baccalaureate or higher degrees in nursing (AACN, 2015). In 1980, approximately 55% of registered nurses held a hospital diploma as their highest educational credential, 22% held the bachelor’s degree, and 18% an associate degree. By 2008, diploma-prepared nurses accounted for only 13.9% of RNs, while the number of those holding a bachelor’s or associate degree rose to 36.8%, and 36.1% respectively (AACN, 2015).

The popularity of diploma programs, statistics show, has waned through the years as nursing moved to become a more educationally based profession. Both the nurse with an associate’s degree and the diploma-prepared nurse are well versed in the tasks at the bedside level of care; however, the nurses seeking to advance their careers need to have a minimum of a bachelor’s degree, if not a master’s or doctorate, depending on their career goals. Colleges and universities in conjunction with the nursing accreditation bodies developed programs, the so-called RN to BSN completion programs, that build on the basic education and skill sets to move
the RN to a bachelor’s level degree. As stated in a white paper published by the American Association of Colleges of Nurses (2015), there are now 646 RN to BSN programs available, including approximately 400 programs offered online or partially online. The high number of programs allows more nurses to return to school, with enrollment growing from 31,215 students in 2003 to 89,975 students in 2011—a 288% increase (AACN, 2015). Considering the increase in the number of students in academic programs, and the movement of programs available oriented towards an interprofessional pedagogy, nurses returning to school will, no doubt, bring their perceptions, attitudes, and behaviors from the workplace to the academic setting, influencing the programs’ ability to enhance or impede interprofessional learning.

The structure of nursing education with multiple entry levels is one consideration, how a nurse is educated is yet another consideration. Traditionally, nursing students learn from faculty who hold advanced degrees in nursing (MSN, DNP, EdD and PhD). Students are socialized into their profession with the understanding of their specific role and values (Curran, Sharpe, Flynn, & Button, 2010; Love, 2010; Curran et al., 2008; Mooney, 2007). The outcome of this silo approach to education may be that nurses lack the required skills to engage in an interprofessional health care team (Meleis, 2016; Reeves et al., 2008). A the call for interprofessional collaboration continues to grow, this may be a concern.

**Competencies and Standards**

Professional associations regulate curriculum and accreditation criteria for health-professions academic programs. Based on research and evidence-based outcomes conducted over the course of IPE development, recognition of the benefits led to the development and inclusion of criteria for program accreditation. The report by IOM, “Crossing the Quality Chasm: A New Health System for the 21st Century” (2001), called for a revamping of the health system and an
improvement of health-professions education by providing more opportunities for interprofessional interactions (Bressler & Perscio, 2016; IOM, 2001; Sullivan et al., 2015). In 2003, the attendees of the Health Professions Education: A Bridge to Equality Summit developed five core competencies of health care: (a) quality of care, (b) communication, (c) team-based care, (d) patient-centered care, and (e) evidence-based practice (IOM, 2003). In 2011, six of the Interprofessional Education Collaborative (IPEC) organizations—the American Association of Colleges of Nursing (AACN), the American Association of Colleges of Osteopathic Medicine (AACOM), the Association of American Medical College (AAMC), the American Association of Colleges of Pharmacy (AACP), the American Dental Education Association (ADEA), and the Association of Schools of Public Health, (ASPH)—formed a panel of experts to continue the dialogue on collaborative practice and IPE, and to come to a consensus on the necessary competencies for collaborative practice (Interprofessional Education Collaborative Expert Panel, 2011a). As a result of their efforts, four competency domains—Values/Ethics for Interprofessional Practice, Roles/Responsibilities, Interprofessional Communication, and Teams and Teamwork, and several subcompetencies—now translate into specific learning objectives that stimulate dialogue and guide the creation and infusion of IPE curricula (Interprofessional Education Collaborative Expert Panel, 2011b).

The accreditation and professional organizations not only incorporate the competency domains as standards and criteria in the accreditation process for academic programs, but they also embrace them as standards of practice within the professions. Professional education programs are governed by the professional accrediting agency of the specific discipline. Each agency calls for a rigorous evaluation process mandating specific criteria for accreditation. Programs that fail to meet the standards criteria and that are considered non-accredited are
problematic for students, who are required by state law to graduate from an accredited program before they are allowed to take licensure exams. Peer-review teams ensure each criterion is met by a thorough review of the academic program during a specific cycle (3, 5, or 10 years). Therefore, the number of accrediting bodies and peer reviewers are as extensive as the number of disciplines in health care. In order to fulfill accreditation requirements, professional organizations for pharmacy, nursing, dentistry, medicine, physical therapy, and allied health programs mention collaboration and teamwork within their standards.

One of the largest segments of the health professions is the field of nursing, which has a significant impact on collaborative endeavors. Nursing programs are unique because they have two major accrediting bodies overseeing education. One accrediting agency for nursing programs is the Commission for Nursing Education Accreditation (CNEA), which is acknowledged by the National League for Nursing (NLN). The other is the Commission on Collegiate Nursing Education (CCNE), acknowledged by the American Association of Colleges of Nursing (AACN). Both agencies recognize the importance of interprofessional collaboration by building in standards that mirror those stated by the Institute of Medicine (2003). Table 2.4 provides a comparison of the competency standards that both IOM and nursing education (CNEA and CCNE) require for interprofessional collaboration in nursing education.

Table 2.4

Interprofessional Collaboration Standards—Comparison of IOM and Nursing Standards

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<tr>
<td>“All health professionals should be educated to deliver patient-</td>
<td>Essential VI: “Interprofessional Communication &amp; Collaboration for Improving Health care</td>
<td>Standard IIB “Partnerships among communities of interest and the nursing program</td>
<td>Essential VII Interprofessional Collaboration and Improving Patient and Population</td>
</tr>
</tbody>
</table>
centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics” (p. 3).

“Work in interdisciplinary teams: cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable” (p. 4).

“Apply quality improvement: identify errors and hazards in care; understand and implement basic safety design principles, such as standardization and simplification” (p. 4).

Outcomes

1. Compare/contrast the roles & perspectives of the nursing profession with that of other care professionals on the health care team (i.e., scope of the discipline, education and licensure requirements)
2. Use inter- and intraprofessional communication & collaborative skills to deliver evidence-based, patient-centered care
3. Incorporate effective communication techniques, including negotiation and conflict resolution to produce positive professional working relationships
4. Contribute the unique nursing perspective to interprofessional teams to optimize patient outcomes
5. Demonstrate appropriate teambuilding and collaborative strategies when working with interprofessional teams
6. Advocate for high quality and safe patient care as a member of the interprofessional team” (p. 22).

Outcomes

“Advocate for the value and role of the professional nurse as member and leader of interprofessional health care teams.
2. Understand other health professions’ scopes of practice to maximize contributions to the health care team.
3. Employ collaborative strategies in the design, coordination, and evaluation of patient-centered care.
4. Use effective communication strategies to develop, participate, and lead interprofessional teams and partnerships.
5. Mentor and coach new and experienced nurses and other members of the health care team.
6. Functions as an effective group leader or member based on an in-depth understanding of team dynamics and group processes” (p. 24).

Nursing Education Research

Accreditation requirements and the recognition of the benefits of interprofessional experiences within the nursing curriculum offer new opportunities for nursing researchers to investigate programs incorporating IPE into the curriculum. Wang et al. (2015) designed a study that evaluated nursing students’ attitudes towards IPE and their knowledge of operating-room nursing after they engaged in an interprofessional simulation-based education program. The
researchers randomly assigned students to either the interprofessional simulation-based education course group or the traditional course group in this before-and-after study of nursing students’ attitudes toward the program using the Readiness for Interprofessional Learning Scale (RIPLS) survey tool with the addition of open-ended questions. The authors found that nursing students from the interprofessional simulation-based education group showed statistically different responses to 4 of the 19 questions in the RIPLS, reflecting a more positive attitude toward interprofessional learning. Furthermore, nursing students in the simulation-based education group presented a significant improvement in knowledge about operating-room nursing. The integrated course provided a rich experience that had a positive impact on undergraduate nursing students’ perceptions toward interprofessional learning and knowledge about operating room nursing (Wang et al., 2015). The study suggested that this course may be a valuable elective option for undergraduate nursing students in operating room nursing education.

The study conducted by Hood et al. (2014) explored the views of medical, nursing, and other health-care students regarding their readiness to engage in an interprofessional learning experience. Senior undergraduate students from six disciplines (nursing, midwifery, nutrition, medicine, physical therapy, and emergency nursing) at one university, completed the Readiness for Interprofessional Learning Scale (RIPLS) prior to participating in interprofessional clinical learning modules. Seven hundred and forty-one students participated in the study. The results of the survey showed that the highest ranked response was a need for teamwork. Nursing students held significantly more positive attitudes towards Teamwork/Collaboration, and were more positive about Professional Identity than medical students ($p < 0.001$). Hood et al. (2014) found that “midwifery and nursing-emergency-health students rejected uncertainty about Roles/Responsibilities compared with medical students ($p < 0.001$). One-third of all students
who had prior experience of interprofessional learning held more positive attitudes in each of four attitude domains ($p < 0.05$)” (p. 119).

The literature showed a strong use of the RIPLS in recent studies. Lie, Fung, Trial, and Lohenry (2013) conducted a comparison study of the RIPLS and the Interdisciplinary Education Perception Scale (IEPS) to assess medical, pharmacy, and physician-assistant students. They assessed the results using descriptive statistics, reporting aggregate mean scores of subgroups; Cronbach’s alpha, for internal consistency of each scale; Pearson’s correlation coefficients for concurrent validity; independent sample t-tests and analysis of variances (ANOVAs) to assess the discriminatory ability of each scale; and Cohen’s $d$ effect sizes for all significant pair-wise comparisons. The results, based on a response rate of 82%, found that Cronbach’s alpha was .85 (RIPLS) and .91 (IEPS). The authors concluded that neither of the instruments had a greater ability to detect an attitudinal difference among the student subgroups.

Notably, Mahler, Rochon, Karstens, Szecsenyi, & Hermann (2014) translated the RIPLS into German (RPLS-D) according to international guidelines and psychometric properties. The authors used descriptive analysis of the RIPLS-D for item analysis and “Cronbach’s Alpha calculated for internal consistency of overall and subscales of the RIPLS-D” (Mahler Rochon, Karstens, Szecsenyi, & Hermannnet, 2014, p. 1). The results of 76 data subsets showed that reliability for the overall scale was 0.83 in both samples with subscales displaying internal consistency between 0.42 and 0.88. Corrected item-total correlation showed low values in two subscales. The authors concluded that the overall scale is reliable (Mahler et al., 2014).

A cross-sectional survey study conducted at a university in the U.K. by Priesack & Alcock (2015) explored the well-being and self-efficacy of nursing students. According to the authors, evidence indicated that undergraduate nurse programs that offer a combined didactic
and clinical placement experience can potentially lead to stress and a negative impact on the health and well-being of the students. The researchers felt that well-being, resilience, and academic achievement were measurable by self-efficacy and were worth investigating as it applied to nursing students.

The authors combined two scales, the BBC Well-being Scale and the Generalized Self-Efficacy scale, creating a cross-sectional survey to obtain the data. A total of 108 out of 450 undergraduate pre-licensure nursing students participated in the study. The researchers calculated the mean and subscale scores for both instruments and carried out inferential analyses using nonparametric techniques followed by exploratory factor analyses of the BBC Well-being Scale: “Cronbach's alpha was $\alpha = .92$ for the BBC Well-being Scale and $\alpha = .85$ for the GSE suggesting that the instruments are valid and reliable measures for nurse education research” (Priesack & Alcock, 2015, p. 16). The researchers felt that self-efficacy and general well-being in nursing students were worthy of further study and were relevant to nursing education given the current interest in interventions that promote student retention and persistence after licensure. The population in this study was again a group of pre-licensure students who were not working in the field of nursing. Table 2.5 provides a summary of the research mention in this sub-section.

Table 2.5

<table>
<thead>
<tr>
<th>Author</th>
<th>Purpose, Theory, Design</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Lie et al. (2013)</td>
<td>The purpose of this study was to compare psychometric properties of the RIPLS and IEPS. The study also explored the ability of each scale to discriminate mean scores among student subgroups (gender, profession, seniority, and prior IPE exposure). Theory; none noted Design: survey of junior and senior students in medicine (n = 360),</td>
<td>Neither the RIPLS nor the IEPS had greater discriminatory ability for detecting attitude differences among the student subgroups. A reason for the differences may be the existence of slightly different scale constructs. The RIPLS was designed to assess students’ own attitude toward interprofessional learning; EPS discerns perceived attitudes about team collaboration for the students’ own professions and may be</td>
</tr>
<tr>
<td>Authors</td>
<td>Study Details</td>
<td>Findings/Conclusions</td>
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<tr>
<td>Makino et al. (2013)</td>
<td>The purpose was to answer the question: Do alumni from an IPE program at the pre-licensure level maintain a positive attitude toward collaborative practice (CP) in the postgraduate clinical experience? Theory: professional identity and team efficacy theory</td>
<td>The findings suggest that changes in professional identity in a team may be due to contact with patients after graduation in the postgraduate clinical health-care experience. The reduction of attitudes toward health-care teams in the postgraduate clinical experience may be related to “team efficacy”.</td>
</tr>
<tr>
<td>Mahler et al. (2014)</td>
<td>The aim of the study was the translation of the RIPLS into German and the testing of internal consistency. Design: survey</td>
<td>While the overall RIPLS-D scale was reliable, several subscales showed low values and should be used with caution to measure readiness for interprofessional learning in the German health-care context.</td>
</tr>
<tr>
<td>Wang et al. (2015)</td>
<td>The purpose was to answer the question: What are the attitudes towards IPE and knowledge of operating-room nursing after engaging in an interprofessional simulation-based education program? No theory indicated. Design: survey study, pre- and post-test</td>
<td>The study suggested that this course may be a valuable elective option for undergraduate nursing students in operating-room nursing education.</td>
</tr>
<tr>
<td>Priesack and Alcock (2015)</td>
<td>The purpose of the study was to explore and test the constructs of well-being and self-efficacy with a sample of university-level nursing students in the U.K. Design: a cross-sectional survey approach using a paper questionnaire including the BBC Well-being Scale and Generalized Self-Efficacy (GSE) scale.</td>
<td>Nurse students indicated higher scores on the BBC Well-being and the GSE scales compared with previously studied populations; a small but significant positive correlation was found between psychological well-being and self-efficacy. Cluster analysis indicated discrete student communities in this sample that varied in their Well-being and GSE scale and subscale scores. Self-efficacy and general well-being in nursing students are worthy of further study and relevant to contemporary nursing education given current interest in interventions to promote student retention and resilience post-registration.</td>
</tr>
<tr>
<td>Hood et al. (2014)</td>
<td>The purpose was to answer the question: What are the attitudes of undergraduate health-professional students towards interprofessional learning within a large multidisciplinary overall, the attitudes towards interprofessional learning were positive and all participants were willing to engage in interprofessional learning activities. The recommendations were that introduction of IPL occur early in the curriculum and that additional studies should explore the trajectory of students’ attitudes throughout</td>
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<td></td>
<td>more appropriate for more advanced students.</td>
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Summary of Nursing Research Literature

The literature review found that empirical studies of many of the aspects concerning IPE are still lacking. Studies following the tenets of interprofessional collaboration and IPE focus on initiatives at the pre-licensure level or in the workplace after professionals received exposure to an IPE activity. Studies also looked at the student’s view of IPE after they had completed some educational program. Faculty attitudes towards interprofessional teams, student learning, and implementation of IPE were also subjects of study; however, no study has looked at nurses returning to school for post-licensure or advanced degrees and now experiencing IPE initiatives. The literature review didn’t find either studies using SCT as a theoretical framework to look at the interprofessional learning orientation of RNs enrolled in a post-professional or advanced practice degree program.

Summary

The purpose of this literature review was to have a look at the complex issues facing post-professional health-care programs that follow the ethos of interprofessional collaborative practice and implementation of interprofessional education programs of study. The intent of the literature review was to provide insight into the nature of perceptions regarding interprofessional education and interprofessional learning, perceptions of nursing education that might create barriers to the implementation of IPL. The literature review also found that there are no studies using SCT as a theoretical framework to look at relationship between the readiness to engage in IPE and the influence career factors might have on nurses returning to school. Therefore, the current study serves to fill this gap identified in the literature. The next chapter will look at the
methodology of the research designed for the study. This section will include the restatement of the purpose and research questions, methodology, research design, sample design, instrumentation, role of the researcher, data collection, data management, data analysis, and the protection of human subjects.
Chapter 3 Methodology

The increasing numbers of RNs returning to the classroom may influence an IPL program and warrants consideration. The first two chapters of the study focused on the importance of IPL development to enhance curriculum and develop a better educated health-care professional with particular attention to the role nursing education plays in IPL. This chapter addresses the methodology driven by the research questions, methodology, research design, sample design, instrumentation, role of the researcher, data collection, data management, data analysis, and the protection of human subjects.

Research Purpose

In the academic setting, an RN brings his or her understanding of interprofessionalism to the classroom IPL activity or course, an understanding drawn from the workplace and personal experiences. Therefore, the increasing numbers of RNs enrolling in post-licensure or advanced degree programs may influence an IPL experience and warrants consideration. The purpose of this quantitative doctoral thesis was to explore the interprofessional learning orientations of registered nurses enrolled in a post-licensure or an advanced practice degree program.

Research Questions and Hypotheses

The purpose of this doctoral thesis was to explore the interprofessional learning orientation of registered nurses enrolled in post-licensure and advanced practice degree programs.

The following research questions, based on the identified gap in the literature, were:

Question 1: Is there an association between a nurse’s self-efficacy and his or her interprofessional learning orientations?
H1₀ There is no association between a nurse’s self-efficacy and his or her interprofessional learning orientation.

H1 There is an association between a nurse’s self-efficacy and his or her interprofessional learning orientation.

Question 2: To what extent are the characteristics of age, workplace, tenure in the field, and program of study associated with the interprofessional learning orientations of nurses seeking a post-professional or advanced practice degrees?

H2₀: There is no association between age and IPL.

H2: There is an association between age and IPL

H3₀: There is no association between workplace and IPL.

H3: There is an association between workplace and IPL

H4₀: There is no association between tenure in the field and IPL

H4: There is an association between tenure in the field and IPL

H5₀: There is no association between degree program and IPL

H5: There is an association between degree program and IPL

Research Design and Approach

Quantitative research uses a systematic empirical investigation of social phenomena, resulting in descriptions of trends and explanations of relationships among variables (Creswell, 2012). The researcher sought to explore the possibility of a relationship between the self-efficacy of the nurses and their interprofessional learning orientation; the researcher also wanted to explore whether age, tenure in the field, workplace, and program of study affected their
interprofessional learning orientation. The researcher felt a correlational study was appropriate to identify the relationship between the aforementioned variables because the research questions all involve evaluating the association between two dimensions.

This correlational study explored the association between the variables by quantitatively assessing the survey data collected by providing the degree and direction of the variables. The degree (correlation coefficient) pertains to how close the variables are associated; the direction of the relationship is stated in terms of positive (+) or negative (-). To accomplish this, the use of a cross-sectional survey method allowed for data collection and statistical analyses using Likert scale closed-ended questionnaires and career factor data. A modified version of two survey tools, the Readiness for Interprofessional Learning Scale (RIPLS) survey—developed by Parsell and Bligh (1999) and modified by Curran et al. (2008)—and the Generalized Self-Efficacy Scale—adapted from Schwarzer and Jerusalem (1995)—were employed for this study. The combined RIPLS and GSE scales (26 items) assess attitudes towards interprofessional learning and self-efficacy using a 5-point Likert scale where “1” = strongly disagree, “2” = disagree, “3” = neutral, “4” = agree, “5” = strongly agree.

Population Sample

The population for this study was a convenience sample of 53 out of 212 nursing students from the Department of Nursing at Governors State University. The researcher is an employee of the university and engaged in the development of an Interprofessional Education Initiative for the College of Health and Human Services, the college that is the home of the nursing program students. The selection of this specific nursing program was due to its uniqueness in that all students were RNs, and there were no pre-licensure students enrolled; thus, all IPL for the program involved post-licensure nursing students along with pre-licensure occupational therapy,
physical therapy, social work, addictions studies, and communication disorders students.

Students were working RNs, either currently enrolled in a baccalaureate completion (RN to BSN) program, one of two master's in nursing programs (MSN or FNP), or a doctoral (DNP) program, in order to advance their careers.

During the 2014–2015 academic year the college enrolled 1281 students with an average age of 36.4. Figure 3.1 is a pie chart representing each of the departments within the college and what percentage they represent within the college. Nursing is the largest program, with 27% of the college’s enrollment.

![Figure 3.1. Distribution of Students by Program in the College of Health and Human Services AY 2014–15.](image)

Providing a more detailed review, Table 3.1 shows the overall enrollment in the 3 levels of the nursing program, and the average age of the students participating in each. This definition delimits the population and will reveal a sample size of potential participants.

Table 3.1

_Nursing Student Enrollment and Average Age of Student Academic Year 2014–2015_
<table>
<thead>
<tr>
<th>Department of Nursing Enrollment Summer 2015</th>
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</thead>
<tbody>
<tr>
<td><strong>Program</strong></td>
</tr>
<tr>
<td>RN-BSN</td>
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<tr>
<td>MSN</td>
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<tr>
<td>MSN-FNP</td>
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<tr>
<td>DNP</td>
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<td><strong>Total Enrollment</strong></td>
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</tbody>
</table>

The researcher used the final enrollment data for the Department of Nursing for the Summer 2015 semester provided by GSU’s Office of Institutional Research. The total enrollment totaled 212 students. In calculating the sample size, the following formula was used: Sample size = (Z-score)² * StdDev*(1 - StdDev)/(margin of error)². A confidence interval of +10 was applied, as was a 90% confidence level, which equates to a Z-score of 1.65, resulting in a sample size of 51.

The convenience sample comprised post-licensure and advanced practice nursing students enrolled in the summer semester 2015 at GSU. Table 3.2 shows the response count in relation to the total number of students enrolled in the various nursing degree level programs.

Table 3.2

**Department of Nursing Enrollment Summer 2015**

There were 212 students enrolled in the summer of 2015 of which a sample of 53 students (25% of the population size) volunteered to participate. The response was not the preferred robust number predicted; however, given the 25% participant rate, the response rate was high enough to glean the information required to answer the research questions. The strongest response, 81%,
came from the advanced practice nurses (MSN, MSN-FNP). Seventy-five percent of the responders worked in hospitals; there was a relatively uniform distribution of tenure and across the 25–54 age groups.

**Instrumentation**

To answer the research questions for this study, an online survey was used to collect the data, because the nursing students in the RN-BSN program were in an online program and not required to come to campus. After comparing instruments used by other studies that were available as possible instruments for the current study, the researcher elected to combine and modify two instruments: the Readiness for Interprofessional Learning (RIPLS) survey—developed by Parsell and Bligh (1999) and modified by Curran et al. (2008)—and the Generalized Self-Efficacy (GSE) scale—adapted from Schwarzer and Jerusalem (1995). From the two, a new survey was crafted into a 26-item attitude scale constructed for the current study, with 14 questions on IPL and 12 questions on self-efficacy. The 12 items from the GSE instrument are theoretically grounded in Bandura's concept of self-efficacy at task level. The 14 items of RIPLS are grounded in practice of Interprofessional Learning, and the final section include factors associated with workplace, program of study, and age. The items consisted of a statement that required a response based on the view of the participant, allowing the participant to score accordingly. A 5-point Likert Scale (popular in educational research design) was assigned with the designation of one (strongly disagree), two (disagree), three (neutral), four (agree), and five (strongly agree) (Fraenkel, Wallen, & Hyun, 2012). To answer the second research question, the four career factor questions were added asking the respondents their chronological age, years in the nursing profession, type of workplace (i.e. clinic, hospital, or
nursing home), and degree program. Table 3.3 shows how each item was identified, classified and measured in this study.

Table 3.3

*Variable Measures of Analysis for IPL, Self-Efficacy, and Career Factors*

<table>
<thead>
<tr>
<th>Identification of Question</th>
<th>Classification of Variables</th>
<th>Statistical Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interprofessional learning helps me to think positively about other health care professionals.</td>
<td>IPL</td>
<td>Independent Descriptive Analyses</td>
</tr>
<tr>
<td>2. Interprofessional learning before licensure will help health-professional students to become better team workers.</td>
<td>IPL</td>
<td>Independent Descriptive Analyses</td>
</tr>
<tr>
<td>3. Patients would ultimately benefit because I’ve learned to solve patient problems with other health-care professionals.</td>
<td>IPL</td>
<td>Independent Descriptive Analyses</td>
</tr>
<tr>
<td>4. I can solve most problems if I invest the necessary effort.</td>
<td>Self-Efficacy</td>
<td>Independent Descriptive Analyses</td>
</tr>
<tr>
<td>5. Students in my professional discipline would benefit from working on small group projects with other health-care students.</td>
<td>IPL</td>
<td>Independent Descriptive Analyses</td>
</tr>
<tr>
<td>6. Communication skills should be learned with integrated classes of health-care students.</td>
<td>IPL</td>
<td>Independent Descriptive Analyses</td>
</tr>
</tbody>
</table>
7. Interprofessional learning will help me to clarify the nature of patient problems for students. | IPL | Independent |
---|---|---|
8. If someone opposes me, then I can find the means and ways to get what I want. | Self-Efficacy | Independent |
9. It is not necessary for undergraduate health-care students to learn together. | IPL | Independent |
10. My learning with students from other health disciplines helps undergraduates to become more effective members of a health-care team. | IPL | Independent |
11. I can remain calm when facing difficulties because I can rely on my coping abilities. | Self-Efficacy | Independent |
12. Interprofessional learning will increase my ability to understand clinical problems. | IPL | Independent |
13. Interprofessional learning will help me learn about and understand my own professional limitations. | IPL | Independent |
14. I need to trust and respect students from other disciplines for small
group learning to work.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Domain</th>
<th>Type</th>
<th>Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Thanks to my resourcefulness, I know how to handle unforeseen situations.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>16. Interprofessional learning will help me to communicate better with patients and other professionals.</td>
<td>IPL</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>17. If I am in trouble, then I can usually think of a solution.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>18. Teamworking skills are essential for me and other health-care students to learn.</td>
<td>IPL</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>19. Interprofessional learning activities before licensure would have improved my relationships with other health professionals.</td>
<td>IPL</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>20. I can always manage to solve difficult problems if I try hard enough.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>21. It is easy for me to stick to my aims and accomplish my goals.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>22. I am confident that I could deal efficiently with unexpected events.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>23. When I am confronted with a problem, I can usually find several solutions.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>24. I can usually handle whatever comes my way.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>25. In general, I think I can obtain outcomes that are important to me.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
<tr>
<td>26. Compared to others, I can do most task very well.</td>
<td>Self-Efficacy</td>
<td>Independent</td>
<td>Descriptive Analyses</td>
</tr>
</tbody>
</table>

**Career Factor Questions**

| Age | Dependent | Descriptive Analyses |
| Tenure | Dependent | Discriminant Analyses |
| Workplace | Dependent | Discriminant Analyses |
| Program of Study | Dependent | Discriminant Analyses |
This design provided a means to determine if any of the independent variables influenced the interprofessional learning orientation of the target population (RNs enrolled in post-licensure and advanced practice degree programs).

**Validity and Reliability**

Validity refers to the appropriateness and meaningfulness of a research instrument; reliability looks at the degree of consistency in the test results (Fraenkel et al., 2012). The intent of the researcher was to select questions from previous surveys that have proven to be reliable and valid. The selection of two existing tools, the Readiness for Interprofessional Education (RIPLS) and the General Self-Efficacy scale, was due to the established validity and reliability noted in the literature. As seen in Table 3.4, in this study, both scales demonstrated good reliability with Cronbach’s alpha > .9 for both IPL and self-efficacy.

Table 3.4

**Reliability Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IPL</strong></td>
<td>.948</td>
<td>.951</td>
<td>14</td>
</tr>
<tr>
<td><strong>Self-efficacy</strong></td>
<td>.948</td>
<td>.951</td>
<td>12</td>
</tr>
</tbody>
</table>

Cronbach's alpha is a measure of internal consistency (how closely related a set of items are as a group) and is considered the measure of scale reliability. Because the two scales were combined and slight modifications made to reflect the spirit of the current study, additional statistical measures were run to ensure reliability. The division of the 26 items created two subsets, the 14-item IPL and the 12-item self-efficacy scales. The researcher checked 14 items comprising the IPL scale for validity using this measure. Upon analysis, item 9 phrased opposite
to all items on tests (high score was negative rather than positive); therefore, reverse coding was necessary. The results showed Cronbach’s alpha = .948 (.951 for standardized items), very strong evidence that the items are all measuring the same thing: attitude toward IPL. However, alpha would have been higher (.964) if the researcher had chosen to exclude item 9 (UG level training not necessary). Similarly, for the 12 items comprising the self-efficacy scale, Cronbach’s alpha is also = .948 (.951 for standardized items). Again, these data suggested that the items all measured the same thing. Deleting any of the items in this section would not increase alpha thus maintaining the survey as valid and reliable.

Generalizability is the extent to which the study findings can be applied across the study population (Fraenkel et al., 2012). The sample size was calculated to maximize the validity and generalizability of the data collected. To calculate the desired sample size from a population of 212, a z-score of 1.65, signifying a 90% confidence level, resulted in the sample size of 51. The population surveyed consisted of students from one Midwestern public university during the summer semester of 2015 with the majority of them working in hospitals. The researcher elected to conduct this study using a convenience sample which limited the findings of this study only to this particular institution, and thus prevented the results from being generalizable to other nursing programs.

Data Collection

Data are only accurate if the researcher uses survey instruments that are valid and reliable. The adage of “garbage in, garbage out” underscores the importance of creating questions that meet the needs of the study in order to collect the most accurate information possible. For this study, the researcher elected to combine and modify two survey instruments
previously used in similar studies that were found to be valid and reliable. The following section addresses the complete data collection process.

The data for this study were collected through SurveyMonkey™ with the capability to export the results to a separate secure desktop for analysis. Once the surveys were collected, the data were entered by the researcher into the Statistical Package for the Social Sciences (SPSS) version 22.0. The focus of interest for this study was the interprofessional learning orientation of the RNs and its relation to the following career factors: professional tenure, health-care setting, age, and degree level/focus of the nursing students.

According to Creswell (2012), it was necessary to follow the correct protocol procedures to ensure the avoidance of potential ethical or legal issues when conducting research. The researcher submitted the proposal for approval to the Institutional Review Board (IRB) at Governors State University (GSU) and at Northeastern University before gathering data for this study. Both IRBs concurred that there were no identifying data collected in the study. The career factors were general and did not address specific information that could identify the participant.

Upon IRB approval notification, the researcher contacted the Department of Nursing to obtain permission to send the first email message to all currently enrolled students. The message, found in the Appendix, briefly explained the study and the details for completing the survey, encouraging participants to anticipate receiving the survey and asking them not to delete the email once received; these communications may have helped improve participation. Participants had two weeks to complete the surveys. The researcher sent a reminder email one week after the initial email request to help increase the response rate. Administration of the survey was through SurveyMonkey™. The selection of this method of delivery was due to the fact that the RN-BSN program is entirely online, and students do not attend classes on campus. The Survey was
available for two weeks after IRB approval from both Northeastern University and Governors State University. The Office of Institutional Research and the Department of Nursing at Governors State provided the email addresses of prospective participants. The researcher addressed and collected all correspondence for this study as a Northeastern University doctoral student, not as a staff or faculty member of GSU. The collection of the data took place online, via SurveyMonkey™, during a two-week period.

Creswell (2012) suggested that survey instruments should be kept short and that modest incentives used to help improve response rates. To accomplish this, the researcher piloted the survey to estimate the approximate time necessary to complete the instrument. The pilot group consisted of RNs not eligible to be in the study due to their relationship with the researcher and faculty. Following Creswell’s recommendation, upon completion of the survey the participants had an opportunity to enter a drawing for a Kindle Fire. The mention of the incentive was included in the email invitation as an encouragement to participate. To maintain the respondent's anonymity, the researcher created a numbered ticket system with a separate email account for the drawing. As previously stated, the participants in this sample were from Governors State University where the researcher was employed. Therefore, a small number of participants knew the researcher as a colleague. To help mitigate any potential concerns, the researcher maintained a professional and objective position throughout the entire study. No consideration or invitation to participate in this study was extended to anyone who reported to the investigator.

Data Analysis

The analysis of the data consisted of a multiphase process as described in Table 3.5. The initial step was to conduct a pilot test of the data with 10 members of the nursing faculty and staff to assure the clarity of the statements, leaving step 2 for revisions, which were not
necessary. Steps 3–5 included standard research protocols and processes with full support of the GSU nursing faculty. During steps 6 and 7 the data were reviewed and prepared for statistical analysis.

Table 3.5

*Data Analysis Process*

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pilot Testing</td>
<td>Online survey instrument was pilot tested on 10 subjects</td>
</tr>
<tr>
<td>2</td>
<td>Instrument Revision</td>
<td>The survey instrument was revised based on input and feedback from pilot group</td>
</tr>
<tr>
<td>3</td>
<td>Recruitment</td>
<td>Department of Nursing at GSU encouraged the students to participate in the study after the initial email invitation</td>
</tr>
<tr>
<td>4</td>
<td>Data Collection</td>
<td>Online 26-item Likert survey plus four career factor questions</td>
</tr>
<tr>
<td>5</td>
<td>Data Storage</td>
<td>Secured within SurveyMonkey™ data site, then secured on researcher’s personal computer</td>
</tr>
<tr>
<td>6</td>
<td>Data Preparation</td>
<td>After two weeks, data were reviewed for errors and uploaded using SPSS version 22.0</td>
</tr>
<tr>
<td>7</td>
<td>Data Analysis</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Descriptive statistics: the mean and standard deviation calculated for all survey items.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inferential Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Discriminate analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Stepwise Discriminant Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Split Median</td>
</tr>
</tbody>
</table>

Descriptive statistics were calculated to find out whether there were missing values; the minimum, maximum, and mean score on each variable; and the standard error of the mean for each variable; these calculations provided the researcher with a comprehensive overview of the
data. A preliminary analysis was conducted to explore the data obtained from the adapted Readiness for Interprofessional Learning Scale (RIPLS) and General Self-Efficacy (GSE) scale. The results showed that 53 student nurses had completed the entire survey (14 IPL questions, 12 self-efficacy questions, and 4 career factor questions: age, years in field, degree program, and employment type). The remaining two participants did not complete all self-efficacy questions (each skipped one of the 12 SE questions).

**Descriptive Analysis**

The data were reviewed, incomplete data were identified, and the variables were coded as ordinal, scale, or nominal, allowing for the appropriate descriptive and inferential analysis to take place. Because the independent variable of interprofessional learning was nominal and the independent variable of self-efficacy was nominal, while the dependent career factor variables were ordinal, there were particular methods that allowed for the best analysis of the data.

Fraenkel, Wallen, and Hyun (2012) suggested that the researcher should explore each variable individually before moving on to analyze the relationships between variables. Table 3.3, see above, shows the decision tree used to identify the independent and dependent variables and the measures of assessment in correlation with the research questions. Based on the variables used to determine if there were significant differences between groups of students, a one-way ANOVA was conducted to compare the mean of IPL and the scores of tenure in the fields of nursing, health-care setting, age, and degree-program focus. This study sought to determine the relationship between IPL and self-efficacy, and which characteristics, if any, were associated with IPL.
Inferential Analysis

Inferential statistics are procedures that attempt to infer from the sample population what might be true in the larger population. Inferential statistics draw conclusions based on the probability that an observed difference between groups in the study is either dependable or has happened by chance (Fraenkel et al., 2012). To answer the first research question (Is there an association with between a nurse’s self-efficacy and his or her interprofessional learning orientations?), the inferential statistical analysis performed an analysis of variance (ANOVA), to determine the statistical variance between two groups. For this study, a scatter plot, Pearson’s product-moment correlation, and Spearman’s rho were used to determine whether there were any significant differences in the variations among each group analyzed.

The analysis of the second research question used discriminant function analysis (DFA) to perform a multivariate test of differences between groups. DFA assigns a score to each item by taking the sum of the discriminant coefficients of each predictor variable and the constant of the model (Fraenkel et al., 2012). The use of discriminate function analysis statistics allowed for the identification of group membership by the predictor variables of age, tenure, workplace, program, and self-efficacy in order to answer the question by assessing each of the characteristics and corresponding hypotheses (Fraenkel et al., 2012). DFA is the mathematical reverse of multivariate analysis of variance (MANOVA) and is sensitive to measures of central tendency (Fraenkel et al., 2012).

DFA answers research questions that focus on the separateness of groups based on several variables (Fraenkel et al., 2012). To answer the second research question (To what extent are the characteristics of age, workplace, tenure in the field, and program of study associated with the interprofessional learning orientations of nurses seeking a post-professional or advanced
practice degrees?), the current study explored age, tenure in the field, place of employment, and the academic program currently enrolled; and used DFA to identify differences between groups by testing the variables related to the construct of the group. This type of analysis answers questions pertaining to the predictability of the variables on group membership in order to classify cases at a better rate than by chance alone. Table 3.6 identifies the numerical rankings given to the variables of age and tenure in nursing so the data could be analyzed using discriminant analysis.

Table 3.6

Numeric Recoding of Career Factors for Use in Discriminant Analysis

<table>
<thead>
<tr>
<th>Tenure in Nursing</th>
<th>Tenure in Nursing Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 year</td>
<td>1</td>
</tr>
<tr>
<td>1–5</td>
<td>2</td>
</tr>
<tr>
<td>6–10</td>
<td>3</td>
</tr>
<tr>
<td>11–20</td>
<td>4</td>
</tr>
<tr>
<td>20+</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Age Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>18–24</td>
<td>1</td>
</tr>
<tr>
<td>25–34</td>
<td>2</td>
</tr>
<tr>
<td>35–44</td>
<td>3</td>
</tr>
<tr>
<td>45–54</td>
<td>4</td>
</tr>
<tr>
<td>55–64</td>
<td>5</td>
</tr>
</tbody>
</table>

Similar to MANOVA, DFA traditionally uses continuous variables as the independent or predictor variables (Fraenkel et al., 2012). Some variables, such as tenure in nursing and age, can sensibly be arranged in order, whereas others, such as work and program, are categorical and cannot be put in order, because their levels are nominal, not ordinal. Therefore, dummy coding was used to create a way of representing the differences numerically. Dummy coded categorical variables offer a reference group for predictive purposes. Dummy coding assigns the value of 0 to each code variable in the reference group (Dell, 2013). Dummy coding then assigns a value of
1 to the group of interest for comparison to the reference group (Dell, 2013). The other groups also have a value of 0 for that particular code variable. As seen in Table 3.7 (which shows the cross tabulation of each category), the FNP was used as a “base category,” meaning the category to which others are compared and coded as all 0s.

Table 3.7

*Dummy Coding Degree Program Variables*

<table>
<thead>
<tr>
<th>Degree Program</th>
<th>Dummy-Coded Program Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dummy1</td>
</tr>
<tr>
<td>RN to BSN</td>
<td>1</td>
</tr>
<tr>
<td>MSN</td>
<td>0</td>
</tr>
<tr>
<td>FNP*</td>
<td>0</td>
</tr>
<tr>
<td>DNP</td>
<td>0</td>
</tr>
</tbody>
</table>

The researcher employed the same use of dummy coding of the workplace variables as seen in Table 3.8, establishing hospital as the “base category” because it was modal employment location and coded as all 0s for evaluation purposes. The use of dummy coding in SPSS allowed stepwise discriminant analysis applications to analyze the data effectively.

Table 3.8

*Dummy Coding Workplace Variables*

<table>
<thead>
<tr>
<th>Work Place</th>
<th>Dummy-Coded Work Place Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dummy1</td>
</tr>
<tr>
<td>Hospital</td>
<td>0</td>
</tr>
<tr>
<td>Clinic</td>
<td>1</td>
</tr>
<tr>
<td>Nursing Home/Assisted Living</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

**Stepwise Discriminant Analysis**

A common application for discriminant function analysis includes various measures to determine which variables discriminate between groups (Fraenkel, et al., 2012). For this study, the researcher looked at predicting what variables correlated with the nurses’ attitudes towards IPL (including age tenure in the field, workplace, degree program, and self-efficacy) in order to
learn which variables offer the best prediction. Stepwise discriminant function analysis builds a model of discrimination step-by-step (Dell, 2013). The review of variables at each step determines which one will contribute the maximum amount to the discrimination between groups; this process can also look at the variables that contribute the least and thereby should be eliminated. Thus, as the result of a successful discriminant function analysis, only the “relevant” variables are kept in the model.

**Median Split**

Treating the independent variables IPL and self-efficacy as a categorical allowed for the analysis to determine if there was a difference in the mean of the dependent variables by the dichotomized independent variable. Median splits allowed the researcher to conduct an ANOVA to compare group means, in order to permit for a simpler way of communicating findings based on group differences and the important variance in the underlying continuous variable.

Once the medians were identified, both IPL and SE were split at their own median to create a “high” and a “low” group on each. Having high and low groups on each allowed the researcher to answer the second research question. All the steps noted in this subsection were taken to assess the data and answer the research questions. The findings appear in Chapter 4.

**Role of the Researcher**

Nursing is a profession of particular interest to this researcher, due to the close working relationships with nurses I developed over the years while working in hospitals and physician practices as an advisor for nursing students, and as a member of an interprofessional education team. Working with nurses provided me with an insight into the intricacies of the profession and the individuals who choose it. In my current role as director of the College of Health and Human Services and a member of the Interprofessional Education Committee, I am collaborating with
faculty and department chairs in developing a collaborative IPL pedagogy for the college. Anecdotal information gathered during various interactions and conversations throughout the years revealed to me the positive and negative interactions that exist between medical staff, nursing supervisors, and hospital administration. This information left a strong impression in me.

The purpose of this study was to, quantitatively, examine the interprofessional learning orientations of RNs enrolled in post-licensure and advanced practice nursing programs. Considering that nurses represent one of the largest segments of health care and have the possibility to influence the success or failure of an IPL endeavor upon becoming students once again, I believed it was important to gain a better understanding of how the nurses perceive IPL. This belief ultimately lead to this doctoral thesis. As a scholar and practitioner, I took the findings and brought them to the chair of the nursing program in order to figure out the applicability of the findings to the current IPL endeavors. Understanding the nurses’ IPL orientations was a factor that needed to be explored in order to determine whether their orientations would be a barrier against IPL endeavors. I hoped that this study would lead to the construction of a data- and evidence-based curriculum, thus advancing IPL endeavors in the college.

Protection of Human Subjects

Research involving human subjects requires that the university’s Institutional Review Board (IRB) review a proposal (Creswell, 2012). The IRB examines it to ensure that measures are in place to protect participants from risk, and that vulnerable populations are not exploited (Creswell, 2012). The IRB of each participating university (Governors State University and Northeastern University) reviewed the study. This review process ensured that the researcher had
considered all necessary ethical issues intrinsic to human subject research. Evidence of this process is presented in Appendix A.

Researchers must maintain the privacy and confidentiality of the participants throughout the entire research process (Creswell, 2012). This researcher ensured that there were no breaches throughout the data collection, analysis, and subsequent report of the findings. Therefore, there was no intention to collect the names of the participants wishing to enter the drawing for the Kindle Fire; those entering the drawing did so using a unique identification number. Additional means of protecting the human subjects involved using a secure password-protected computer that housed all data-collection information, data, and statistical findings for this study.

This quantitative study reported aggregated data which presented minimal threat for a breach of the individual’s privacy and confidentiality for participating in the study. As stated in previous sections all participants received an informed consent form that stated or explained the following:

- participation in the survey is voluntary,
- participants have the right to withdraw at any time,
- the purpose of the study,
- the expected length of time for completing the survey,
- any known risks and benefits,
- the researcher’s contact information should participants wish further information.

**Summary**

This study used nonexperimental quantitative methodologies and design. Two research questions with five hypotheses and null hypotheses were tested using descriptive and inferential statistical analysis. Cronbach’s alpha testing was also conducted to test for internal consistency
and reliability. The population was a convenience sample of post-licensure and advanced degree nursing students from a Midwestern university. Students were invited to participate in the anonymous and confidential online survey during the summer semester of 2015. The number of students that participated was 53 (n = 53), which represented 25% of the total number enrolled. The data collected from the 26-item and four-career factors-question survey examined the correlations between interprofessional learning orientations, self-efficacy, age, tenure in the field of nursing, place of employment, and program of study. The next chapter presents the results of this survey and the findings of this study in relation to the research questions and hypothesis driving the study.

Limitations

The researcher conducted the study at one midsize Midwestern public university. An internet-based survey of 26 Likert Scale questions and four career factor questions were sent to a convenience sample of nursing program students during the summer semester. It was expected that the number of participants would be small due to the targeted population. Although it was the intent of the researcher to recruit a diverse pool of participants regarding age, professional level, and background; the variables of race and gender, religious views, and sexual orientations were not taken into consideration.

This study was a nonprobability or convenience sampling, therefore, it must be noted that the results are only generalizable to the population sampled. However, we might infer from these results that similar results could be expected in similar health care populations.
Chapter 4 Data Analysis Results

The purpose of this quantitative research study was to explore the IPL orientations of registered nurses returning to school to further their education. The study also explored to what extent are the characteristics of age, workplace, tenure in the field, and program of study associated with interprofessional learning. This chapter describes the descriptive statistics, inferential statistics, and discriminate analyses to answer the research question and test the hypotheses posed for this population of students.

Analysis Descriptive Insights

Participants’ responses were evaluated using descriptive statistics to identify the frequencies, means, and standard deviations for the multiple variables. Each participant responded to career factor items regarding tenure in the field of nursing, employment, age, and program of study by selecting from a predefined set of options. Looking at the career factors in a broader context, the decision was made to create the categories within which the participants would better align themselves, allowing for a more precise prediction of an association between these variables and the interprofessional learning orientation.

Table. 4.1 shows the break down of the respondents based on the career factor of tenure in nursing, employment, age, and program of study; and provides an understanding of the sample population when looking at the item analysis noted in the next subsection tables.

Table 4.1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure in Nursing</td>
<td>1–5 years</td>
<td>15</td>
<td>28.30%</td>
</tr>
<tr>
<td>(n = 53)</td>
<td>6–10 years</td>
<td>16</td>
<td>30.19%</td>
</tr>
<tr>
<td></td>
<td>11–20 years</td>
<td>11</td>
<td>20.75%</td>
</tr>
<tr>
<td></td>
<td>More than 20 years</td>
<td>11</td>
<td>20.75%</td>
</tr>
</tbody>
</table>
This section will review the survey results. The first sub-section will review the results of the participants’ responses to the statements. The next subsection will address the comparisons within groups.

**Descriptive Statistics**

The IPL and self-efficacy scales were evaluated using Cronbach's alpha as a measure of internal consistency (i.e., how closely related a set of items are as a group). The results were then assessed for reliability as described in Chapter 3: Cronbach’s alpha = .948 (.951 for standardized items), very strong evidence that the items are all measuring the same thing (i.e., attitude toward IPL). However, alpha would have been even higher (.964) if the researcher had chosen to exclude item 9 instead of reverse coding it.
These results in Table 4.2 show that participants scored, on average, very similar to the IPL mean (4.032) and self-efficacy mean (3.820) scores. Additionally, the standard deviation had similar findings with IPL (0.76298) and self-efficacy (0.673).

Table 4.2

Descriptive Statistics for IPL Mean and Self-Efficacy Mean

<table>
<thead>
<tr>
<th></th>
<th>Statistic</th>
<th>Range Statistic</th>
<th>Minimum Statistic</th>
<th>Maximum Statistic</th>
<th>Mean Statistic</th>
<th>Std. Deviation Statistic</th>
<th>Skewness Statistic</th>
<th>Kurtosis Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPL Mean</td>
<td>53</td>
<td>3.79</td>
<td>1.21</td>
<td>5.00</td>
<td>4.0323</td>
<td>0.763</td>
<td>-2.094</td>
<td>5.629</td>
</tr>
<tr>
<td>Self-Efficacy Valid N</td>
<td>51</td>
<td>3.75</td>
<td>1.08</td>
<td>4.83</td>
<td>3.8203</td>
<td>0.673</td>
<td>-2.370</td>
<td>7.878</td>
</tr>
</tbody>
</table>

Kurtosis and skewness characterize the shape and symmetry for a normal distribution. The extent to which observations cluster around a central point is the value of the kurtosis statistics; maximum clustering around a central point has a kurtosis of zero. Finding there is a positive kurtosis indicates a “relative to normal” distribution, more clustered about the center of the distribution. Negative kurtosis indicates the observations cluster less and have thicker tails at the extreme values of the distribution. The kurtosis statistics for the IPL mean was 5.629 with a standard deviation of 0.644, and the self-efficacy mean was 7.878 with a standard deviation of 0.656.

Skewness is a measure of the asymmetry of distribution. The normal distribution is symmetric and has a skewness value of 0. Distribution with a significant positive skewness has a long right tail. Distribution with a significant negative skewness has a long left tail. The skewness for both the IPL and self-efficacy means were negative.
Frequencies

The frequency (f) of an observation is the number of times the observation occurs in the data. This study observed the responses for IPL and self-efficacy. Frequency distribution of IPL and self-efficacy is the pattern of observation, which shows the actual number of observations falling in each range or the percentage of observations. The frequency tables for each of the survey items are located in Appendix B; Figure 4.1 and Figure 4.2 shows the total of all the means in the form of a bell curve of each scale, allowing for a visual representation of the data. Both scales show that the respondents’ sum total answers were within the normal distribution bell with IPL (56.45) and a standard deviation (10.682) of the mean; and self-efficacy (45.84) with a standard deviation (8.081).

Figure 4.1. Histogram of frequency of distribution for IPL.

Figure 4.2. Histogram of frequency of distribution of self-efficacy.
Item Analysis

The researcher statistically checked 14 items comprising the IPL scale and the 12 items of the self-efficacy scale (identified in Chapter 3) for the mean and standard deviation. As previously stated in Chapter 3, item 9 identified as being worded opposite to all items on tests (meaning that a high score was negative rather than positive); therefore, reverse coding was necessary. There were two students who did not answer all the questions hence \( n = 51 \), whereas IPL \( n = 53 \).

The results, as seen in Table 4.3, show that of the top 5 items, 4 showed a strong preponderance, with IPL showing the highest mean (4.34) but with a standard deviation of 1.108. The only item associated with self-efficacy in the top five reported a mean score of 4.15 with a standard deviation of .841. The lowest 5 items were associated with self-efficacy; the lowest scoring a mean of 2.89 with a standard deviation of 0.981. The comparison of the IPL mean score and the self-efficacy mean scores indicate a strong association between the two variables, with the IPL mean of 4.1631 and a standard deviation of 0.53662, and the self-efficacy mean of 3.9266 with a standard deviation of 0.41387.

Table 4.3

Survey Descriptive Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interprofessional learning helps me to think positively about other health care professionals.</td>
<td>53</td>
<td>4.11a</td>
<td>0.824</td>
</tr>
<tr>
<td>2. Interprofessional learning before licensure will help health-professional students to become better teamworkers.</td>
<td>53</td>
<td>4.09</td>
<td>0.838</td>
</tr>
</tbody>
</table>
3. Patients would ultimately benefit because I’ve learned with other health-care professionals to solve patient problems.  

4. I can solve most problems if I invest the necessary effort.  

5. Students in my professional discipline would benefit from working on small group projects with other health-care students.  

6. Communication skills should be learned with integrated classes of health-care students.  

7. Interprofessional learning will help me to clarify the nature of patient problems for students.  

8. If someone opposes me, then I can find the means and ways to get what I want.  

9. It is not necessary for undergraduate health-care students to learn together.  

10. My learning with students from other health disciplines helps undergraduates to become more effective members of a health-care team.  

11. I can remain calm when facing difficulties because I can rely on my coping abilities.  

12. Interprofessional learning will increase my ability to understand clinical problems.  

13. Interprofessional learning will help me to learn and understand my own professional limitations.
<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>I need to trust and respect students from other disciplines for small group learning to work.</td>
<td>53</td>
<td>4.15a</td>
<td>1.008</td>
</tr>
<tr>
<td>15</td>
<td>Thanks to my resourcefulness, I know how to handle unforeseen situations.</td>
<td>53</td>
<td>3.98</td>
<td>0.771</td>
</tr>
<tr>
<td>16</td>
<td>Interprofessional learning will help me to communicate better with patients and other professionals.</td>
<td>53</td>
<td>3.96</td>
<td>0.939</td>
</tr>
<tr>
<td>17</td>
<td>If I am in trouble, then I can usually think of a solution.</td>
<td>53</td>
<td>3.94</td>
<td>0.770</td>
</tr>
<tr>
<td>18</td>
<td>Teamworking skills are essential for me and other health-care students to learn.</td>
<td>53</td>
<td>4.34a</td>
<td>1.018</td>
</tr>
<tr>
<td>19</td>
<td>Interprofessional learning activities before licensure would have improved my relationships with other health professionals.</td>
<td>53</td>
<td>3.85b</td>
<td>1.026</td>
</tr>
<tr>
<td>20</td>
<td>It is easy for me to stick to my aims and accomplish my goals.</td>
<td>53</td>
<td>3.85b</td>
<td>0.928</td>
</tr>
<tr>
<td>21</td>
<td>I am confident that I could deal efficiently with unexpected events.</td>
<td>53</td>
<td>3.83b</td>
<td>0.778</td>
</tr>
<tr>
<td>22</td>
<td>When I am confronted with a problem, I can usually find several solutions.</td>
<td>53</td>
<td>3.89</td>
<td>0.800</td>
</tr>
<tr>
<td>23</td>
<td>I can usually handle whatever comes my way.</td>
<td>53</td>
<td>3.92</td>
<td>0.756</td>
</tr>
<tr>
<td>24</td>
<td>When I am confronted with a problem, I can usually find several solutions.</td>
<td>53</td>
<td>3.94</td>
<td>0.842</td>
</tr>
<tr>
<td>25</td>
<td>In general, I think I can obtain outcomes that are important to me.</td>
<td>53</td>
<td>4.08</td>
<td>0.874</td>
</tr>
<tr>
<td>26</td>
<td>Compared to others, I can do most</td>
<td>53</td>
<td>3.77</td>
<td>0.933</td>
</tr>
</tbody>
</table>
tasks very well.

Reverse Code for Question 9

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean (sd)</th>
<th></th>
<th>N</th>
<th>Mean (sd)</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPL Mean</td>
<td>53</td>
<td>4.06</td>
<td>1.045</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy Mean</td>
<td>51</td>
<td>3.927</td>
<td>0.4139</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Valid N (listwise) 51

\(^a\) Top five mean scores. \(^b\) Lowest five mean scores.

**Group Comparison Analysis**

The variables of age, tenure in the field, workplace, and program of study are categorical variables. The use of descriptive statistics to assess each category allowed the following analysis to understand the population and the relationships with IPL and self-efficacy. The narrative presentation of each variable with the findings proceeds after table 4.4.

**Table 4.4**

*Group Comparisons*

<table>
<thead>
<tr>
<th></th>
<th>Total IPL score</th>
<th>Total SE score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>N</td>
<td>Mean (sd)</td>
</tr>
<tr>
<td>18-24</td>
<td>1</td>
<td>60.0</td>
</tr>
<tr>
<td>25-34</td>
<td>17</td>
<td>57.6 (6.3)</td>
</tr>
<tr>
<td>35-44</td>
<td>21</td>
<td>51.9 (14.4)</td>
</tr>
<tr>
<td>45-54</td>
<td>11</td>
<td>61.5 (5.2)</td>
</tr>
<tr>
<td>55-64</td>
<td>3</td>
<td>62.3 (4.1)</td>
</tr>
<tr>
<td>Program of Study</td>
<td>Total IPL score</td>
<td>Total SE score</td>
</tr>
<tr>
<td>DNP</td>
<td>4</td>
<td>60.76 (4.6)</td>
</tr>
<tr>
<td>FNP</td>
<td>43</td>
<td>56.6 (10.5)</td>
</tr>
<tr>
<td>MSN</td>
<td>3</td>
<td>4.3 (5.0)</td>
</tr>
<tr>
<td>RN-BSN</td>
<td>3</td>
<td>41.3 (11.7)</td>
</tr>
</tbody>
</table>
Tenure in the field. As seen in Table 4.4, the participants with higher mean scores were those who have 1–5 years of nursing experience (47.692) with a standard deviation of 4.1106; and those with 6–10 years of experience (46.273) and a standard deviation of 5.985. The participants that had the highest IPL score were those who had 1–5 years of experience (58.200) with a standard deviation of 6.247 and more than 20 years of experience (60.910) and a standard deviation of 4.989. Participants who have 11–20 years of experience had the largest standard deviation for both the IPL and self-efficacy means.

Age. As seen in Table 4.4, there was only one student in the 18–24 year category; therefore no further analysis of this category is possible. The largest number of participants was in the 35–44 age group with IPL total (51.857) and self-efficacy total (43.714); however, the standard deviation for the two is the largest of all the groups. The next two groups, 45–54, and 55–64, scored higher in both IPL and self-efficacy with smaller standard deviations.

Workplace. As seen in Table 4.4, the overwhelming number of participants worked in hospitals, with an IPL score (57.400) and a standard deviation (9.5483) and a self-efficacy score
(46.464) with a standard deviation (7.265). The group that scored highest in the IPL was nurses who worked in other areas (62.667) besides the three listed categories of clinic (53.000), hospital (57.400), and nursing home/assisted living facilities (47.500). However, the same group did not score as high in self-efficacy (44.333) as their counterparts at the clinics (47.400) and hospitals (46.462), but it did score higher than those employed at nursing home/assisted living facilities (39.000). The self-efficacy of the nurses who worked in clinics had less of a standard deviation (0.894) and a mean of (47.400), with the largest standard deviation among the nurses from nursing homes/assisted living facilities (17.569).

**Program of study.** As seen in Table 4.4, the majority of the students (43 of the 53) participating in the study were from the FNP program. Their mean for IPL (56.558) and self-efficacy (46.244) were high, but not has high as the MSN mean for IPL (64.333) or the RN-BSN mean for self-efficacy (47.000). The standard deviation was the highest (11.676) for the IPL total in the RN-BSN group. The MSN self-efficacy mean (41.667) was the lowest; however, the standard deviation was the smallest (3.512).

**Inferential Statistics**

Inferential statistics allow for inferences—based on relations found in the sample, gleaned from the data—that are strong enough to provide support for the research hypothesis that group differences exist in general, in the larger population. This subsection reports the inferential statistics used to determine whether to reject the null hypotheses associated with the research questions. To answer the first research question a scatter plot was constructed to display the visual relationship between variables for Hypothesis 1. Additionally, Pearson’s $r$ and Spearman’s
rho were used to test the correlation between variables for Hypotheses 1. To address the second research question and Hypotheses 2 through 5, the use of discriminate function analysis answered whether the career factors were effective in predicting whether someone is in favor of, or resistant to, IPL.

**Research Question 1**

Is there an association with a nurse’s self-efficacy and his or her interprofessional learning orientations?

- **H1₀** There is no association with a nurse’s self-efficacy and his or her interprofessional learning orientation.
- **H1** There is an association with a nurse’s self-efficacy and his or her interprofessional learning orientation.

The first step in examining the results was the construction of a scatter plot to determine whether or not a correlation existed between the variables IPL and self-efficacy. The scatter plot below (Figure 4.3) is a visual representation of the linearity between the dependent variable IPL and the independent variable self-efficacy with an $r^2$ of 0.487.

![Figure 4.3. Interprofessional learning and self-efficacy scatter plot.](image)
In the next step in the process, Pearson’s correlation and Spearman’s rho were evaluated. Pearson’s correlation coefficient measures the statistical relationship, or association, between two continuous variables based on the method of covariance, as well as the direction of the association. For this study, the researcher used Pearson’s correlation to measure the strength of the association between the two variables, IPL and self-efficacy.

Given that the variables are continuous, and the hypotheses seek to assess the associations, or how the distribution of the z-scores vary, Pearson’s correlations are the appropriate bivariate statistic. Correlation is significant at the 0.01 level. Therefore, the correlation between IPL and self-efficacy is highly significant as shown in Table 4.5. Thus, there is a relationship between self-efficacy and the interprofessional learning orientations of the nurses.

Table 4.5

*Pearson’s Correlations Table*

<table>
<thead>
<tr>
<th></th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IPL Total</strong></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (two-tailed)</td>
<td></td>
</tr>
<tr>
<td><em>N</em></td>
<td>53</td>
</tr>
<tr>
<td><strong>Self-Efficacy</strong></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.698**</td>
</tr>
<tr>
<td>Sig. (two-tailed)</td>
<td></td>
</tr>
<tr>
<td><em>N</em></td>
<td>51</td>
</tr>
</tbody>
</table>

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

Spearman’s rho was calculated to validate the scattergram and Pearson’s correlation findings. Pearson’s *r* assumes the variables are linear and normally distributed. Unlike Pearson’s *r*, which collocates a correlation coefficient on the actual data, Spearman’s rho calculates a correlation coefficient based on ranking. As Table 4.6 demonstrates, the correlation coefficient of 0.346 was significant at 0.013. The finding are consistent with the value of Pearson’s *r* =
0.698 (a significance of 0.000) and the scatter plot $r^2$ of 0.487, showing a relationship between the variables.

Table 4.6

*Spearman’s rho Correlation Table*

<table>
<thead>
<tr>
<th>Correlations</th>
<th>IPL Total</th>
<th>Self-Efficacy Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spearman's rho</strong></td>
<td>IPL Total</td>
<td>Correlation Coefficient</td>
</tr>
<tr>
<td></td>
<td>Sig. (two-tailed)</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>$N$</td>
<td>53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-Efficacy Total</th>
<th>Correlation Coefficient</th>
<th>0.346*</th>
<th>1.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Sig. (two-tailed)</td>
<td>0.013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$N$</td>
<td>51</td>
<td>53</td>
</tr>
</tbody>
</table>

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

The research question asked if there is a relationship between the self-efficacy and the interprofessional learning orientation of nurses enrolled in post-licensure and advanced degree programs. The null hypothesis states there is no relationship between self-efficacy and IPL. Correlation is significant at 0.05. Therefore, based on the findings identified above, the null hypothesis is rejected. The results support Hypothesis 1, that is, that there is a relationship between the self-efficacy and interprofessional learning orientations of nurses enrolled in post-licensure and advanced degree programs. As can be seen, the correlation is a positive one with higher scores on the IPL associated with higher scores on the SE scale and vice-versa.
Research Question 2

To what extent are the characteristics of age, workplace, tenure in the field, program of study, and self-efficacy associated with the interprofessional learning orientations of nurses seeking a post-professional or advanced practice degrees?

H20: There is no association between age and IPL.

H2: There is an association between age and IPL.

H30 there is no association between workplace and IPL.

H3: There is an association between workplace and IPL.

H40: There is no association between tenure in the field and IPL.

H4: There is an association between tenure in the field and IPL.

H50: There is no association between degree program and IPL.

H5: There is an association between degree program and IPL.

The objective of this question was to identify the significant determinants (if any) of the IPL scores of the RNs. In order to answer the question, the researcher needed to create two groups: those who favored IPL and those who were less inclined to favor IPL. The researcher’s use of discriminate function analysis statistics allowed to identify group membership by the predictor variables of age, tenure, workplace, program, and self-efficacy. The next subsection will report the findings based on the steps of discriminant function analysis.

Discriminant Function Analysis

Discriminant function analysis (DFA) performs a multivariate test of differences between groups. It assigns a score to each case by taking the sum of the discriminant coefficients of each
predictor variable and the constant of the model. A defining characteristic of DFA is its treatment of the traditional independent variable as the dependent variable since the discriminant scores composed of the true independent variables will depend on the group membership. In the case of this study, the variable age would traditionally be treated as an independent variable in other analysis; however, DFA can predict IPL-readiness based on other collected data such as age or self-efficacy. DFA is the mathematical reverse of multivariate analysis of variance (MANOVA) and is sensitive to measures of central tendency.

Step 1. As described in Chapter 3, a median split created two outcome levels based on the median IPL score, those who scored \( \geq 0.58 \) (considered positive for IPL) and those who scored \( \leq 0.58 \) (considered negative towards IPL). Therefore, the IPL means were divided into two groups as demonstrated in Table 4.7. The table shows that 51 cases were used in the analysis. Because two of the respondents did not answer two of the self-efficacy items, the full complement of 53 were not used in this analysis.

Table 4.7

*Group Statistics*

<table>
<thead>
<tr>
<th>IPL High Low</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Unweighted N</th>
<th>Weighted N</th>
</tr>
</thead>
<tbody>
<tr>
<td>.00 Age Rank</td>
<td>2.692</td>
<td>0.679</td>
<td>26</td>
<td>26.000</td>
</tr>
<tr>
<td>Tenure in the Field of Nursing</td>
<td>2.231</td>
<td>0.992</td>
<td>26</td>
<td>26.000</td>
</tr>
<tr>
<td>WorkPlace1</td>
<td>0.115</td>
<td>0.326</td>
<td>26</td>
<td>26.000</td>
</tr>
<tr>
<td>WorkPlace2</td>
<td>0.115</td>
<td>0.3258</td>
<td>26</td>
<td>26.000</td>
</tr>
<tr>
<td>WorkPlace3</td>
<td>0.000</td>
<td>0.000</td>
<td>26</td>
<td>26.000</td>
</tr>
<tr>
<td>Self-Efficacy Total</td>
<td>43.7308</td>
<td>9.477</td>
<td>26</td>
<td>26.000</td>
</tr>
</tbody>
</table>
The results of univariate ANOVAs for each independent variable, represented in Table 4.8, show the potential contribution to the model made by each variable. If the values are > 0.10, the variable does not contribute to the model. The closer Wilks’s Lambda p value is to 0.000, the better the function discriminates between groups. A review of the variables indicates that age (p
= 0.013), self-efficacy (p = 0.056), and program dummy coded 3 (p = 0.071) are significant or marginally significant predictors of high/low IPL group membership.

Table 4.8

Tests of Equality of Group Means

<table>
<thead>
<tr>
<th></th>
<th>Wilks's Lambda</th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.880</td>
<td>6.654</td>
<td>1</td>
<td>49</td>
<td>0.013</td>
</tr>
<tr>
<td>Tenure in Field</td>
<td>0.941</td>
<td>3.059</td>
<td>1</td>
<td>49</td>
<td>0.087</td>
</tr>
<tr>
<td>WorkPlace1</td>
<td>0.996</td>
<td>0.174</td>
<td>1</td>
<td>49</td>
<td>0.678</td>
</tr>
<tr>
<td>WorkPlace2</td>
<td>0.980</td>
<td>0.982</td>
<td>1</td>
<td>49</td>
<td>0.327</td>
</tr>
<tr>
<td>WorkPlace3</td>
<td>0.935</td>
<td>3.406</td>
<td>1</td>
<td>49</td>
<td>0.071</td>
</tr>
<tr>
<td>Self-Efficacy Total</td>
<td>0.928</td>
<td>3.830</td>
<td>1</td>
<td>49</td>
<td>0.056</td>
</tr>
<tr>
<td>Program_DummyCoded1</td>
<td>0.940</td>
<td>3.133</td>
<td>1</td>
<td>49</td>
<td>0.083</td>
</tr>
<tr>
<td>Program_DummyCoded2</td>
<td>0.935</td>
<td>3.406</td>
<td>1</td>
<td>49</td>
<td>0.071</td>
</tr>
<tr>
<td>Program_DummyCoded3</td>
<td>0.977</td>
<td>1.153</td>
<td>1</td>
<td>49</td>
<td>0.288</td>
</tr>
</tbody>
</table>

Step 2: Stepwise discriminant analysis. A common application for discriminant function analysis includes various measures to determine which variables discriminate between groups. Stepwise discriminant analysis evaluates each of the variables and based on “F to enter” value and the default value (3.84) automatically selects the variables to add to the model. The first step eliminates the most significant variable and the same process is applied for steps 2 and 3. For this study, the researcher looked at predicting what variables influenced the nurses’ attitudes towards IPL, including age, tenure in the field, workplace, degree program, and self-efficacy, in order to learn which variables offer the best prediction. Table 4.8 explores the three steps in the selection of the variables best suited to be in the model.
### Analysis of the Variables

<table>
<thead>
<tr>
<th>Step</th>
<th>Tolerance</th>
<th>Min. Tolerance</th>
<th>Sig. of F to Enter</th>
<th>Wilks’s Lambda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Rank</td>
<td>1.000</td>
<td>1.000</td>
<td>0.013</td>
<td>0.880</td>
</tr>
<tr>
<td>Tenure in Field Rank</td>
<td>1.000</td>
<td>1.000</td>
<td>0.087</td>
<td>0.941</td>
</tr>
<tr>
<td>WorkPlace1</td>
<td>1.000</td>
<td>1.000</td>
<td>0.678</td>
<td>0.996</td>
</tr>
<tr>
<td>WorkPlace2</td>
<td>1.000</td>
<td>1.000</td>
<td>0.327</td>
<td>0.980</td>
</tr>
<tr>
<td>WorkPlace3</td>
<td>1.000</td>
<td>1.000</td>
<td>0.071</td>
<td>0.935</td>
</tr>
<tr>
<td>Self-Efficacy Total</td>
<td>1.000</td>
<td>1.000</td>
<td>0.056</td>
<td>0.928</td>
</tr>
<tr>
<td>Program_DummyCoded1</td>
<td>1.000</td>
<td>1.000</td>
<td>0.083</td>
<td>0.940</td>
</tr>
<tr>
<td>Program_DummyCoded2</td>
<td>1.000</td>
<td>1.000</td>
<td>0.071</td>
<td>0.935</td>
</tr>
<tr>
<td>Program_DummyCoded3</td>
<td>1.000</td>
<td>1.000</td>
<td>0.288</td>
<td>0.977</td>
</tr>
</tbody>
</table>

1. Tenure in Field Rank | 0.461 | 0.461 | 0.843 | 0.880 |
| WorkPlace1 | 0.969 | 0.969 | 0.414 | 0.868 |
| WorkPlace2 | 0.997 | 0.997 | 0.300 | 0.861 |
| WorkPlace3 | 0.833 | 0.833 | 0.425 | 0.869 |
| Self-Efficacy Total | 0.961 | 0.961 | 0.023 | 0.790 |
| Program_DummyCoded1 | 0.991 | 0.991 | 0.067 | 0.820 |
| Program_DummyCoded2 | 1.000 | 1.000 | 0.095 | 0.830 |
| Program_DummyCoded3 | 0.697 | 0.697 | 0.703 | 0.878 |

2. Tenure in Field Rank | 0.458 | 0.458 | 0.993 | 0.790 |
| WorkPlace1 | 0.954 | 0.923 | 0.299 | 0.772 |
| WorkPlace2 | 0.951 | 0.916 | 0.606 | 0.786 |
| WorkPlace3 | 0.831 | 0.811 | 0.393 | 0.778 |
| Program_DummyCoded1 | 0.974 | 0.944 | 0.045 | 0.725 |
| Program_DummyCoded2 | 0.953 | 0.915 | 0.039 | 0.721 |
| Program_DummyCoded3 | 0.697 | 0.679 | 0.729 | 0.788 |

3. Tenure in Field Rank | 0.441 | 0.441 | 0.694 | 0.719 |
| WorkPlace1 | 0.952 | 0.904 | 0.372 | 0.708 |
| WorkPlace2 | 0.943 | 0.867 | 0.758 | 0.719 |
| WorkPlace3 | 0.808 | 0.808 | 0.251 | 0.700 |
| Program_DummyCoded1 | 0.973 | 0.899 | 0.050 | 0.663 |
| Program_DummyCoded3 | 0.682 | 0.677 | 0.973 | 0.721 |
Three variables, age, self-efficacy and program dummy coded 2 (MSN) were eliminated as the scores identified as significant. The results of step 3 identify the variable of tenure as having a low tolerance, which is the proportion of a variable’s variance not accounted for by another independent variable. A low tolerance contributes little to the model, and in this study, the lowest tolerance (consistent in each of the three steps) is the variable tenure in the field (0.441) with a Wilks’s Lambda of 0.719. The variables identified in step 3 (tenure, workplace, and two of the programs), were not included in the model: although the tolerance level was high, the significance of $F$ and the Wilks’s Lambda were higher than the three variables selected. Eliminating these variables from the findings would support the null Hypotheses H30 (*there is no association between workplace and IPL*) and H40 (*there is no association between tenure in the field and IPL*), but would reject H50 (*there is no association between degree program and IPL*).

**Step 3: Wilks’s Lambda.** In order to validate the selection of the three variables, Wilks’s Lambda test measures which variable contributes significance in discriminate function analysis. The nearer Wilks’s Lambda is to 0, the more the variable contributes to the discriminant function. If the $p$-value $< 0.05$, then one could conclude that the corresponding function explains the group membership. The $p$-value for the three variables (age, self-efficacy, and program) are $< 0.05$. Therefore, *Table 4.10 Wilk’s Lambda* shows that the 3 variables significantly contribute to correctly classifying the respondents: age (higher IPL goes with higher age), self-efficacy (greater efficacy goes with higher IPL), and the dummy-coded variable representing the MSN (higher IPL goes with being in MSN program). Attitudes towards IPL are significantly predicted by age, self-efficacy, and whether the student is in MSN program. Based on Wilks’s Lambda, the null research hypotheses H20 and H50 are rejected.
Table 4.10

Wilks’s Lambda

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>Wilk's Lambda</th>
<th>df1</th>
<th>df2</th>
<th>df3</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>0.880</td>
<td>1</td>
<td>1</td>
<td>49.000</td>
<td>0.013</td>
</tr>
<tr>
<td>2</td>
<td>Self-Efficacy</td>
<td>0.790</td>
<td>2</td>
<td>1</td>
<td>49.000</td>
<td>0.004</td>
</tr>
<tr>
<td>3</td>
<td>MSN</td>
<td>0.721</td>
<td>3</td>
<td>1</td>
<td>49.000</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Note:* For step 1, 1.49 degrees of freedom; for step 2, 2.48 degrees of freedom; and for step 3, 3.47 degrees of freedom.

**Step 4: Median split and classification results.** There are a vast number of reasons why researchers may dichotomize independent variables. Post-dichotomization, treating the independent variable as a categorical variable allows statistical analysis to determine if there is a difference in the mean of the dependent variable by the dichotomized independent variable. Median splits allow a researcher to conduct an ANOVA to compare group means. Median splits also permit for a simpler way of communicating findings based on group differences. Lastly, it reflects the important variance in the underlying continuous variable.

Based on the frequency scores found in Appendix B and as see in Table 4.2, Table 4.11 Median Split, shows IPL total median scores ≥ 58 coded the IPL high/low = 1; and if the IPL total was < 58, the IPL high/low = 0. The same process would then apply to the self-efficacy scores: if the self-efficacy total ≥ 47, then the self-efficacy high/low = 1; and if the self-efficacy total < 47, then the self-efficacy high/low = 0. Based on these parameters, the researcher used discriminant function analysis to predict group membership based on the variables identified in the previous steps.
Table 4.4

**Median Split of IPL**

<table>
<thead>
<tr>
<th>Variable</th>
<th>IPL Score at or above Median (≥ 58)</th>
<th>IPL Score below Median (&lt; 58)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Age</td>
<td>3.320</td>
<td>1.030</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>48.040</td>
<td>5.712</td>
</tr>
<tr>
<td>MSN</td>
<td>0.120</td>
<td>0.332</td>
</tr>
</tbody>
</table>

*Note:* The formula used to construct table 4.14 was: \( z = (p^- - p_0) / \sqrt{p_0(1-p_0) / n} = 2.606 \) Where, \( p^- \) - Observed proportion = 0.679; \( p_0 \) - Null hypothesis value = 0.50; \( n \) - sample size = 53; \( Z \) - test statistic = 2.606 = (0.679 - .5)/(sqrt(.5*1-.5)/53) which demonstrates 67.9% of cross-validated cases were correctly classified. One would expect 50% accuracy by chance – 2 categories (High IPL/Low IPL) – because 2.606 (observed \( z \)) > 1.96 (\( z \) crit), \( p \) must be < 0.05. Therefore, it is unlikely that it is so accurate just by chance alone. These three variables are leading to a much better classification of the students into IPL high and low groups than chance alone would.

**Summary**

The results of this study are based on the responses of 53 nurses enrolled in the 2015 summer semester, at a small-midsized Midwest public university. The findings of this nonexperimental, one-time, survey research study reported that of the 53 participants, the strongest response (81%) came from the advanced practice nurses (MSN, MSN-FNP), 75% worked in hospitals, and there was a relative distribution of tenure across the 25–54 age groups. This chapter detailed the descriptive statistics used in the study, including measures of central tendency for the variables of interest including interprofessional learning readiness and self-
efficacy. Both scales demonstrated good reliability with Cronbach’s alpha > .9 for both IPL and self-efficacy.

To answer the first research question, inferential statistics found Hypothesis 1 accepted and supported by Spearman’s rho (0.346) with a significance of (0.13); Pearson’s $r$ (0.698) with a significance of (0.000); and the scatter plot $r^2$ linear score of 0.487. The three identified a relationship between the variables IPL and self-efficacy.

The IPL was divided at the median to create groups and discriminant analysis was then used to predict group membership. The ability to understand the population and assess if they are in favor of IPL allows the program to create the most appropriate level of academic course work that can foster the tenets of IPL. The three variables the study identified as significantly contributing to IPL were age, self-efficacy, and program of study.

The second research question used discriminate function analysis and identified the three variables of age ($p = 0.013$), self-efficacy ($p = 0.004$), and program of study ($p = -0.001$) as having a relationship with the IPL scores of the nurses. The results support hypotheses H2 and H4, and rejected H3 and H4.
Chapter 5 Interpretations, Conclusions, and Implications

The focus of this study was on RNs who brought the realities of the workplace in juxtaposition with academic IPL program initiatives. Examining the study through the lens of social cognitive theory, the researcher administered a survey to nursing students, who were licensed, registered nurses enrolled in post-licensure or advanced practice degree programs. The researcher sought to assess if there was a correlation between their self-efficacy and their interprofessional learning orientations. The researcher also examined the association of various variables (age, workplace, tenure in the field of nursing, and program of study) with the interprofessional learning orientations.

This chapter will analyze the meaning of the findings gleaned from this research and discussed in Chapter 4. The chapter is broken into 8 sections that include: an overview of the study, the research question responses, conclusions, implications for theory, and implications for practice, future research, and reflections as scholar-practitioner, followed by a summary.

Overview of the Study

Nurses play a pivotal role in health care, and, as they pursue advanced degrees, they bring their knowledge, skills, and attitudes to the classroom. Following the recommendations of the IOM and the WHO to get better-prepared health professionals and increase their ability to function as members of interprofessional teams, higher education is creating interprofessional learning opportunities for students. Our concern about how registered nurses’ attitudes based on work-related experiences would influence pre-licensure health professions students attending the same IPL activities was the motivation behind this doctoral thesis. As academic programs build curricula and IPL activities, it is important to understand this population so that informed decisions could be made on what the curricula should entail and what outcomes need to occur.
The nurses’ IPL orientations was a factor that needed exploration, in order to determine if they would have a positive or negative effect on the IPL endeavors. The purpose of this study was to examine, quantitatively, the interprofessional learning orientations of RNs enrolled in post-licensure and advanced practice nursing programs.

The literature review found that there was a growing amount of research associated with the implementation of IPL. However, most of the research related to the attitudes of pre-licensure students in health professions programs or faculty attitudes towards IPL (Curran et al., 2008; Davies et al., 2011; Netherwood & Derham, 2014). Studies following the tenets of IPL examined students’ views of IPL after they had completed some type of educational program, in order to determine IPL’s success or failure in the classroom (Davies et al., 2011; Priesack & Alcock, 2015; Watters et al., 2015). The search identified a gap in the literature: No studies existed comparing programs that included RNs with experience in the workplace, returning to school with academic IPL program initiatives that amalgamated pre-licensure students with post-licensure students. It is important for educators who are in the process of developing interprofessional programs to understand the attitudes or readiness of students who were engaged in such activities. Integrating seasoned RNs with pre-licensed health professions students in IPL activities could be tempered by the interaction of the professional based on their positive or negative attitude toward IPL. This doctoral thesis addressed these issues by conducting a quantitative survey study to explore the IPLO of the nurses through the lens of SCT.

The first two chapters of the study focused on the importance of IPL development to enhance curriculum and develop better-educated health-care professionals with particular attention to the role nursing education plays in IPL. Chapter 3 detailed the quantitative research
methodology used to answer the research questions and to describe the population, while Chapter 4 extrapolated the findings based on the statistical approach noted in Chapter 3.

Data for this study were collected using a modified version of two survey tools. The researcher combined the Readiness for Interprofessional Learning Scale (RIPLS) survey developed by Parsell and Bligh (1999) and modified by Curran et al. (2008), and the Generalized Self-Efficacy (GSE) scale adapted from Schwarzer and Jerusalem (1995), to create a 26-question survey. In addition, 4 career factor questions were added to address the research questions. The survey data were analyzed using descriptive statistics to establish the mean for each of the 26 questions. The career factor questions contained groupings that allowed for the identification of the mean for the questions and analysis for reliability. The ANOVA equated the groups on the variables by testing to see if there was a statistical significance. Group comparisons within each category and comparisons within each category were conducted, in order to understand better the characteristics of the population and how they are associated with the IPLO of the RNs.

The population in this study was a convenience sample of nursing students within the College of Health Professions, Department of Nursing at Governors State University (GSU). Students were working RNs, currently enrolled in baccalaureate completion (RN-to-BSN), master’s in nursing (MSN and FNP), and doctoral (DNP) programs meant to advance their careers. The researcher chose these groups because of the college’s fledgling IPL initiative that will bring pre-licensure physical therapy, occupational therapy, social work, addictions counseling, and communication disorders students together with the post-licensure RN-to-BSN and advanced practice nursing students in IPL activities. This study allows the college to use the findings to develop improved IPL activities.
Research Question Response

The next section looks at these findings as they apply to the research questions for this thesis.

Question 1: Is there an association between IPL and self-efficacy?

Self-efficacy refers to an individual’s beliefs about his or her abilities and potential 
(Bandura, 1977, 1986). Bandura (2001) believed that, unless individuals believe in themselves 
and their capabilities, they will not succeed; it is necessary to believe that one can produce 
results and positive effects by their actions (Roessger, 2012). The first question addressed 
whether the nurses’ self-efficacy was associated with their interprofessional learning orientation. 
Using descriptive statistical analysis, the continuous variables of IPL and self-efficacy assessed 
the associations by the distribution of the z-scores and the extent in which they vary. The 
responses from the survey indicate that the association between IPL and self-efficacy was highly 
significant, as shown in Tables 4.8 and 4.9, thus corroborating the hypothesis that there was a 
correlation between self-efficacy and IPL.

Although the current study found similar results to the ones obtained by Mann et al. 
(2012) and Hagemeier et al. (2014) regarding the self-efficacy of students and their attitudes 
towards interprofessional education, Mann et al. (2012) examined pre-licensure health-
professional students who were enrolled at a university using Bandura’s (1977) self-efficacy 
philosophy. They found a notable relationship between the learning models of IPL and the 
cognitive and behavioral interactions of Bandura’s social learning theory. The current study 
found a significant relationship between the RNs’ IPLO and self-efficacy, however, the study did 
not engage students in an actual IPL experience. Considering that RNs work with
interprofessional teams (formal and informal) daily to provide patient care, the experience builds the self-efficacy of the RN and accounts for the correlation in the results of the current study.

Similarly, Hagemeirer et al. (2014) looked at pre-licensure students from multiple disciplines who participated in an interprofessional learning experience. They focused on the interprofessional and interpersonal communication, self-efficacy, and beliefs among medical, nursing, and pharmacy students. The overall conclusion indicated that there was a positive impact on the student’s communication and self-efficacy due to enrollment in an interprofessional experience. The current study looked only at students from one discipline (nursing) at a post-licensure level, students who did not engage in an academic interprofessional learning experience. However, considering that the interprofessional interactions of the RNs in the workplace builds self-efficacy, the results of the current study can be equated with the Hagemeirer et al. (2014) results that suggest the RN’s self-efficacy has an association with one of the variables in question 2.

Question 2: To what extent are the characteristics of age, workplace, tenure in the field, and program of study associated with the interprofessional learning orientations of nurses seeking a post-professional or advanced practice degrees?

Discriminant analysis identified three variables that significantly contributed to correctly classifying the respondents: age (higher IPL goes with higher age), self-efficacy (greater efficacy goes with higher IPL), and the dummy-coded variable representing the MSN (higher IPL goes with being in MSN program). The researcher rejected two of the four null hypotheses after an analysis of the findings. Table 5.1 lists the characteristics of the RN who was in favor of IPL and those who were not in favor of IPL.
Table 5.1

**Profile of RNs’ Interprofessional Learning Orientation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>IPL Score at or above Median (≥ 58)</th>
<th>IPL Score below Median (&lt; 58)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Older</td>
<td>Younger</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>Higher</td>
<td>Lower</td>
</tr>
<tr>
<td>Program</td>
<td>All of Those in MSN</td>
<td>None in MSN</td>
</tr>
</tbody>
</table>

Therefore, based on the results of this study the association of age, self-efficacy, and MSN program with IPL supported the hypothesis related to each variable and supported the null hypothesis of work and tenure in the field.

The current study, as noted in Table 5.1, indicates that nurses who are older and enrolled in the MSN program have more self-efficacy and are supportive of IPL. Hence, it appears nurses who are younger and are not enrolled in an MSN program do not enjoy self-efficacy to the same degree as their older counterparts. The association between age and self-efficacy is not surprising. The older or more mature individual has more understanding and control over what he or she does because of the more intense lived experiences. In the case of this study, the mature nurses have command of their knowledge, skills, role, and they can see the need for IPL; while the younger nurses lack the experience in the field to bolster their self-efficacy.

The results also indicate that tenure in the field of nursing and place of employment do not predict one’s attitude toward IPL. This was a surprising finding because previous studies in various fields found that the longer a person works in his or her field the more pessimistic the person becomes and the less supportive of an interprofessional experience or change in general. The place of employment not being a positive or negative contributing factor was also not expected. Anecdotally, the researcher worked in hospitals and as a nursing advisor and found that nurses who were unhappy in their workplace often brought the negativity to the classroom.
However, the results are from one small sample population, and we understand the need for additional research with a larger number of participants in order to understand interprofessional learning better.

Studies, such as Ateah et al. (2011), explored the career factors (age, gender, program, and year in program) and their association with trends and learning, however the variable program comprised more than one discipline (nursing, medical students, pharmacy, dental hygiene, etc.). The current study looked specifically at nursing and the variables of age, tenure in the field, workplace and program (RN-BSN, MSN, FNP, and DNP) enrolled to see if there was a relationship between the variables and IPLO. The results from both studies by Ateah et al. (2011) were similar as they also found the students supported interprofessional learning, but observed from different perspectives. Hagemeirer et al. (2014) compared interprofessional and interpersonal communication self-efficacy beliefs among medical, nursing, and pharmacy students. According to their findings, nursing students entered the course with higher interprofessional and interpersonal communication self-efficacy beliefs that the other disciplines. This again aligns with the findings of the current study (RNs have strong self-efficacy), but Hagemeirer et al. (2014) did not look at the same variables and therefore did not indicate whether the age or the level of the nursing students was associated with IPL.

The findings of the current study discovered that participation in the MSN program was a determining factor on creating a positive IPL orientation. Nurses enrolled in MSN programs are older and have more experience. There are schools that offer entry-level MSN programs, but the numbers of these programs are not be comparable to the number of traditional MSN programs. Again, the nurse would have the maturity and self-efficacy to recognize the importance of IPL.
Conclusions

The motivation behind this doctoral thesis was our concern over whether, as more and more academic programs move towards an interprofessional pedagogy and many RNs are enrolling in post-licensure and advanced degree programs, their bringing their perceptions, attitudes, and behaviors from the workplace to the academic setting might enhance or impede interprofessional learning. The researcher explored the association and relationship between the nurses’ self-efficacy and their interprofessional learning orientations. The study focused on a convenience sample of 53 nurses in a Midwest university with the overarching question “What is the interprofessional learning orientation of RNs enrolled in post-licensure and advanced degree programs?”

The researcher drew 3 conclusions from the data. First, there is a positive relationship between nurse’s self-efficacy and their IPLO. Second, there is a relationship between nurses’ age and their self-efficacy (N=53, p=0.013). Third, there is a relationship between the program (MSN) and IPL (N=53, p=0.0001). The results of this study show that nurses are in favor of interprofessional learning. These findings are not surprising for this specific sample population. Nurses have strong self-efficacy, indicating they have the command of their role, an understanding of IPL, and an ability to work with the other professions to make a difference in health-care delivery as the industry moves towards the health-care team model. These nurses are not an impediment to developing quality programs that will educate the next generation of health care professionals. This study provided the primary research data the nursing department needed in order to move forward with the development of IPL activities, and set the stage to perform additional research in this area to find out if the results are similar in wider populations.
Implications for Theory

The conceptual framework of this study was Bandura’s (1986) social cognitive theory (SCT). Our findings offer a continuance of the dialogue that addresses the bidirectional interaction of SCT in conjunction with IPL. The interaction between nurses and the environment involves beliefs and cognitive competencies developed by social interaction. The literature (Oxtoby, 2014; Voyer & Reader, 2013; Whitehead, 2011) referenced the positive and negative relationships that could happen depending on the interactions in the workplace between nurses and physicians in particular. In accordance with SCT, exposure to interprofessional teams in the workplace would influence the RNs’ attitudes and outlooks on interprofessional learning activities based on positive or negative experiences. The results of the current study did not show that the workplace was a significant factor for the nurses IPLO, however, the program of study was significant.

Similarly, though the number of years a nurse has been working (tenure in the field) was not significant, the age of the student was significant to IPLO and self-efficacy. The interaction between the program and the nurses’ IPLO involves the nurses’ behavior (self-efficacy), revealing how the environment interacts with the behavior. Self-efficacy relates to how nurses, who believe they are members of successful health-care teams, can influence the effectiveness of the interprofessional educational experience. Nurses who feel they are not members of a successful team may elect to discredit the effectiveness of health-care teams and create barriers to an interprofessional educational experience. Advocates of SCT (Burney, 2008; Hagemeirer et al., 2014; McGregor et al., 2010; Pajares, 2002) argued that attitudes regarding self-efficacy and personal abilities to perform behaviors to achieve desired outcomes rely on the interaction of a triad of variables or factors, including personal factors, behavior, and the environment (Bandura,
To better illustrate the findings of this study, Figure 5.1 presents a visual description of the findings of this study as they relate to SCT. This study found that age, program enrolled, and self-efficacy were part of a bidirectional interaction that influences nurses’ IPLO. The older RNs, enrolled in the MSN program, had more self-efficacy, and were in favor of IPL. The younger nurses, enrolled in other programs, had less self-efficacy, and were not in favor of IPL.

Figure 5.1. The bidirectional characteristics influencing interprofessional learning orientations.

Implications for Practice

Changing the silo structure of health-professions education to an interprofessional model is an opportunity to put the IOM and the WHO recommendations into practice. Developing academic programs that meet the needs of students, faculty, administration, and accrediting bodies is a challenge, but building strong relationships in the academic setting can work to lessen the negativity among professions in the workplace. Looking again through the lens of Bandura, this section presents the implications the researcher sees her findings may have in real practice.
Program Recommendations

- This study is grounded on Bandura’s (1986) work around social cognitive theory with its tenets of social leaning and self-efficacy. One of Bandura’s premises is that through interactions we can enhance one’s self-efficacy. In the case of GSU, it would behoove the college to develop the “next generation” mentoring program for RN’s by expanding social learning opportunities for nurses so they could exchange ideas and build self-efficacy within an interprofessional team model. This would create a framework in which seasoned advanced practice nurses could mentor nursing students engaged specifically in interprofessional projects. Mentors would act as a “guide on the side” but could also inform other health professions students on the roles and responsibilities of nursing, and thus, broaden their understanding of the nursing profession.

- The data identified a lower median scored item referencing the ability to handle unexpected events. Creating simulated scenarios or events that engage students from multiple disciplines would address this and could be applicable both at the program and curriculum level. Another premise of Bandura’s work is that through interactions we can enhance learning. Self-efficacy is one of the variables within SCT and through interactions in simulated environments it would be possible to develop personal experiences before the students go out into the field. Because this study did show a relationship between the nurse’s self-efficacy and IPL, we can conclude, based on Bandura’s work, that we can create social learning exchanges where we can enhance interprofessional learning. Simulation is one platform for social learning. Working with an interprofessional education committee on developing simulation projects based on
hospital situations will increase the nurse’s skills for unexpected events and crisis
management while infusing the skills in team development.

- At a small institution, collaboration is a key factor in providing learning experiences that
meet the needs of the region. The data from this study would support the nursing program
need to explore collaborative agreements with hospitals, nursing homes, clinics, etc. to
build interprofessional centers of excellence. The centers could function as incubators for
best practices, new research opportunities, centers for teaching and learning ideas that not
only will bring together professionals in the field, but also students. The students could
act as research assistants or use the center as an internship site for academic credit. The
center could also serve as a social learning platform by offering positive experiences,
allowing students to work with others and learn the intricacies of each other’s
professions.

- Although the implementation and adoption of IPL are successful in European, Canadian,
and Australian nursing and other health-professions programs, the United States still
struggles in moving forward with implementation (Brandt & Schmitt, 2011). The centers
mentioned in the previous point would also provide an opportunity to develop
international research partnerships and engage faculty in a dialogue on best practices, and
provide students new opportunities for professional growth.

**Future Research**

The benefit of understanding the students who are entering a program is that it allows
faculty to design better curricula, be they interprofessional learning activities, courses, or
complete academic programs. There is still much to explore in this field plus given that there is
more expertise in this area outside the United States, there is an opportunity to collaborate with international partners in order to gain insight into the implementation of IPL programs.

Based on the findings of the current study, to move the research agenda to its next step would imply to replicate this study on a national scale with the same population: RNs enrolled in post-licensure and advanced practice programs. Replicating the study would allow for a more in-depth look at nurses enrolled in post-licensure and advanced practice programs. If the results were the same or similar to the ones in this study, the academic programs could evaluate and implement interprofessional learning opportunities for the students better. Additional participants could alter the current findings and identify additional variables associated with IPL, leading to new research opportunities and program evaluation.

The current study excluded race and gender as demographic variables. Keeping SCT as the theoretical framework and adding these two demographic variables, a new study could explore the impact of these additional variables. The results of this study would allow researchers to assess whether race and gender are associated with the interprofessional learning orientation of the nurses.

It would also be interesting to conduct a qualitative study with the same population, using SCT again as a theoretical framework. It would be interesting to compare the results of these interviews with the results presented in this study.

Another possible study would be to conduct a pre and post-analysis of the learning orientations after this population (RNs enrolled in post-licensure and advanced practice programs) and other health professions students experience an interprofessional learning experience using SCT as the theoretical framework.
Reflections of a Scholar-Practitioner

As a scholar-practitioner, this researcher sought to contribute to the discourse by providing insight into the development and quality improvement of programs by studying RNs interacting with students of other pre-licensure health-professions. The results of this study provide the Department of Nursing at a Midwestern university with data that will allow it to make informed decisions on the implementation of IPL and on adjustments to curricula. The information allows the faculty to capitalize on the expertise of the nurses that bring their skills and knowledge to learning activities that cross professional boundaries. My results show that nurses who were older had more self-efficacy and were attuned to the importance of interprofessional education. Given these results, faculty need not to worry about nursing students bringing negativity to the classroom. Faculty can work on creating academic experiences that will support the tenants of IPL and allow the program to meet accreditation standards.

The study also provide a unique contribution to research by exploring relationships between professional education and working with others in conjunction with interprofessional programs. Moreover, the present study added to the growing higher education research stream by contributing to the overall outcome of nursing program development.

Summary

The purpose of this quantitative study was to examine the interprofessional learning (IPL) orientations of registered nurses returning to school to further their education. The researcher found that there was an association between the RN’s IPL mean score and the self-efficacy mean score. The results show that participants, on average, scored a similar IPL mean (4.032) and self-efficacy mean (3.820). Additionally, the standard deviation of IPL (0.763) and self-efficacy (0.673) were significant, thus indicating that there was an association between the two variables.
The study also explored whether age, tenure in the field of nursing, workplace, and program of study were different when compared to ILO scores. The data revealed that three of the variables significantly contribute to correctly classifying the respondents: age (higher IPL goes with higher age), self-efficacy (greater efficacy goes with higher IPL), and the dummy-coded variable representing the MSN (higher IPL goes with being in MSN program). The other variables (tenure in the field of nursing and workplace) were less significant. Again, it must be emphasized that these are the results of a small study performed at one Midwest university, and can only be generalized to this specific population. Therefore, the three variables allowed for a better prediction on the interaction between the students and IPL trainings only at this school.

RNs, being the lynchpin of the medical community, are key participants, having the capacity to influence the success or failure of interprofessional experiences, either in an academic setting or at the workplace. When RNs enroll in a degree program that also includes IPL, they can influence the educational environment, in a positive or negative manner based on workplace experience, and thus create an atmosphere that challenges the tenets of IPL. The structure of nursing education brings seasoned professionals to the same academic setting than other health professions students. The difference is that the students from other professions do not have the experience of working in their respective discipline. Being a program developer, it was imperative for this researcher to explore this topic so I could meet the needs of the nursing program and the college.

The results of this study suggest that nursing programs at this midwest university should enlist the students in building a more robust curriculum based on their experience in the field of nursing. Although this was a small study (its survey reached only the students within one institution), it sparked the curiosity of the researcher to go beyond the current findings. A
previous section on suggestions for future research offers suggestions on ways to broaden the depth and scope on this topic. This thesis is not the end of a journey, but only a first step to helping IPL move to the next level in the United States.
References


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doi:10.12968/bjon.2014.23.13.740

doi:http://doi.org/10.2147/AMEP.S13207


doi: 10.1097/01.NAJ.0000461822.40440.58

doi:10.1370/afm.1506


# Appendix A: Key Terms and Definitions

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<th>Term</th>
<th>Definition</th>
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<tr>
<td>Collaboration</td>
<td>A relationship that is mutually beneficial to two or more parties with common goals and sharing of responsibilities</td>
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<tr>
<td>Commission on Collegiate Nursing Education (CCNE)</td>
<td>The accrediting agency that ensures the quality and integrity of baccalaureate, graduate, and residency programs (post-baccalaureate) in nursing supported by the National League of Nursing.</td>
<td><a href="http://www.CCNE.org">http://www.CCNE.org</a></td>
</tr>
<tr>
<td>Disciplines</td>
<td>Entities that represent a particular ordering and structure of knowledge designed to explore specific areas of inquiry and culture of the community from which they are produced.</td>
<td>Klein, 1996</td>
</tr>
<tr>
<td>Health-care professionals</td>
<td>“Different types of workers who provide the patient with preventive, curative, and rehabilitative care.”</td>
<td>D’Almour &amp; Oandasan, 2005, p. 10</td>
</tr>
<tr>
<td>Interdisciplinary</td>
<td>Characterized by being between disciplines and faculties; involved in the creation of new joint programs</td>
<td>Rosenfield, 1992</td>
</tr>
<tr>
<td>Interprofessional collaborative practice</td>
<td>Occurs “when multiple health workers from different professional backgrounds work together with patients,”</td>
<td>WHO, 2010, p. 7</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
<td>Source</td>
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<tr>
<td>Interprofessional education (IPE)</td>
<td>Education that occurs “when two or more professions learn with, from, and about each other to improve collaboration and the quality of care.”</td>
<td>CAIPE, 2002, para. 1</td>
</tr>
<tr>
<td>Interprofessional learning (IPL)</td>
<td>“Learning arising from the interaction between members (or students) of two or more professions. This may be a product of interprofessional education or happen spontaneously in the workplace or education settings.”</td>
<td>Freeth, Hammick, Reeves, Koppel, &amp; Barr, 2005</td>
</tr>
<tr>
<td>Multidisciplinary</td>
<td>A process in which researchers in different disciplines work relatively independently, each from his or her disciplinary perspective with limited direct interaction and cross-fertilization.</td>
<td>Rosenfield, 1992</td>
</tr>
<tr>
<td>Professional</td>
<td>Encompasses individuals with the knowledge and skills contributing to the physical, mental, or social well-being of a community of practice.</td>
<td>WHO, 2010</td>
</tr>
<tr>
<td>Uniprofessional Education</td>
<td>Educating students in their own discipline’s program with minimal contact with students from other disciplines.</td>
<td>Oandasan &amp; Reeves, 2005</td>
</tr>
</tbody>
</table>
Appendix B: Attitudes Towards Interprofessional Education

**Attitudes towards interprofessional education**

As working professionals, you have the keen ability to bring your knowledge and understanding of health care trends and practices based on your experiences to the classroom. This study is interested in learning how you feel about the relevance of interprofessional education (i.e. shared learning activities involving students from more than one health care professional program such as nursing, occupational therapy, social work and medicine) as students’ enrolled in advanced degree programs. There are two parts to the survey, demographic questions and a 26-question Likert Scale. The survey should take approximately 20 minutes to complete and all information is **not** identifiable.

Please indicate your level of agreement with each of the following statements, by checking the appropriate space following each statement.

**Use the scale SD = strongly disagree; D = disagree; N = neutral; A = agree; SA = strongly agree.**

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<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
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<tr>
<td>1. Interprofessional learning helps me to think positively about other health care professionals.</td>
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<td>2. Interprofessional learning before licensure will help health professional students to become better team workers.</td>
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<td>3. Patients would ultimately benefit because I’ve learned with other health care professionals to solve patient problems.</td>
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<td>4. I can solve most problems if I invest the necessary effort.</td>
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<td>5. Students in my professional discipline would benefit from working on small group projects with other health-care students.</td>
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<td>6. Communication skills should be learned with integrated classes of health-care students.</td>
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<td>7. Interprofessional learning will help me to clarify the nature of patient</td>
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problems for students.

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<td>8.</td>
<td>If someone opposes me, I can find the means and ways to get what I want.</td>
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<tr>
<td>9.</td>
<td>It is not necessary for undergraduate health care students to learn together.</td>
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<tr>
<td>10.</td>
<td>My learning with students from other health disciplines helps undergraduates to become more effective members of a health care team.</td>
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<tr>
<td>11.</td>
<td>I can remain calm when facing difficulties because I can rely on my coping abilities.</td>
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<td>12.</td>
<td>Interprofessional learning will increase my ability to understand clinical problems.</td>
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<td>13.</td>
<td>Interprofessional learning will help me to learn and understand my own professional limitations.</td>
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<tr>
<td>14.</td>
<td>I need to trust and respect students from other disciplines for small group learning to work.</td>
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<tr>
<td>15.</td>
<td>Thanks to my resourcefulness, I know how to handle unforeseen situations.</td>
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<tr>
<td>16.</td>
<td>Interprofessional learning will help me to communicate better with patients and other professionals.</td>
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<tr>
<td>17.</td>
<td>If I am in trouble, I can usually think of a solution.</td>
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<td>18.</td>
<td>Team-working skills are essential for me and other health care students to learn.</td>
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<tr>
<td>19.</td>
<td>Interprofessional learning activities before licensure would have improved my relationships with other health professionals.</td>
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<tr>
<td>20.</td>
<td>I can always manage to solve difficult problems if I try hard enough.</td>
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<td>21.</td>
<td>It is easy for me to stick to my aims and accomplish my goals.</td>
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<td>22.</td>
<td>I am confident that I could deal efficiently with unexpected events.</td>
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<tr>
<td>23.</td>
<td>When I am confronted with a problem, I can usually find several solutions.</td>
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</table>
24. I can usually handle whatever comes my way.

25. In general, I think I can obtain outcomes that are important to me

26. Compared to others, I can do most task very well


**Career Factors Questions**

Please answer the following Career Factor questions

1. How many years have you been working in the field of nursing?
   - Less than one (1) year
   - 1-5 years
   - 6-10 years
   - 11-20 years
   - More than 20 years

2. Where do you currently work? If you are not working, please answer according to your last place of employment.
   - Hospital
   - Clinic
   - Physician’s practice
   - Commercial facility (pharmacy chain)
   - Nursing Home/Assisted Living
   - other ________________________________

3. What is your chronological age?
   - 18-25
   - 26-36
   - 37-47
   - 48-59
   - 60+

4. What program are you enrolled? RN-BSN  MSN  FNP  DNP
Appendix C: Frequency Bar Charts

1. Interprofessional learning helps me to think positively about other health care professionals.

2. Interprofessional learning helps me to become better team-workers.

3. Patients would ultimately benefit because I've learned with other health care professionals to solve patient problems.

4. I can solve most problems with the necessary effort.

5. I believe students in my professional discipline would benefit from working on small group projects with other health care students.

6. I believe Communication skills should be learned with an integrated class of health care students.

7. Interprofessional learning will help me to clarify the nature of patient problems for students.
8. If someone opposes me, I can find the means and ways to get what I want.

9. It is not necessary for undergraduate health care students to learn together.

10. My learning with students from other health disciplines helps us to become more effective members of a health care team.

11. I can remain calm when facing difficulties because I can rely on my coping abilities.

12. Interprofessional learning will increase my ability to understand clinical problems.

13. Interprofessional learning will help me to learn and understand my own professional limitations.
14. I need to trust and respect students from other disciplines for small group learning to work.

15. Thanks to my resourcefulness, I know how to handle unforeseen situations.

16. Interprofessional learning will help me to communicate better with patients and other professionals.

17. If I am in trouble, I can usually think of a solution.

18. Team working skills are essential for me and other health care students to thrive.

19. Interprofessional learning activities before licensure would have improved my relationships with other health professionals.
# Appendix D: Frequency Table

## Frequency Table

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Appendix E: Web-Based Online Surveys

UNSIGNED CONSENT DOCUMENT FOR WEB-BASED ONLINE SURVEYS 45 CFR 46 117(c)

Northeastern University, College of Professional Studies, Doctorate of Education

Name of Investigator: Margaret Gorman (PI) Nancy H.A. Burley(doctoral student researcher)

Title of Project: Advancing Interprofessional Education: A quantitative study exploring interprofessional learning of registered nurses in a post-licensure and advanced practice degree program offered at a department of nursing

Request to Participate in Research

My name is Nancy H A Burley a doctoral candidate from Northeast University. I would like to invite you to participate in a web-based survey. The survey is part of a research study whose purpose is to explore registered nurses attitudes towards interprofessional education. This survey should take about 20 minutes to complete. I ask you to participate because you are a nurse enrolled at Governors State University in the nursing program. You must be at least 18 years old to take this survey. The decision to participate in this research project is voluntary. You do not have to participate and you can refuse to answer any question. Even if you begin the web-based online survey, you can stop at any time. There are no foreseeable risks or discomforts to you for taking part in this study.

As a token of my appreciation for completing the survey, you will be able to enter in a raffle for a Kindle HD. At the completion of the Survey you will be directed to a special account to enter the number given and your email account. The raffle will close when the survey period is over. The person holding the winning number will then be contacted for a name and mailing address. The researcher will delete all numbers and email addresses at the culmination of the study.

Your part in this study is anonymous to the researcher. However, because of the nature of web based surveys, it is possible that respondents could be identified by the IP address or other electronic record associated with the response. Neither the researcher nor anyone involved with this survey will be capturing those data. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project.

If you have any questions regarding electronic privacy, please feel free to contact Mark Nardone, NU’s Director of Information Security via phone at 617-373-7901, or via email at privacy@neu.edu.

If you have any questions about this study, please feel free to contact me at burley.n@husky.neu.edu.
If you have any questions regarding your rights as a research participant, please contact Nan C. Regina, Director, Human Subject Research Protection, 490 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

This study has been reviewed and approved by the Northeastern University Institutional Review Board (# xx-xx-xx). [protocol # will be provided to you by the HSRP office].

By clicking on the survey link below you are indicating that you consent to participate in this study. Please print out a copy of this consent form for your records.

http://_____________________________________________________

Thank you for your time.

Nancy H A Burley, Doctoral Candidate
APPENDIX F

May 20, 2015

Institutional Review Board
Governors State University
1 University Parkway
University Park, Il 60484

Dear IRB Committee Members:

Nancy Burley, in her role as Doctoral Candidate at Northeastern University, Boston, MA, has requested permission to administer a brief survey via Survey Monkey to our undergraduate and graduate nursing students. She is conducting a quantitative study that ensures anonymity of the participants. Administering the survey will not interfere with any classroom activity and is not related in any way to grades within the program. The results of the study will be of benefit to interprofessional learning endeavors by the College of Health and Human Services and the nursing program. Therefore, after careful review of the survey, I feel that there are no ethical or other substantive issues with her research and approve her request.

Sincerely:

[Signature]

S. Mullen
Appendix F: Invitation to Participate

INVITATION TO PARTICIPATE IN A SURVEY

Dear Student,

My name is Nancy Burley and I am a doctoral candidate at Northeastern University, Boston MA. I am writing today to ask you to participate in a short online survey being conducted to support my dissertation entitled: Advancing Interprofessional Education: A quantitative study exploring interprofessional learning of registered nurses in a post-licensure and advanced practice degree program offered at a department of nursing.

The World Health Organization and the Institutes of Medicine are strong advocates for interprofessional collaboration in health care. Thanks to their diligent investigation thru the years, research shows interprofessional teams provide better patient outcomes. As a means of accomplishing this health professions education programs have engaged in a variety of activities to provide interprofessional learning experiences for their students. The intent of my dissertation is to extend that research by surveying RNs who are enrolled in post-professional and advanced practice programs to higher education to explore their interprofessional learning orientation.

Students who elect to participate in this survey will be eligible to enter a drawing for a Kindle Fire. Instructions for participation are available at the completion of the survey. Your part in the study will be anonymous to the researcher and handled in a confidential manner. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project. This survey opens on July 6th and will close 14 days later on July 20th. If you agree to take part, please read the attached “Informed Consent”.

Please feel free contact me via my Northeastern University email account (burley.n@husky.neu.edu) if I can address any other questions or concerns you might have regarding this study. Here is a link to the survey instrument:

Click here for survey link: https://www.surveymonkey.com/s/InterProLrnRN

Thank you for your time and consideration,

Nancy H Burley, Doctoral Candidate

College of Professional Studies

Northeastern University, MA