THE RELATIONSHIP BETWEEN INDIVIDUAL AND ORGANIZATIONAL CHARACTERISTICS AND NURSE INNOVATION BEHAVIOR

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To: Jerry, Owen, Olivia and my parents

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ABSTRACT

Paula Kerler Baumann

THE RELATIONSHIP BETWEEN INDIVIDUAL AND ORGANIZATIONAL CHARACTERISTICS AND NURSE INNOVATION BEHAVIOR

Nurses are a key component of the health care system and have the ability to provide innovative solutions to improve quality and safety for patients, while improving workplace conditions, and increasing recruitment and retention of nurses. Encouraging innovation behaviors among nurses is essential to improving health care. Innovation behaviors are defined as behavior from an employee toward developing new products, developing new markets, or improving business routines in their employing organization.

The purpose of this descriptive study was to explore the relationships among individual and organizational characteristics and employee innovation behavior among nurses. The proposed model, The Framework for Study of Innovation Behaviors among Nurses, was developed based on the work by Kuratko, Hornsby, and Montagno and is specific to nursing innovation behaviors.

A descriptive, quantitative, correlational design was used. A sample of 67 Registered Nurses from the state of Ohio completed an online survey that included questions related to individual and organizational demographics, individual characteristics of creative efficacy and proactivity, organizational characteristics measured by the Corporate Entrepreneurship Assessment Inventory (CEAI) and items related to employee innovation behavior. Data analysis included descriptive statistics, Pearson's r

correlations, T-test or ANOVA analyses, and multiple regressions to determine if there was a relationship between individual characteristics, organizational characteristics, and nurses' employee innovation behaviors.

Results indicated a positive correlation between proactivity ($r=0.765$, $p<0.001$), creative efficacy ($r=0.513$, $p<0.001$), management support ($r=0.521$, $p<0.001$), work discretion ($r=0.468$, $p<0.001$), and total CEAI ($r=0.525$, $p<0.000$) with self reported employee innovation behaviors. Multiple regression analysis identified five predictors of employee innovation behaviors and included a negative relationship with age ($\beta= -0.191$, $p<0.05$), and positive relationships with years in current position ($\beta=0.179$, $p<0.05$), proactivity ($\beta=0.593$, $p<0.001$), management support ($\beta=0.21$, $p<0.05$), and rewards reinforcement ($\beta=0.15$, $p<0.05$). These findings indicate a relationship does exist between individual characteristics, organizational characteristics, and self reported employee innovation behaviors. The results of this study provide a basis for developing and initiating strategies to foster more innovative behaviors among RNs, particularly in enhancing management support for innovation. Future research using the survey tool with a larger sample of hospital-based RNs from other geographic areas is suggested.

Anna McDaniel, PhD, RN, Chair

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CHAPTER ONE: INTRODUCTION

There has not been a more important time than now to foster innovation among Registered Nurses in health care. Nurses play a critical role in the health care system. The contribution of nursing in achieving high quality patient outcomes has broad recognition (Aiken et al., 2001; Aiken, Clarke, Sloane, Lake, & Cheney, 2008; ANA, 2000; McGillis et al., 2003; Needleman et al., 2002). Despite the positive impact nursing has made within health care, challenges exist for nurses within the current health care environment. The current challenges in health care affecting the field of nursing include the pressure to deliver higher quality care that is safe and cost-effective, while at the same time responding to cuts in reimbursement. The current work environment requires nurses to do more with less. This includes inadequate staffing, working with constrained resources, and the requirement of mandatory overtime to compensate for nursing shortages. An undesirable work environment has had an impact on recruitment of qualified candidates and retention of nurses. In the midst of these current pressures in health care, innovative solutions must be developed. Nurses are in the unique position to develop innovative solutions to these problems. The aim of this study is to explore what factors are associated with innovative behavior by nurses. A discussion of some of the pressing issues affecting health care, e.g., safety and quality, rising healthcare costs, and the struggles with work environment, recruitment and retention, are examined. Next, the role of nursing innovation to develop solutions to these problems is examined along with the importance of organizational and leadership support for innovation.

Background

Safety and Quality

Nurses face unprecedented challenges in the current health care system. Since the landmark Institute of Medicine (IOM) Report, *To Err is Human* (1999) there has been a heightened awareness of the public about quality and safety issues within health care. Since the IOM report, a follow-up study by the same name estimated that over 600,000 preventable deaths were caused by medical error, more than double the findings in the original report (HealthGrades, 2004). Measures put in place to improve safety have not made a significant enough impact on error reduction. More needs to be done to provide patients with safe care and to minimize errors within health care.

Nurses are critical in the provision of quality care (IOM, 2006). A report by the Agency for Healthcare Research and Quality (AHRQ), *Making Health Care Safer: A Critical Analysis of Patient Safety Practices*, found that studies have shown patients have increased length of stay, increased nosocomial infections, and more incidence of pressure ulcers when there are fewer Registered Nurses available to care for patients (Gallagher & Rowell, 2003; Seago, 2001). The Institute of Medicine (IOM) report *Keeping Patients Safe: Transforming the Work Environment of Nurses* also highlighted the important role nurses play in regards to maintaining safety for patients (IOM, 2003). Landmark research by Aiken (2003) has shown the impact nurses can make on patient mortality and patient outcomes as a function of nurse staffing levels and nurses' level of educational preparation. Additional research by Aiken et al. has continued to support the importance of nurses to patient outcomes (2010).

Nurses play an essential role in good patient outcomes and have the ability to improve patient safety and quality. Nursing sensitive outcomes were first defined by the American Nurses Association (ANA) in 1995 as being relevant to nursing, were linked to nursing scope, and included empirical evidence linking nursing inputs and interventions to the outcome (Doran, 2003). The categories of nursing sensitive outcomes include clinical, functional, perceptual and patient safety. Nursing-sensitive outcomes provide evidence of how nurses directly affect quality of patient care. Some of the attributes recognized as important to quality outcomes such as nurse turnover rates, RN education and certification, and RN job satisfaction and practice environment are also part of the Magnet Recognition program. Magnet Recognition programs recognize quality patient care, nursing excellence, and innovations in professional nursing practice (ANCC, 2010). Nurse-sensitive outcomes and the Magnet Recognition program recognize nurses as integral to patient safety and quality and also acknowledge the importance of nursing innovation to meet future challenges.

Rising Healthcare Costs

With rising healthcare costs, increasing numbers of uninsured and underinsured individuals, and disparities in healthcare access and quality, there is an emerging national consensus that the health care system is broken and must be fixed now (ANA, 2009). The US spends more money on health care than any other nation while not always seeing the improvements in health status that other countries have achieved (ANA, 2009). Providing safe, quality care while minimizing complications and achieving good patient outcomes is one way to help decrease health care costs. Quality patient care and a reduction in costs through careful management of resources are the expectations

consumers, insurers, regulatory agencies, and governmental agencies have for professional nurses (Vanhook, 2007).

Improving safety and quality while having fewer resources and being required to keep costs controlled is a dilemma for the health care industry. One of the key focuses of health care reform is cutting health care costs and improving patient safety, while offering services to more Americans. "The Affordable Health Care for America Act" is a step toward reform which recognizes the vital role of nurses, creates a system that is responsive to the needs of all consumers, and provides equal access to safe, high-quality cost-effective care for all (ANA, 2009). Nurses are essential to providing quality care while keeping costs controlled. The use of innovation to develop systems and processes that will increase quality and safety while controlling costs is a role nursing must assume.

Work Environment, Recruitment, and Retention

The IOM report, *Keeping Patients Safe* (2003), highlights the nurses' role in patient safety and how the work environment of nurses influences nurses' ability to provide patients with safe care. The report stresses the following safeguards to be implemented: adequate staffing based on established best practices, organizational support for professional development and advances in technology, encouragement of interdisciplinary collaboration, work design that promotes safety, and an organizational culture that supports and promotes patient safety (IOM, 2003). All of these safeguards present potential areas where innovation by nurses can impact and improve the work environment of nurses. The literature has been consistent in showing nurse leaders as essential to the creation of a healthy work environment and retention of nursing staff

(Sherman, 2005; Squires, Tourangeau, Laschinger, & Doran, 2010). Nurses have the knowledge to identify and solve work environment issues through innovative solutions.

In addition to work environment, retention and recruitment of nurses also poses major problems for nursing and health care. The nursing shortage is estimated to equal 340,000 Registered Nurses by 2020 (Auerbach, Buerhaus, & Staiger, 2007). A combination of factors contribute to the nursing shortage and include an aging workforce, an increase of patients due to the aging of the baby boomer generation, a shortage of nursing faculty resulting in lower numbers of graduates of nursing programs, and nurses leaving the profession because of pressures such as mandatory overtime, inadequate staffing, and a disproportionate work load.

Retention of nurses is an important aspect of assisting with the nursing shortage. Research has demonstrated that nurses who are engaged in their practice have higher retention rates (Purdy, Laschinger, Finegan, Kerr, & Olivera, 2010). Engagement, defined as having energy, involvement, and effectiveness within one's work, is tied to a positive work environment, job satisfaction, and intent to stay (HANYS, 2005; Laschinger & Finegan, 2005; Wagner, 2006). Some of the same attributes of a positive work environment are also congruent with an innovative environment, including a supportive manager, openness to new ideas, and the rewarding of good work. Manion (2001) has noted that creating an internal climate supportive of employee innovation is a key retention strategy. Recruitment of nursing faculty and of non-traditional candidates to nursing is also needed. Innovative approaches to recruitment provide an opportunity for nurse leaders as will be required as the nursing shortage progresses.

These pressing issues point to the importance of supporting the innovation potential of nurses. Understanding employee innovation can be of value to the nursing profession to help in solving some of the problems present within health care. Nursing innovation behavior can help improve quality of health care, improve the working environment of nurses, and attract new groups of prospective workers to health care (Adams, 1994; IOM, 2003; Wilson, Averis, & Walsh, 2003). The challenge of balancing the cost and quality of health care and a worsening nurse shortage necessitate a deeper consideration of the nature of innovation (Lachman, Smith, & Donnelly, 2009). Innovations by nurses within healthcare are critical in addressing some of the problems present within the current system.

Although innovation is offered as a solution to problems present in health care, what is innovation? Defining innovation and learning about ways to measure innovation behavior of nurses is necessary. The following section provides a conceptual definition of innovation and a discussion of innovation behavior as the outcome measure for this study.

Innovation

The term innovation has become a buzz word over the last decade. Everyone exalts the importance of innovation, yet few know what it means to be innovative and how it influences health care (Weberg, 2009). Many definitions are available for innovation ranging from simple to complex. Rogers (2003) says "if an idea is new to the individual, it is an innovation". He goes on to state, "innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (p. 12). Kanter (1987) defines innovation as a process that brings creativity to measurable outcomes, actions,

products, or processes. Both definitions are simplistic and fail to differentiate invention from innovation and also fail to capture the essence of innovation within heath care (Weberg, 2009).

Drucker (1985) defines innovation as the power to redefine the industry or an effort to create purposeful focused change in an enterprise's economic or social potential. Another definition of innovation provided in the literature includes: "the conversion of knowledge and ideas into a benefit, which may be for commercial use or for the public good; the benefit may be new or improved products, processes, or services" (Porter O'Grady & Malloch, 2007, p. 205). These definitions are inclusive and form the basis for the definition presented by Weberg that will be used for this study. Weberg (2009) defines innovation in healthcare "as something new or perceived new by the population experiencing the innovation, that has the potential to drive change and redefine healthcare's economic and/or social potential" (p. 236). This definition provides a foundation to study nursing innovations in health care.

Employee innovation behavior will be used as an outcome measure to examine the innovative behavior of nurses and how innovation behavior relates to organizational characteristics and individual characteristics. Employee innovation behavior has been defined as behavior from an employee toward developing new products, developing new markets, or improving business routines in their employing organization. Innovative initiatives are widely claimed to contribute to organizational effectiveness (Amabile, 1996; Janssen, 2003; Kanter, 1988; Scott & Bruce, 1994). In a study conducted by Amo (2006a) with Norwegian nurses, he further defined innovation behavior as everything from altering routines or making use of new remedies, to simplifying work, to improving

the service provided to the end-user, or to being able to give the end-user new offers. Based on previous research in innovation behavior, for the purpose of this study innovation behavior is defined as recognition of a problem, generation of ideas, mobilization of support, and realization of the ideas related to the initial problem (Janssen, 2000; Janssen, 2005; Scott &Bruce, 1994). Employee innovation behavior has not been studied extensively, particularly within nursing, but this study will determine the relationship between individual characteristics and organizational characteristics among RNs in relation to innovation behaviors. Organizational characteristics and individual characteristics are hypothesized to predict employee innovation behavior in nurses.

Organizational Support for Nursing Innovation Behavior

In today's turbulent health care environment, only organizations that are rapidly responsive to changing marketplaces and evolving customer needs will be viable and vital in the future (Manion, 2001). Due to the fast paced changes in health care, and the challenges and opportunities that face professional nurses, innovation and creativity are necessary for the evolution of nursing practice and organizational success (Gilmartin, 1999; Lachman, Glasgow, & Donnelly, 2006; Hughes, 2006). Nurses need to further develop their commitment to innovation to meet the pressing challenges of the nation's healthcare needs. The classic Kramer and Schmalenberg magnet hospital study showed that organizational excellence is found when employees are invested to do the complex work of their institution (Gilmartin, 1999). Innovation is complex work, but it is also essential work for health care. Local innovation in pursuit of national goals for improving health care quality should be encouraged (IOM, 2006).

As competition increases in the marketplace, innovative ideas and creativity of workers have become a highly valued resource. The ability of organizations to respond to environmental change is of critical importance (Kotter & Schlesinger, 2008). It appears evident that challenges nursing faces, including work environment, nurse education, and recruitment and retention issues, will escalate in the future requiring new and innovative solutions (Stein & Deese, 2004). An innovative culture could lead to greater interest in the nursing profession by nontraditional candidates who are attracted to innovation opportunities. Attracting and retaining high performing nurses is more likely when organizations support them in implementing creative, innovative ideas (Faugier, 2005; Manion, 2001). Innovative nurses can be of value to the nursing profession and health care by helping to solve some of the critical issues identified by the IOM report on safety, the IOM report on work environment, and recruitment and retention issues.

Nurses have the capacity to bring about innovative changes, but lack the formalized education or reward system that supports creativity and change. A greater understanding of the dynamics of innovation within organizations by nurse leaders will generate the necessary knowledge to guide management interventions for the effective and efficient use of human, material, and capital resources for health care delivery (Gilmartin, 1998; Knol & van Linge, 2008). This opportunity presents challenges to be addressed by nursing education, nursing leadership, and nursing research.

In the business world, it has become clear that being far removed from the customer does not allow for the most sensitivity to their changing needs. Nurses have the unique position of being at the bedside where care occurs and possess a broad view of patient needs (Lachman, Glasgow, & Donnelly, 2006; Manion, 1993; White & Begun, 1998).

Nurses have the potential to have an impact on the success of their organizations and to support the successful transformation of the nursing profession because of their unique understanding of the patient. Innovation can help to increase quality, improve working conditions, and aid in attracting new groups to health care (Adams, 1994; Faugier, 2005; IOM, 2003).

Nursing Leadership Support for Nursing Innovation

Encouraging innovative behaviors among nurses is a challenge for nursing leadership. Carroll (2005) examined leadership skills and attributes of nurse executives and found that leadership skills were important in creating an environment consistent with the recommendations made in the IOM report (Carroll, 2005). Some of the attributes found by Carroll included creating trust, envisioning the future, managing and supporting change, and worker involvement in making and deciding on new processes. All of these support the goals of the IOM report and are congruent with the attributes needed to support an innovative climate in health care. One of the primary leadership tasks of nurses is to create an environment where creativity and innovation can thrive (Gilmartin, 1999; Knol & van Linge, 2008). Innovation should be expected and seen as the work to be done rather than something that happens in addition (Manion, 1993).

To engage in innovative behavior, nurses need management support, resources, a supportive work environment, and knowledge about innovation and nurses' role. Nursing leadership is vital to establishing and sustaining the structure and circumstances to support the level of intensity so necessary to the innovation process (Gratton & Erickson, 2007). Understanding what innovation is, how nurses can pursue innovative change, and the importance to the health care system needs to be communicated. The

key to creating nurse-driven solutions to health care problems is to create a climate for innovation and strategies for teaching the theory and processes that lead to nursing innovation (Lachman, Glasgow, & Donnelly, 2006). Evidence about what supports are required to engage RNs in employee innovation behavior needs to be established. Learning more about the relationship between organizational and individual characteristics and nursing innovation behavior is required.

Conceptual Framework

The purpose of this study is to explore the relationship of individual and organizational characteristics to employee innovation behavior among nurses. Individual characteristics as well as organizational characteristics of the health care setting will be examined as predictors of innovation behavior in nurses. In the following section, a conceptual framework to guide this study is described with conceptual definitions provided for all study variables.

Organizational Characteristics

Based on the research, organizational characteristics affect employee innovation behavior (Janssen, 2000; Janssen, 2005; Scott & Bruce, 1994). Some of the organizational characteristics that have the most significant influence include management support, rewards, and adequate resources (Amo, 2005b; Janssen, 2000; Janssen, 2005; Scott & Bruce, 1994). A tool, the Corporate Entrepreneurship Assessment Inventory (CEAI), comprises four key characteristics found to influence employee innovation behavior (Hornsby, Naffziger, Kuratko, & Montagno, 1993; Hornsby, Holt, & Kuratko, 2008). The instrument was designed for research on corporate entrepreneurship, which is defined as the process of renewal or the revitalization of the

organization through innovation initiatives from the employees (Amo, 2005b). Corporate entrepreneurship is closely related to the concept of innovation. The CEAI instrument measures key organizational characteristics that relate to innovation and therefore it is a useful instrument for this study.

The four categories of organizational characteristics associated with innovation are defined by Hornsby, Montagno, and Kuratko (1992). *Management support* is defined as the willingness to facilitate and promote entrepreneurial behavior including the championing of innovative ideas and providing the resources required to take entrepreneurial actions. *Work discretion* is defined as managers' commitment to tolerate failure, provide decision-making latitude without excessive oversight, and to delegate authority and responsibility. *Rewards and reinforcement* concern developing and using systems that reward based on performance, highlight significant achievements, and encourage pursuit of challenging work. Finally, *time availability* is evaluating workloads to ensure that individuals and groups have the time needed to pursue innovation and that their jobs are structured in ways that support efforts to achieve short and long-term organizational goals.

Individual Characteristics

There has been more controversy about the importance of individual characteristics and if individual qualities play a role in research about innovation or corporate entrepreneurship. Despite the disagreement, it has been shown that individual characteristics influence the process of innovation and are important to consider when conducting research (Bateman & Crant, 1993; Baum, Locke, & Smith, 2001; Baum & Locke, 2004; Campbell, 2000; Costa & McCrae, 1992; Crant, 1996; Holt, Rutherford, &

Clohessy, 2007; Janssen, de Vries, & Cozijinsen, 1998; Scott & Bruce, 1994; Seibert, Kraimer, & Crant, 1999; Seibert, Kraimer, & Crant, 2001; Tierney, 1997; Tierney & Farmer, 2002). Most of the individual characteristics studied, although naturally present in some individuals, have also been shown to be cultivated or encouraged in individuals who are naturally less creative or proactive (Amabile, 1997; Cummings & Oldham, 1997; Egan, 2005). For the purpose of this study, proactivity, creative efficacy, and demographic variables will be the individual characteristics explored. Conceptual definitions are provided in this section and a review of the literature related to these concepts will be discussed in detail in Chapter Two.

Proactivity is defined as the relatively stable tendency for an individual to take action to influence his or her environment and affect change. Proactive individuals identify opportunities and act on them, show initiative, take action, and persevere until they bring about meaningful change (Crant, 1996). Research has demonstrated that proactivity is associated with entrepreneurial intentions (Crant, 1996). Proactivity has also been shown to be positively related to employee innovation and innovation has a positive impact on career success or progression (Seibert, Kramer, & Crant, 2001). The proactivity scale will be used as a measure of this characteristic as proposed in the conceptual model.

Creative efficacy is the self-perception of one's capacity to be creative. Successfully creative people hold a strong self-efficacy level for their creative potential (Tierney, 1997). Innovation is the product of creative ideas and fostering creativity among employees is essential for organizations to be able to foster innovation behaviors (Egan, 2005). Tierney (1997) found that individuals who scored high in creative self-efficacy also scored as being more innovative. In a subsequent study by Tierney and Farmer

(2002) the authors found creative self-efficacy to be associated with job self-efficacy, job tenure, job complexity, supervisor behavior, and to be predictive of creative performance. Individuals who understand their job and have the necessary capabilities to perform those roles tend to have higher creative self-efficacy. Jobs that are multi-faceted and require experimentation and flexibility promote higher levels of creative efficacy. Higher levels of education had a positive relationship with creative self-efficacy while job tenure was negatively related to creative self-efficacy. Creative self-efficacy will be used as a measure of individual characteristics proposed in the study model.

Selected individual and organizational demographics will also be examined in this study. The relevant individual demographics deemed to be of importance for this research includes: age, education, experience, practice area, and job category. Age of the RN was selected to determine if age has any effect on how RNs either perceive their environment or if age is related to differences in individual characteristics. The level of education of RNs also needs to be examined. It is important to determine if RNs with greater educational levels score differently on proactivity and creative efficacy compared to RNs with an associate degree. Years of experience in nursing and within the organization could impact the comfort level of nurses to seek changes to problems, so it is important to determine if there are any differences. Lastly, practice area and job category need to be obtained. Knowing if the subject is a nurse manager, advanced practice nurse or a staff nurse at the bedside and if he or she works in critical care, women's health, or emergency nursing offers the opportunity to learn more about what affects innovative behavior in nursing. The organizational demographics include size of the organization, type of organization, use of APNs within the organization and Magnet

status. Information about the participants' organizations allows for better comparison and understanding of the study results.

Employee Innovation Behavior

Employee innovation behavior is the outcome measure (dependent variable) for this study. Employee innovation behavior reflects the stages of idea generation, idea promotion, and idea realization (Janssen, 2003). A detailed review of the literature on employee innovation behavior is provided in Chapter Two. Determining if there is a relationship between the proposed organizational characteristics and individual characteristics on employee innovation behaviors is the focus of this study and guides the development of the proposed model for the study.

Study Framework

Review of the research identified study variables including organizational characteristics, individual characteristics and the outcome variable of employee innovation behavior. There is a wealth of research related to the organizational characteristics of work environment, autonomy, rewards, and management support on nursing outcomes. These same concepts are also important to innovation among nurses. The research consistently supports the presence of four factors that represent organizational characteristics. It is proposed that organizational characteristics present in the CEAI are similar to the organizational characteristics that influence the process of employee innovation. Research supports their selection and will provide insight into the characteristics of the organizations related to innovation where the subjects are employed. For the purpose of this study, management support, work discretion,

rewards/reinforcement, and time availability will be used as potential predictor variable for this study.

The individual characteristics proposed in the model were based on research that reflect characteristics found to be important in encouraging innovation behavior and will be discussed in detail in Chapter Two. Recent research suggests that individual characteristics, when present along with certain organizational characteristics, may have a relationship to employee innovation behaviors. The individual characteristics include proactivity, creative efficacy, and defined demographic characteristics (age, education, job category, experience, length in organization).

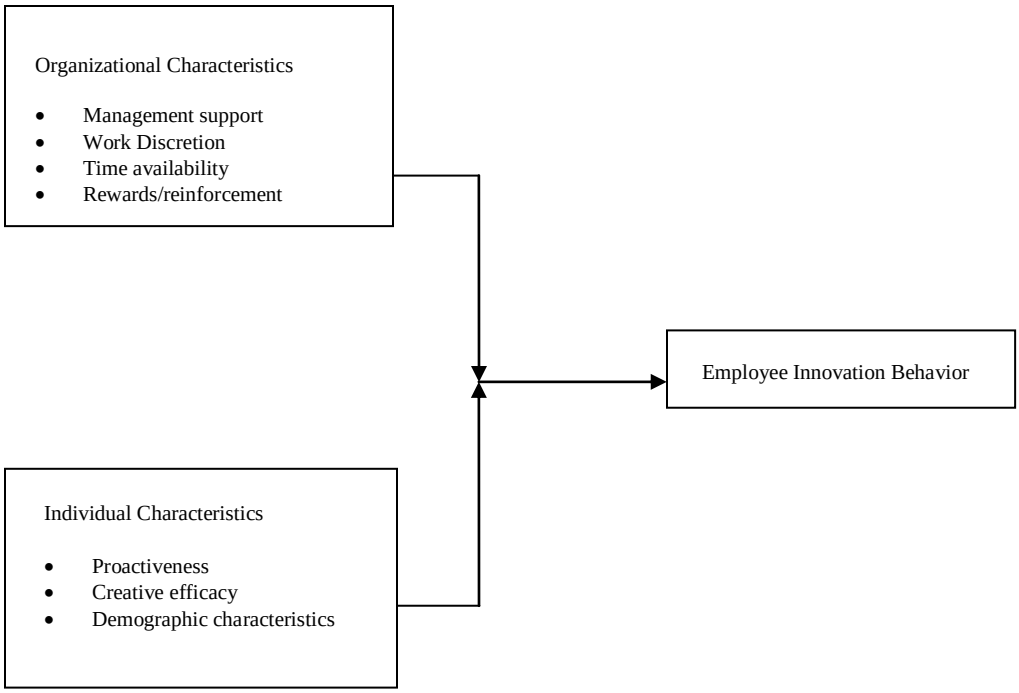
Selected individual and organizational demographics will also be examined in this study. The relevant demographics deemed to be of importance for this research includes the individual demographics of: age, education, RN experience, specialty area, and job category. The organizational demographics of interest are size of the organization, type of organization, employment of advanced practice nurses, and Magnet status of the organization if it is a hospital.

Innovation behavior is the outcome variable for this study. Innovation behavior is defined as recognition of a problem, generation of ideas, and mobilization of support toward the goal of realization of the ideas related to the initial problem. There has been research on individual characteristics and their impact on innovation behavior. Numerous tools have been used to study individual characteristics of innovators, but studies in employee innovation behavior have not conclusively demonstrated if instruments focusing on specific individual characteristics alone have value. Organizational characteristics have been shown to relate to innovation behavior.

Developing a model that focuses on the interaction between organizational characteristics and individual characteristics on employee innovation behavior allows us to learn more about which, if any individual characteristics appear to be the most significant.

The study will determine if there is a relationship between organizational characteristics, individual characteristics, and innovation behavior as proposed in the conceptual model for this study. The proposed model for this study is provided below.

Figure 1: Framework for Study of Innovation Behaviors among Nurses



The proposed model is based on the underlying need of managerial support to facilitate innovation by providing: 1. work time to develop innovative endeavors; 2. work freedom to pursue innovation; and 3. control over their own practice. In addition to having management support, individuals also need to have the ability to take calculated risks that do not jeopardize patient safety and possess individual characteristics that impact the

innovation process. Assumptions of the model are: the support of management makes innovation behaviors more likely; work time allotted to innovation is beneficial; work freedom to pursue innovative ideas; risk taking propensity is necessary; and individual characteristics can impact innovation (Amo, 2005b; Amo, 2006a; Janssen, 2000; Janssen, 2005; Knol & van Linge, 2008; Scott & Bruce, 1994).

Purpose

The purpose of this study is to explore the relationship of individual and organizational characteristics to employee innovation behavior among nurses. Individual characteristics and perceived organizational characteristics of the health care setting will be examined as predictors of innovation behavior in nurses. The results of this study will answer the following research questions.

Research Questions

1. What are RNs' perceptions of organizational characteristics that are supportive of nurse innovation (i.e., management support, time availability, rewards/reinforcement, work discretion) in their health care work environment?
2. Is there a relationship between RNs' perception of the organizational characteristics supportive of innovation behavior and self-reported innovation behavior?
3. Is there a relationship between selected RN individual characteristics and RNs' perceptions of their organizational characteristics supportive of nurse innovation?
4. Is there a relationship between selected RN individual characteristics and self-reported innovative behavior?

5. Do individual characteristics, (selected demographic variables, creative efficacy, and proactivity) and perceived organizational characteristics supportive of innovation behavior predict self-reported innovation behavior among a sample of RNs?

Innovation provides an opportunity for nurses to improve health care. More needs to be learned about what supports are important to innovation and how RNs can be encouraged to engage in employee innovation behavior. This study will help to provide some of these answers.

The remainder of this proposal will address how the study will be implemented. Chapter Two provides an extensive literature review on innovation behavior, nursing studies supporting the need for innovation, and studies related to creative efficacy, proactivity, and employee innovation behavior. Chapter Three will provide details about the instruments, sample, study design, and study methods.

CHAPTER TWO: REVIEW OF THE LITERATURE

Innovation is important to organizational growth and the ability to provide innovative solutions to pressing problems. Innovative behavior is essential for nurses in today's dynamic health care systems (Knol & van Linge, 2008). In this chapter, a review of the current research on innovation will be presented. The literature related to innovation behavior studies among nurses to date will be examined first, followed by a section on organizational culture and leadership in nursing as it relates to the phenomenon of innovation. Learning about the organizational culture of health care organizations and nurses' work environment helps to inform and provide a foundation for future research on innovation among nurses. A literature review of the organizational characteristics proposed in the study model is presented next. Finally, research on the remaining study and outcome variables, including proactivity, creative efficacy, and innovation behavior will be presented.

Nursing Innovation Studies

When looking at innovation studies within nursing, there are few studies that specifically address the process of innovation. Of those studies, the majority discusses either diffusion of innovation or adoption of innovation on nursing units related to research findings and evidence based practice. Although this research is important to nursing, it does not specifically address questions posed in this study. Measuring innovation behavior of nurses and determining what affects nurse innovation behavior has been studied minimally. There is very little research on how to encourage or influence innovation behavior of nurses. There are two studies that examine innovation behavior of nurses and additional studies that look at innovation behavior in other fields.

A Norwegian study by Amo (2006a) looked at the "important other" and his or her effect on innovation at different levels within the health care organization. An "important other" was considered to be someone at a higher level in the organizational hierarchy, similar to a middle manager. The sample included 555 health care workers, of which 120 were Registered Nurses. A questionnaire was distributed and included questions related to management encouragement of innovation, colleague innovation, and personal innovation behavior. The instrument lacked rigorous testing and presented no reliability coefficients in the article. The results showed that encouragement by an "important other" resulted in greater levels of innovation and support of colleagues positively influenced levels of individual innovation. This supports the importance of organizational characteristics and management support to innovation behavior.

A study conducted by Knol and van Linge (2008) explored the relationship between empowerment of the nurse and its relationship to innovative behavior. This cross-sectional correlation study was conducted in the Netherlands with 519 Registered Nurses. Measures used in the study included the Work Effectiveness Questionnaire II, the Psychological Empowerment Instrument, and a Dutch Questionnaire of Innovative Behaviour. The study found that nurses with higher levels of structural and psychological empowerment showed higher levels of innovative behavior. When examining structural empowerment, the dimension of informal power which included the employee's network of sponsors, peers, and subordinates had the biggest impact on innovative behavior. The most significant dimension of psychological empowerment was impact. Impact referred to being able to leave their mark on the workplace and the perception of whether the organization takes their ideas seriously (Spreitzer, 1995). The

study utilized a convenience sample in one organization in the Netherlands. Replication of the study using a random sample from multiple organizations, including Registered Nurses in the United States needs to be completed for the results to be generalizable.

Nursing Research on Organizational Characteristics

Examining organizational characteristics is proposed as an important piece in the process of innovation (Knol & van Linge, 2008; Scott & Bruce, 1994). Although no studies have used the proposed model as a framework for examining organizational characteristics and how they impact innovation behavior, empirical studies of the work environment of nurses and the attributes of autonomy, empowerment, rewards/resources, and management practices have been an important area of research since the early 1990s. This research is beneficial as it helps to understand how health care organizations' characteristics may differ from other types of organizations. This research is also helpful during the process of identifying instruments to be used in this study so valid and reliable instruments are selected to be used with nurses in health care.

A number of studies in the nursing literature have examined organizational culture and concepts related to the factors from the model of management support, autonomy/work discretion, rewards/reinforcement, and time availability, but not in relation to innovation behavior. Nursing research conducted on work environment, culture, and empowerment relate to the factors proposed in the study framework and are reviewed in the following section.

Autonomy

Laschinger, Shamian, and Thomson (2001) tested the model proposed by Aiken et al. in 1997 linking nursing workplace conditions such as nurse autonomy, control over

practice environment and strong collaborative nurse-physician relationships to organizational trust, burnout, quality of care, and work satisfaction. Based on the Aiken literature, these characteristics have been used to distinguish Magnet hospitals from non-Magnet ones. For this study, the sample consisted of 3,106 Canadian nurses and was to determine if the characteristics identified in the Magnet literature held true in Canadian health care organizations with similar characteristics. Instrumentation included use of the Nursing Work Index (NWI) to assess nurse autonomy, control over practice, and nurse-physician relationship. The sample also completed the Interpersonal Trust at Work Scale, The Human Services Survey to measure burnout, and a one-item Job Satisfaction scale. All instruments had acceptable alpha reliabilities. The results of the study supported the proposition that nursing work environments have an impact on trust toward management, job satisfaction, and quality of work. The study stresses the importance of creating work environments that empower nurses. When nurses trust management and are given adequate resources, they feel they have a significant impact on what happens in the workplace and it makes work more meaningful (Laschinger, Shamian, & Thomson, 2001). The study was cross-sectional in nature and conducted in Canada, but still provides insight into the importance of organizational characteristics on nursing outcomes. This study provides support that nursing quality is a logical outcome of a supportive work environment and innovative behavior may be an important outcome among empowered nurses.

A follow-up study to Laschinger, Shamian, and Thomson (2001) was conducted by Flynn, Carryer, and Budge (2005) to test the Nursing Work Index-Revised (NWI-R) among home care and hospital based nurses in the US and New Zealand. The sample

included 403 home care nurses from the US and 320 from New Zealand. Their results were compared with 669 hospital based nurse responses collected in a previous study. The NWI-R had a Cronbach's alpha of 0.96 and had scales addressing autonomy, control, physician relationships, and organizational support. The study supported the results from earlier research and found that 47 of the 49 items were statistically significant in identifying organizational attributes that support nursing practice. It stressed the importance of autonomy, control over practice, and organizational support as key to nursing job satisfaction and quality. Autonomy and control over one's work are essential to encouraging employee innovation along with the need for organizational support. Through innovation, new processes and ideas offer the potential for improving quality within health care. Nurses are more satisfied when they have autonomy and control over their practice, something that is present when innovation is encouraged. The study findings are similar to organizations that support innovation and are characteristics seen as important to employee innovation.

Mrayyan (2004) conducted a descriptive comparative study on nurse autonomy and the impact nurse-managers had on increasing autonomy. The study surveyed 317 hospital nurses and found supportive management, education, and level of experience to be three important factors in enhancing nurse autonomy. The study also found the three variables that decreased autonomy were autocratic management, workload, and working relationships with doctors. This study supports the importance of nurse managers in the ability to increase nurse autonomy, an important component in empowerment, which has been shown to positively impact nurse innovation behavior (Knol & van Linge, 2008).

Magnet Research

The purpose of the Magnet Recognition Program® is to recognize health care organizations that provide nursing excellence through exemplifying 14 organizational characteristics called the "Forces of Magnetism" (http://www.nursecredentialing.org/Magnet/ProgramOverview.aspx). Although the goal of the magnet hospital initiative is not specifically tied to individual innovative behavior, improving the work environment for nurses is believed to contribute to an environment that supports "idea implementation" (Upenieks, 2003). Much of the research on magnet hospitals has examined the importance of nurse empowerment and autonomy on increased retention, improved job satisfaction, and better patient outcomes. Nurses employed at Magnet hospitals have demonstrated higher levels of empowerment and job satisfaction. It is proposed that empowerment leads to autonomy which leads to increased job satisfaction (Upenieks, 2003). One of the consistent findings in Magnet research is the importance of nurse leadership as an organizational characteristic key to the success and satisfaction of nurses. In a comparative study by Upenieks (2003), job satisfaction and empowerment of nurses at Magnet hospitals were compared with those employed at non-Magnet hospitals. A convenience sample of 144 nurses at a Magnet hospital and 161 nurses from a non-Magnet hospital were surveyed using the revised NWI and the Conditions of Work Effectiveness Questionnaire (CWEQ-II). Results showed Magnet nurses had higher job satisfaction, and were more empowered than the non-Magnet nurses. The presence of resources, support, information, and the opportunity to use their expertise led to higher satisfaction. The results also supported that more control over their practice and autonomy was experienced by the Magnet nurses and

contributed to increased job satisfaction. The study utilized a convenience sample from only two hospitals and needs to be conducted with a larger, more diverse sample, but it again supports the importance of work environment on nurses' autonomy and is consistent with the characteristics needed for increased innovation behavior.

Organizational Structure and Culture

A descriptive study by Kane-Urrabazo (2006) examined nursing management's role in shaping organizational culture. The study focused on the importance of organizational culture to job satisfaction and how managers have a role in shaping culture. Utilizing a thorough literature review of present theory, the study identified trust, empowerment, and consistency as being important to the overall health of the organization. Trust was described as the actual act of believing in someone and having confidence in the person. Trust includes the willingness to take risks. Empowerment is the process of enabling others to do something. It requires providing adequate information and resources to employees along with adequate support and an opportunity to learn and grow. When employees are included in decision-making, then increased autonomy and self-worth exists and an improvement in productivity and organizational commitment can result. Lastly, consistency related to rewarding staff is necessary. Rewards must be offered consistently for meaningful contribution for those behaviors to continue. Rewards that are not fair or lack consistency also diminish trust within the organization. This exploratory study provides theoretical supports of the organizational factors of management support, rewards/reinforcement, and autonomy, but the study lacks statistical data to support the theoretical findings. Implementation of a study quantitatively measuring characteristics of organizational culture is needed.

Campbell, Fowles, and Weber (2004) used a descriptive design to examine the organizational structure and characteristics and the impact on job satisfaction in public health nursing. Twenty Illinois county-based public health departments participated in the study resulting in a purposive sample of 192 nurses. The sample completed the Alexander Structure Instrument and the McCloskey/Mueller Satisfaction Survey (MMSS). The alpha reliabilities were 0.84, 0.75, and 0.60 for the Alexander subscales and 0.91 for the MMSS. The results showed that participation in decision making, autonomy, flexibility, and enjoyment of what they do were predictors of a nurse's decision to stay. Nurses also requested more feedback from their managers and recognition for their efforts as important to job satisfaction. This study has some limitations as it was based on self-report and utilized a purposive sample, but supports the characteristics of rewards/reinforcement, work discretion, and management support as factors in nurse job satisfaction. These are three of the organizational characteristics proposed to also be important for supporting innovation behavior.

Gershon, Stone, Bakken, and Larson (2004) conducted an integrated review of the literature on different instruments that measure organizational constructs in the health care setting. The researchers identified ten instruments used to measure organizational climate and culture. The instruments were all found to measure the major dimensions of leadership, group behaviors and relationships, communications, quality of work life, and healthcare worker outcomes. All ten instruments were found to be reliable and valid. Some of the instruments included the Nursing Work Index, Work Environment Instrument, Work Climate Survey, and the Organizational Climate Questionnaire, but all ten were found to be acceptable instruments. Based on the study the researchers were

able to support the evidence that organizational culture and climate play key roles in organizational outcomes. The study defined organizational culture as the norms, values, and basic assumptions of a given organization. Organizational climate reflects the employee's perception of the organizational culture. Aspects of organizational climate include policies, procedures, and reward systems. The study found that measuring the culture and climate of a health care organization to be important because organizational culture and climate can impact worker morale, worker stress, burnout, and turnover. Although the study is descriptive in nature, it supports the impact organizational characteristics can have on health care worker outcomes. This supports the importance of having an organizational strategy that supports innovation, as organizational characteristics influence worker performance.

Another study by Takase, Maude, and Manias (2005) looked at nurses' perceptions of their work characteristics and the impact on work behavior. Work characteristics included such attributes as reward structure, career advancement opportunities, recognition, power, and autonomy provided to nurses. A sample of 943 Australian nurses was contacted and 346 actually completed and returned the instruments. A modified work value scale was developed and had a reliability of 0.89. The study found nurses were not actively involved in decision making, not encouraged to be creative or actively problem-solve, and showed incongruence between recognition desired by the nurses versus actual recognition received by the nurses. The researchers stressed that if nurses are not encouraged to actively be creative and problem-solve, quality of nursing care will not improve. This study has limitations in that it was conducted with Australian nurses, and most of the nurses were educated at the Masters level or higher. Still the research

supports that work environment can have an impact on creativity and problem-solving, which are important aspects of innovation behavior.

Additional support for the importance of work environment on nurse outcomes was provided by Hall and Doran (2007). The study looked at nurse work environment (nursing leadership and quality of care) in relation to nurse outcomes measured by perception of job satisfaction, job pressure, and job threat. This study supported the importance of work environment and nurse leadership on the perceptions of nurse outcomes. The nurses who perceived their nursing leadership as being positive and supportive had greater levels of job satisfaction. They also experienced lower levels of job pressure and job threat.

Lastly, Faulkner and Laschinger (2008) examined the relationships of structural and psychological empowerment and their effects on perception of respect. Research has shown that employees that have access to empowerment structures are more likely to be committed to the organization and have higher levels of motivation. Empowering work environments are based on respect and trust. The research supports that empowerment has a positive effect on nursing outcomes, work effectiveness, job satisfaction, organizational commitment, and organizational trust and respect. Respect is closely aligned with leadership practices that empower nurses to practice autonomously (Laschinger & Finegan, 2005). This study utilized the Conditions of Work Effectiveness Questionnaire (α: 0.80), Psychological Empowerment Questionnaire (α: 0.89) and the modified Esteem Subscale of the Effort-Reward Imbalance Questionnaire (α: 0.77). The results showed the relationship between empowerment and perceived respect. Nurses who felt they had control over their work practices and were involved in decision making

reported greater perception of respect. Having access to empowering structures within the workplace had the greatest impact on perceived level of respect. The authors further conclude that employees who feel more respect are more likely to be satisfied with their work, to trust the organization, and be more committed to remain with the organization. Nurses who are empowered have the ability to affect change in their work and on their working environment. Empowered nurses are more likely to be imaginative, creative, innovative, and entrepreneurial (Amo, 2006a).

Nursing studies have examined aspects of work environment using a variety of different instruments. Although several of the instruments evaluate organizational characteristics of nurses' work environment, none specifically measure the characteristics of management support, time availability, rewards/reinforcement, or work discretion as related to innovative behavior of nurses. These variables have been studied extensively in business research on corporate entrepreneurship. In the following section, research on the organizational characteristics included in the conceptual model of this study (Figure 1) is summarized.

Organizational Characteristics

The influence of organizational characteristics on innovative behavior has been supported in the research literature on corporate entrepreneurship. Corporate entrepreneurship (CE) is defined as the process of renewal or the revitalization of the organization through innovation initiatives from the employees (Amo, 2005b). The workplace environment has been shown to impact innovation and corporate entrepreneurship within organizations (Antoncic, 2007; Antoncic & Hisrich, 2003; Baum, Locke, & Smith, 2001; Heinonen & Toivonen, 2007; Holt, Rutherford, & Clohessy,

2007; Hornsby, Holt & Kuratko, 2008; Hornsby, Kuratko, & Montagno, 1999; Hornsby, Kuratko, & Zahra, 2003; Janssen, 2000; Janssen, 2005; Janssen, de Vries, & Cozijinsen, 1998; Knol & van Linge, 2008; Scott & Bruce, 1994). Research on organizational characteristics that affect corporate entrepreneurship is of value to this study because the characteristics found to influence CE are also important to learning more about employee innovation behavior. Initial research by Hornsby, Naffziger, Kuratko, and Montagno (1993) identified five factors of organizational characteristics that impacted corporate entrepreneurship. The characteristics were management support, autonomy/work discretion, rewards/reinforcement, time availability, and organizational boundaries (Hornsby, Naffziger, Kuratko, & Montagno, 1993; Kuratko & Hornsby, 1998; Kuratko, Ireland, Covin, & Hornsby, 2005). The Corporate Entrepreneurship Assessment Inventory (CEAI) was developed by Hornsby, Montagno, and Kuratko (1992) to measure the five proposed organizational characteristics. Subsequent studies using these initial five factors demonstrated that only four were statistically significant. The organizational boundaries factor was deleted from the model and the revised measurement instrument (Hornsby, Holt, & Kuratko, 2008). Based on the research examining organizational characteristics, the four characteristics proposed by Hornsby et al. (1993) have support in the literature and are included in the framework for this study. This study will determine if any relationship exists between the organizational characteristics of management support, autonomy/work discretion, rewards/reinforcement, time availability, and employee innovation behaviors.

Research by Scott and Bruce (1994) on innovative behavior utilized a tool called Climate for Innovation Measure that they revised based on previous work by Siegel and

Kaemmerer (1978). The researchers took the original 26-item instrument based on four factors and after factor analysis was completed, only two factors, support for innovation and resource supply, were statistically significant and the instrument was reduced to 22 items. Cronbach's alpha for the factors were 0.92 and 0.77 respectively. This tool was used as part of the study examining antecedents to individual innovation. The study found that support for innovation from leadership and expectations of management for innovation to be significantly related to individual innovative behavior. Resource supply was not significantly related in this study, but the authors caution that the study was conducted in a research and development laboratory where resources were more readily available than possibly other work settings. The study supports the organizational characteristics of management support and rewards/reinforcement as important to encouraging employee innovation. The Climate for Innovation Measure resembles parts of the CEAI, but more research has been conducted using the CEAI as a measure of organizational characteristics, and more reliability data is available. For the purpose of this study, the CEAI will be used as the instrument for measuring organizational characteristics. Additional studies supporting the four proposed organizational characteristics in relation to corporate entrepreneurship are presented next.

In the initial instrument development study by Kuratko, Montagno, and Hornsby (1990), the authors used a quasi-experimental design to test an instrument to determine the level of entrepreneurial culture within an organization. The five categories in the instrument were management support, organizational structure, risk-taking, time availability, and reward and resource availability. The questionnaire contained 28 items and was formatted to a 5-point scale. The survey was administered to participants

involved in a corporate entrepreneurship training program and some who were not taking part in the training. The surveys were distributed via mail and then a follow-up survey was sent out four months later. A total of 87 surveys from the original 111 received were returned at the four-month follow-up. Results of the study based on varimax rotation found only three factors to be statistically significant. The three factors identified included management support, organizational structure, and resource availability. The Cronbach's alphas were as follows: management support (0.76), organizational structure (0.75), and resource availability (0.68). The study identified that management support, organizational structure and resource availability were seen as important to employees when considering corporate entrepreneurship. The study also suggested that participants in the training program for corporate entrepreneurship perceived their organizational environment differently than those not in the training program. Limitations of the study were the lack of experimental controls in evaluation of the training program, inclusion of only management as part of the sample, assessment from only the Midwest region from only one organization, and the use of self-report when filling out the survey. This study provided a foundation for the presence of certain factors within an organization related to entrepreneurship.

In a subsequent study by Hornsby, Kuratko, and Zahra (1999) the purpose was to further examine the factors in the CEAI and determine if there were differences in managerial fostering of CE between Canadian and US managers. This comparative study examined 174 managers from six US firms and 353 managers from 12 Canadian firms. The study compared US and Canadian managers to determine if they differed in how they perceived their work environment in relation to support for CE. From this study, the

CEAI was further supported by US and Canadian managers and showed that a supportive work environment resulted in a statistically significant greater level of CE within the organization. This study supported that innovative behaviors are related to the existence of an innovative climate not only within the US, but on an international level.

Further support of the organizational characteristics used in this study was provided by Hornsby, Kuratko, and Zahra (2002). The CEAI was revised to include 48 Likert-style questions aimed at examining an organizational entrepreneurial climate. The purpose of the study was to determine if the CEAI had a consistent factor structure, the structure could be duplicated or cross-validated with an independent sample, and if the instrument would demonstrate high internal consistency reliability. Exploratory factor analysis, confirmatory factor analysis, and internal consistency of the resulting factors were conducted with two samples. The first sample consisted of 231 midlevel managers from a Midwestern university continuing education program, and the second sample consisted of 530 midlevel managers from manufacturing and financial organizations throughout the US and Canada. Demographic statistics demonstrated that the two samples were similar. Factor loadings were included if they had a value of 0.40 or higher. Cronbach alphas for the subscales were as follows: management support (0.89), autonomy (0.87), rewards/reinforcement (0.75), time (0.77) and organizational boundaries (0.64). Organizational boundaries continued to be a weaker factor for the instrument and in future studies was eventually eliminated. This study used the broad definition of corporate entrepreneurship to include "the development and implementation of new ideas into the organization" (Hornsby, Kuratko, & Zahra, 2002, p. 253). The results supported the importance of organizational characteristics and its positive

relationship with developing and implementing new ideas within the organization. Limitations of the study were the instrument relied on self-report, and the CEAI has not been linked to either financial measures or organizational performance.

A study by Baum, Locke, and Smith (2001) surveyed 307 CEOs and 131 employees from architectural woodworking firms to learn more about individual and organizational characteristics and how they relate to CE and venture growth. The study showed the greatest predictor of venture growth occurred when individual characteristics and the organizational characteristics of management support, work discretion, time availability, and rewards/reinforcement were supportive of corporate entrepreneurship.

A study by Holt, Rutherford and Clohessy (2007) examined how individual and organizational characteristics affect the level of corporate entrepreneurship within the company. The study examined 151 employees at 3 US Air Force installations and found that management support, work discretion, and rewards/reinforcement were positively related ($p<0.01$) to the level of corporate entrepreneurship within the organizations.

Antoncic (2007) conducted a study that examined the organizational characteristics of management support, work discretion, time availability, and rewards/reinforcement and its relationship to the level of corporate entrepreneurship. Participants were surveyed from Slovenia and Ohio for a total of 192 participants. The study found that in both countries organizational characteristics were highly significant ($p<0.01$) and positively correlated to levels of corporate entrepreneurship. The study also demonstrated organizations with more innovative cultures supportive of CE experienced higher growth and profitability than those organizations that lacked an innovative culture.

Additional studies examined organizational characteristics related to employee innovation behaviors that are similar to the proposed organizational characteristics for this study. In a study by Janssen (2000) perceptions of effort-reward and the relationship to innovative work behavior was examined. A sample of 170 non-management industrial workers from the food industry was surveyed. Effort-reward fairness was defined as a fair balance of work efforts relative to work rewards (Janssen, 2000). Based on the study results, employees were found to respond more innovatively when employees perceived their efforts were fairly rewarded by the organization, which lends support to the organizational characteristic of rewards/reinforcement. Limitations of the study were the sample was predominantly male from the industrial sector and relied on self-report. Additional studies within other industries and including more females are needed.

In a follow-up study by Janssen (2001) effort-reward fairness and the relationship to innovative work behaviors of managers was studied. A sample of 134 mid-level managers in a Dutch industrial food organization was asked to rate their level of innovative work behavior along with job demands, job satisfaction, and reward fairness perceptions. The results supported a positive relationship between employee perceptions of reward fairness and innovative work behaviors ($p<0.05$). Mid-level managers who perceived the organization fairly rewarded work efforts had higher rates of innovative behavior than those managers who perceived unfairness of reward. This supports the importance of rewards/reinforcement as an organizational characteristic important to innovation. Limitations of the study were the sample included mainly Dutch male managers in an industrial setting relying on self-report.

Janssen (2005) conducted another study to learn more about the relationship between supervisor supportiveness and employee innovation behavior. The study examined 170 Dutch employees from the energy industry and had them fill out a survey rating supervisor supportiveness, their perceived influence at their organization, and their level of innovative work behaviors. Results showed employees who perceived they had influence in their organization were more likely to perform innovative activities ($p<0.01$). Employees who perceived their supervisor as being supportive also reported higher levels of innovative work behaviors ($p<0.01$). The most significant finding from the study was the finding that employees who perceived they had influence within their organization and had a supportive supervisor reported the highest levels of innovative work behaviors ($p<.001$). This study supports the organizational characteristics of management support as important to innovation behaviors. Limitations of the study were the sample was comprised mainly of Dutch males and self report was utilized in the data collection.

In a final study, Knol and van Linge (2008) investigated the relationship between structural/psychological empowerment and innovative behavior. For the purposes of this study, structural empowerment was defined as: having the opportunity to learn and grow; access to information needed to perform job requirements; support from leadership and peers; and access to resources such as supplies, money, equipment, and time. Psychological empowerment for this study included the dimensions of meaning, competence, self-determination, and impact. Meaning refers to how employees care about their work and feel it is important. Competence is the level of confidence employees possess in being able to meet their job requirements. Self-determination is the level of freedom or autonomy employees feel they have in their work. Finally, impact

refers to the level of influence employees have in their workplace and whether their organization takes their ideas seriously. The study sample was 847 RNs working in two hospitals in the Netherlands who were asked to answer a survey measuring the RNs perceived structural empowerment, psychological empowerment, and their innovative behaviors. Results of the study showed structural empowerment was statistically significant and positively related to innovative behavior ($p<0.01$) and RNs with higher levels of structural empowerment reported more innovative behaviors. Psychological empowerment was also statistically significant related to innovative behavior ($p<0.01$) and RNs with higher levels of psychological empowerment reported more innovative behaviors. The results also found that structural empowerment was mediated by psychological empowerment ($p<0.001$). Limitations of the study were RNs from the Netherlands and no US nurses were surveyed, response rate was 61%, and a convenience sample was used. Despite the limitations discussed, this study further supports the organizational characteristics of management support, rewards/reinforcement, time availability, and work discretion as important to promoting innovative behaviors.

Individual Characteristics

Studies examining personality characteristics of innovators have been conducted more recently and are the studies of interest for this paper. There has been a shift from strictly examining traits of individuals as a direct effect on innovation to one of understanding individual characteristics as not the only effect, but as a component of the innovation process (Gartner, 1988; Knol & van Linge, 2008; Naffziger, Hornsby, & Kuratko, 1994). The research is consistent in showing that individuals do play an important role in the innovation process, but the significance of the individual is not always captured in

examining personality characteristics exclusively (Heinonen & Toivonen, 2007). Of the recent studies none have shown individual characteristics alone to significantly impact innovation.

No discussion of innovation can exist without mentioning the Kirton Adaption-Innovation Theory, which examines the cognitive style of individuals related to creativity and problem-solving style. The Kirton Adaption-Innovation scale (KAI) developed from the Kirton theory is a tool used to measure the cognitive style of creativity in individuals. The Kirton tool was first developed by Michael Kirton in 1976 and has been tested extensively and has been shown to be a valid, reliable tool in evaluating the cognitive style of creative problem solving (Mudd, 1996).

Kirton believed everyone could be located on a continuum ranging from the ability to "do things better" to an ability to "do things differently" and he labeled the ends of the continuum adaptive and innovative, respectively (Kirton, 1976). Adaptors are characterized by a preference for making improvements to existing methods and systems, prefer well established structured situations, and favor the security of operating within the prevailing paradigm (Kirton et al., 1991). Innovators prefer change that is radical. They challenge the prevailing paradigm and perhaps bring about a significant alteration in the system itself. Innovators prefer less structured situations and tend to be impatient of existing constraints (Kirton et al., 1991). The instrument is a 32-item questionnaire with a scale ranging from 32-160 with adaptors scoring around 60-90 while innovators score in the range of 110-140 on the scale. The mean of the general population is approximately 95. Studies using the Kirton tool for Adaptors and Innovators have explored if there is a difference among the scores of individuals in certain occupations

compared to the general population. Studies have been conducted using the KAI tool to examine how nurses score on the KAI compared to the general population and how nursing students score on the KAI compared to a general student population (Pettigrew & King, 1993; Pettigrew & King, 1997; Adams, 1994).

In an initial study, Pettigrew and King (1993) compared the scores of nurses to the general population on the KAI. The study looked at 60 first-year nursing students in one group and 77 unidentified non-nursing majors at the same university. The nursing group had a mean score of 92.30 while the non-nursing group had a mean score of 100.88. When Pettigrew and King (1993) looked at ASN nursing students compared to non-nursing majors it was shown that students majoring in nursing scored significantly as adaptors compared to non-nursing majors.

In another study, Pettigrew and King (1997) studied 266 registered nurses working in a variety of practice settings to determine if nurses score more as adaptors or innovators. The general sample had a mean of 94.3, which shows the scores of the nurse group approached the general population mean of 95. When the sample was broken into specialty areas, pediatric, psychiatric, critical care, and medical surgical nurses, they scored above 96 and more as innovators, while maternity, ambulatory care staff, home care, and operating room nurses scored below the mean of the general population (95) and more toward adaptors (Pettigrew & King, 1997). Findings showed that when taking all nurse responses, nurses score near the mean of the general population and tend to be slightly adaptive, but when examining different specialty areas, some specialty units scored more toward innovators (pediatrics, psychiatric, critical care) while other groups tend to score more as adaptors (maternity, home care, OR).

Adams (1994) examined nurse executives compared to other nurses and the general population and found nurse executives score significantly more as innovators compared to the other two groups. These studies have shown how certain nurses score on the KAI in relation to preferring either an adaptive or innovative problem solving style, but did not examine the actual innovation behavior of nurses.

Despite the validity and reliability of the KAI, the tool is designed to measure problem-solving style rather than the level of problem-solving that occurs (Isaksen, Babij, & Lauer, 2003). Using measures more specifically related to individual characteristics that might impact levels of innovation behavior are more useful. Examining the characteristics of creative efficacy and proactivity may have more usefulness to research on innovation behavior.

Creative Efficacy

Creativity is also an important piece of individual characteristics that is closely tied to innovation. Creative work requires individuals to persist despite challenges they may face when pursuing creative endeavors. Creative self-efficacy enhances the individual's will to persevere and cope with challenges (Tierney & Farmer, 2002). Antecedents to creativity include the attributes of individual creativity such as willingness to take risks, having broad interests, attraction to complexity, intuition, tolerance to ambiguity, and self-confidence. Other antecedents are having expertise in the work domain, identification of gaps in knowledge, freedom and autonomy, diversity of viewpoints, encouragement, sufficient resources, intrinsic motivation, challenging work, and the ability to do what you love (Amabile et al., 1996). Consequences of creativity include innovation, change, need fulfillment, new viewpoints, paradigm shifts, and progress

(Tierney & Farmer, 2002). Creative efficacy, defined as the self-perception of one's capacity to be creative can be an important characteristic for employees to have when faced with the possibility of innovation in the workplace (Tierney, 1997). Learning more about nurses' levels of creative efficacy is important as individual characteristics impact the process of innovation. Knowing if nurses with different levels of creative efficacy perceive their work environment differently could affect the innovation behavior by that individual within that particular organization. Beginning research on creative efficacy shows potential for increased innovation behaviors.

Although creativity has been researched abundantly, and creativity in the work place has also been studied, the variable of creative efficacy in relation to innovation is a newer concept that has limited research. There have been a few studies on the concept of creative efficacy. In the study by Tierney (1997) the associations among creative efficacy, cognitive climate, and job satisfaction were examined. It was found that employees with innovative cognitive styles reported higher levels of creative efficacy. The study used regression analysis and found an individual's innovative cognitive style to be significantly related ($p<0.001$) to a person's level of creative self efficacy.

In a follow up study, Tierney and Farmer (2002) examined creative self efficacy to determine antecedents and its relationship to creative performance. The study used two samples; one included 584 primarily blue collar workers from a large manufacturing company, and the second sample consisted of 158 white collar workers from high tech firms. Their results showed that creative efficacy was positively related to job self-efficacy, job complexity, job tenure, and supervisor behavior. The two samples differed in one area. Education was positively related and job tenure was negatively related to

creative efficacy in the blue collar workers, but showed no impact on the white collar workers. The researchers also showed a positive relationship between creative efficacy and creative performance. Limitations of the study were the use of a cross sectional design and relying on supervisor-provided creativity ratings for measuring creative performance.

Farmer, Tierney, and Kung-McIntyre (2003) completed a related study examining creative role identity among professionals in Taiwan. The study found that creative role identity was positively related to self views of creative ability, creative expectations from colleagues, and exposure to US culture. The study has limitations as it was completed in Taiwan and did not include nurses, but provides additional support that creative efficacy can be impacted by work environment.

Proactivity

Studies have supported that the individual is an important piece of the process of innovation. Many characteristics have been discussed, but more recently the concept of proactivity has been included in the research and received some support. A study by Crant (1996) examined proactive personality and entrepreneurial intentions. Entrepreneurial intention requires individuals to be innovative and use creative problem-solving. The study sample was 181 students from a Midwest university. Half of the sample was undergraduate students and the other half was MBA students. A proactive personality was significantly associated with entrepreneurial intentions. Research has demonstrated the importance of proactiveness to entrepreneurship. Crant (1996) examined the relationships among proactive personality, demographic data (age, gender, work experience), and entrepreneurial intention. The results showed that a proactive

personality was the greatest and a significant predictor of entrepreneurial intention compared to the other variables. Campbell (2000) claims that proactivity is an important characteristic associated with innovative individuals.

Campbell (2000) defines attributes of a proactive employee as being task and job competent; displaying trustworthiness, leadership abilities, and positive working relationships; demonstrates a commitment to the organization and feels a responsibility for organizational success; and has personal integrity. Additional research has also shown that individual proactivity links to career progression and career satisfaction (Seibert, Kraimer, & Crant, 2001).

Amo (2005b) conducted a study with 153 business employees and mid-level managers to see if employee and organizational characteristics impacted the employees' innovation behavior. One of the individual characteristics measured was proactivity using the revised scale by Seibert et al. (2001) which has a Cronbach's alpha of 0.87. The study found that employees who are more proactive reported more innovation behavior.

Baum et al. (2001) conducted a study integrating the personality traits, general motives, personal competencies, situational specific motivation, competitive strategies, and the business environment to examine the impact on venture growth. The purpose of the study was to test whether a multilevel model that sampled relevant concepts from individual, organizational, and environmental domains would predict firm performance. Variables measured included: individual traits, general and specific competencies, motivation, competitive strategies, and environmental characteristics. All of the item questions were derived from preexisting instruments and had acceptable reliability and validity data. The study showed a significant correlation between the personal traits of

tenacity, proactivity, and passion as significant to innovation and had a positive relationship on venture growth. This research highlighted the importance of examining the abilities of workers and establishing training to encourage managers to implement organizational policies and characteristics supportive of innovative behavior. This study was able to show that an interaction among individual, organizational and environmental factors was the strongest predictor of venture growth (Kuratko, 2007).

Gupta and Bhawe (2007) studied the influence of stereotypes on proactive personality and entrepreneurial intention. An experimental study was conducted with 80 women from a large Midwestern business school. The women were surveyed using an online format. Half of the participants were subjected to stereotypes of entrepreneurs that were mainly masculine in nature by reading a research study prior to answering the survey about entrepreneurial characteristics. The other half read an article prior to answering the survey describing entrepreneurial characteristics in a gender neutral manner. What is of interest was using hierarchical linear regression the study showed that participants who scored high on proactivity, who were subjected to gender neutral stereotypes had higher levels of entrepreneurial intention than the experimental group ($p<0.05$). Proactivity and stereotypes significantly interacted to predict entrepreneurial intention ($\Delta R^2=0.044$).

Kickul and Gundry (2002) surveyed 107 small business owners in the Midwest who managed their businesses to see if their personality impacted the type of strategies they implemented for their business. Participants were given the proactive personality scale (Seibert, Kraimer, & Crant, 2001), a demographics questionnaire, and asked about their company's recent innovations, business strategy, business characteristics, and goals. The researchers found that participants who scored higher on the proactivity scale reported

business strategies focused on innovation and corporate entrepreneurship. A limitation of the study was the strategy of the business was provided by the participant and response bias could be present.

The literature review supports the relationship between individuals who score high on proactive personality have higher levels of entrepreneurial intention. Amo (2005b) found proactive personality to be positively related to innovation behavior. There lacks additional studies, including studies with Registered Nurses examining the relationship between proactivity and innovation behavior. More empirical research on the relationship between proactive personality and employee innovation behavior needs to be conducted, including studies with Registered Nurses in the United States.

Outcome Variable: Employee Innovation Behavior

One way to learn about the individual is to examine the innovation behavior of the person. Amo (2006a) defines innovation behavior as behavior from an employee towards developing new products, developing new markets, or improving business routines in their employing organization. Janssen (2000) defines innovative work behavior as encompassing idea generation, idea promotion, and idea realization. Learning about the employees who have higher levels of innovation behavior within an organization is important. Innovation behavior among nurses was shown by Amo (2006b) to be influenced by the support of management. Health care organizations where managers encourage innovation showed nurses scored higher on innovation behavior measures. Examining creative efficacy, proactivity, and innovation behavior and the effect of organizational characteristics, including management, allows us to learn more about the

process of innovation. Reviews of the studies that have measured employee innovation behavior are provided followed by a discussion of the instrument used for this study.

Employee Innovation Behavior

Employee innovation behavior has been examined in a few studies, but only two have looked at innovation behavior among Registered Nurses. Studies have been conducted by Amo (2005a, 2005b, 2006a, & 2006b), Janssen (2000, 2001, 2003, & 2005) and Knol and van Linge (2008) in relation to employee innovation behavior. The first study by Amo (2005a) compared two competing models of innovation behavior to determine which model had the stronger relationship to employee innovation. The study used a sample of 634 business school graduates in Norway. The study found that the model combining individual personality and organizational strategy had the highest predictor of innovation than when each was used individually. The study used a five-item questionnaire developed by Amo rated on a five-point Likert scale and asked the questions: 1. To what extent do you contribute to new product development in the organization where you are employed? 2. To what extent do you contribute to the development of new product-market combinations in the organization where you are employed? 3. To what extent do you contribute to development projects in the organization where you are employed? 4. To what extent do you contribute to the development of new venture ideas in the organization where you are employed? 5. To what extent do you contribute to the development of new markets for the organization where you are employed? The Cronbach's alpha for the instrument in this study was 0.91.

In the next study, 877 graduates of a Masters degree in management were surveyed about their organization's strategy, the desire for innovation at the organization, and the employee's proactivity score (Amo, 2005b). The researcher used the same instrument for innovation behavior as used in the prior study (Amo 2005a). Cronbach's alpha for the innovation behavior instrument was 0.88. A structural equation model was conducted and the results showed that organizations with stronger competitive strategies were more likely to want employees to exhibit innovation behavior. There was also a positive correlation between employee proactivity and innovation behavior. The desire from the company for the employee to act innovatively was a stronger predictor of innovation behavior compared to the employees' desire to be innovative.

Amo (2006a) then conducted a study among health care workers in Norway that included RNs, auxiliary nurses (similar to LPNs), and unskilled health care workers (aides). The sample included 555 health care workers who responded to a postal survey. There were 120 nurses, 309 auxiliary nurses and 126 unskilled workers. A pilot study found that the original employee innovation behavior scale developed and used in previous research by Amo had to be revised to be used with nurses. In particular, innovation was put in plain words as "improvements at work". The survey asked questions related to the participant's own innovation behavior, their colleagues' innovation behavior, and management's encouragement. The goal of the study was to examine if the individual's innovation behavior could be influenced by co-workers or management. The study utilized descriptive statistics, t-tests, principal component analysis, and multiple regression analysis. Principle component analysis was used to assess discriminant and convergent validity of variable models, and validity and

reliability values were reported as all acceptable, but no exact values were provided. There were differences found among the three occupations surveyed, but RNs were significantly influenced by management's desire for innovation behavior ($p<0.001$) and unskilled and auxiliary nurses were more influenced by their colleagues' innovation behavior ($p<0.001$). This was the first innovation behavior instrument used among nurses. Additional research using the instrument is needed.

A final study by Amo (2006b) was a qualitative study examining why four employees from three different organizations chose to pursue CE. Participants were obtained from a Norwegian Ministry of Trade innovation program. Participants attended monthly meetings related to developing innovations in their workplace for six months. The four participants were interviewed at the start of the program, mid-program, at the end of the program, and one year after completion of the program. Interviews were face to face and utilized a semi-structured questionnaire. The results showed that employees' innovation behavior was positively influenced by organization strategy and reward. Rewards could simply be they were acknowledged for their efforts. Innovation behavior was also increased when employees saw that the learning required could increase their knowledge base and make their job more interesting. These results further support the importance of organizational characteristics to the CE process.

Knol and van Linge (2008) conducted a study with RNs working in the Netherlands comparing nurse empowerment with reported levels of innovation behavior. The study utilized a Dutch innovation behavior instrument that was unavailable in English and the items were not provided in the article. Despite not being able to evaluate the actual instrument the study was conducted utilizing RNs and the researchers found a positive,

statistically significant relationship between nurse empowerment and reported innovation behaviors.

Scott and Bruce (1994) completed a study on the antecedents of innovation and tested a model of individual innovative behavior. The researchers developed a 6-item Innovative Behavior Measure to be filled out by the managers of 172 research and development employees, assessing their employees' innovation behavior. Cronbach's alpha for the scale was 0.89. The instrument utilized a five-point Likert scale ranging from "not at all" to "to an exceptional degree". For additional validity researchers compared innovation behavior responses with the number of invention disclosures filed by each employee. The response by managers and the number of invention closures filed correlated significantly ($p<0.001$). The study found leadership, support for innovation, and manager expectations to be significantly related to individual innovative behavior. Limitations of the study were the sample consisted primarily of self-managing research and development employees, over 90% of the sample was male, and the average age was 40 years. The study also utilized a cross-sectional research design. The innovation behavior instrument, although it had an acceptable Cronbach's alpha, was fairly vague. Work by Janssen as discussed next, took this instrument and revised it to reflect the three components of innovation behavior.

Building on the work of Scott and Bruce, Janssen (2000) developed a 9-item instrument on innovative work behaviors. Janssen developed three items related to idea generation, three items related to idea promotion, and three items related to idea realization. The study surveyed 170 Dutch employees from an industrial food organization on innovative work behavior, job demands, and reward fairness. The

surveys were completed by employees themselves and the managers of the 170 employees. Managers returned 110 surveys. The response format was on a 7-point scale ranging from "never" to "always". Cronbach's alpha for the scale was 0.95 (self-report) and 0.96 (manager-rated). The study found employees used innovation to help cope with higher job demands particularly when employees perceived they were rewarded fairly for their efforts. The study sample was comprised mainly of men with an average age of 43 who lacked higher formalized education. The study needs to be replicated with other populations, but did result in the development of a reliable innovative work behavior instrument.

In a follow-up study by Janssen (2001), the same 9-item Individual Innovative Behavior Scale (IIBS) was used to assess reward fairness, job demands, and innovation behavior. Cronbach's alpha for this study was 0.96. Employees and managers both provided responses to the (IIBS) for the employee. There was no significant difference in self-report responses on the IIBS compared to the leader-report responses. This study also supported that when reward fairness is perceived along with higher job demands, participants score higher in individual innovation behavior.

Janssen (2003) also used the nine-item IIBS when studying if employees who scored higher in innovative behavior had more conflict and less satisfactory working relations with employees who resisted or wanted to prevent innovative change. The Cronbach's alpha for the IIBS in this study was 0.97. The sample included 91 teachers. Responses to innovative behavior were completed by the teachers' supervisors. The results from the study did show that innovative employees did experience more conflicts and less

satisfactory working relationships with their co-workers who did not support innovative change.

Lastly, Janssen (2005) surveyed Dutch 170 employees from the energy industry to see if supervisor support affected employees' innovation behavior. Employees responded to items on supervisor supportiveness, and perceived influence, and the immediate supervisors of the employees responded to the 9-item individual innovative behavior scale. Cronbach's alpha for the study was 0.98. The results showed that employees who feel they have influence in their workplace and have a supportive supervisor are more likely to display innovation behaviors than those who do not. The most important predictor in this study for innovative behavior was a supportive supervisor, but individuals who had a supportive supervisor and perceived their influence to be high had the highest levels of innovative behavior. This study supports the importance of individual and organizational characteristics on innovation behavior.

Based on the work in employee innovation behavior, there is support for use of the nine-item instrument developed by Janssen (2000; 2001; 2003; & 2005). An area of concern is the instrument has not been used with Registered Nurses and not exclusively as a self-report questionnaire. The Amo instrument has been used with Registered Nurses, but only in one study, so additional research using the instrument must be completed. For the purpose of this study, both instruments will be included on the questionnaire to be filled out by participants. The questions differ enough that they warrant inclusion in the study and additional reliability and validity measures with this sample will be completed as part of the study.

The literature review supports the selection of the study variables and provides evidence of the need for additional research to learn more about the relationships between organizational characteristics, individual characteristics, and employee innovation behavior. Chapter Three will discuss the proposed study methods. A discussion of the research questions, instruments used in the study, and validity and reliability of the instruments will be provided. The sample for the study will be described and statistical analysis procedures will be provided.

CHAPTER THREE: METHODS

The purpose of this study is to explore the relationship of perceived organizational characteristics and individual characteristics with nurses' self-reported innovation behavior. The individual characteristic variables of proactivity, creative self efficacy and selected demographics in addition to the organizational characteristics of the health care setting were examined as predictors of self-reported innovation behavior in nurses. The study methods are described including the study design, research questions, study variables, instrumentation, sample size and selection, and data analysis methods.

Design

A quantitative, descriptive design was used in this study. This design was selected to learn more about the relationships between the organizational and individual characteristics and the employee innovation behavior of Registered Nurses within health care. A descriptive design allowed for more understanding about how RNs perceive their health care work environment in relation to innovation. The study looked at individual characteristics of RNs to examine their level of creative efficacy and proactive behavior to see how these characteristics impact their employee innovation behavior. A cross-sectional survey was used to explore management support, work discretion, rewards/reinforcement, and time availability for organizational characteristics, and the individual characteristics of creative efficacy, proactiveness, and selected individual and organizational demographics for individual characteristics, and how they relate to employee innovation behavior.

Research Questions

1. What are RNs' perceptions of organizational characteristics that are supportive of nurse innovation (i.e., management support, time availability, rewards/reinforcement, work discretion) in their health care work environment?
2. Is there a relationship between RNs' perception of the organizational characteristics supportive of innovation behavior and self-reported innovation behavior?
3. Is there a relationship between selected RN individual characteristics and RNs' perceptions of their organizational characteristics supportive of nurse innovation?
4. Is there a relationship between selected RN individual characteristics and self-reported innovative behavior?
5. Do individual characteristics, (selected demographic variables, creative efficacy, and proactivity) and perceived organizational characteristics supportive of innovation behavior predict self-reported innovation behavior among a sample of RNs?

Variables

Based on the framework for this study, learning more about how individual characteristics and organizational characteristics are related to employee innovation behavior will provide managers and organizations with valuable information about how to create an environment supportive of innovative behaviors. By knowing more about these variables, this study will provide supportive evidence to promote organizational characteristics that increase innovative behaviors among RNs within a health care setting. Operational and conceptual definitions for the study variables are provided in Table 1.

Table 1: Definition of Variables

Organizational Characteristics	**Conceptual Definition**	**Operational Definition**
Management support	The willingness to facilitate and promote innovative behavior including the championing of innovative ideas and providing the resources required to take action	CEAI- Management support subscale (5 items)
Time availability	Evaluating workloads to ensure that individuals and groups have the time needed to pursue innovation and that their jobs are structured in ways that support efforts to achieve short and long-term organizational goals	CEAI- Time availability subscale (5 items)
Rewards/Reinforcement	Concerns developing and using systems that reward based on performance, highlight significant achievements, and encourage pursuit of challenging work	CEAI- Rewards/reinforcement subscale (3 items)
Work Discretion	Managers' commitment to tolerate failure, provide decision-making latitude or excessive oversight, and to delegate authority and responsibility	CEAI- Work discretion subscale (7 items)
Individual Characteristics	**Conceptual Definition**	**Operational Definition**
Proactivity	The relatively stable tendency to take action to influence his or her environment and effect change.	Seibert Proactivity Scale (10 items)
Creative Efficacy	The self-perception of one's capacity to be creative.	3-item Creative Efficacy Scale
Individual Demographics Age Level of Education	 Chronological age Degree: Diploma, ASN, BSN, MSN, or PhD	Demographic Questionnaire

Position Title	Staff nurse, educator, advanced practice nurse, nurse manager, nurse administrator	
Work Setting	Type of health care organization and area of specialization	
Years in current position	Number of years in current nursing position	
Years in current organization	Number of years in current organization	
Organizational Demographics		Demographic Questionnaire
Magnet status	If the hospital has achieved Magnet status, is pursing Magnet status, or is not actively pursuing Magnet	
APNs	Employment of Advanced practice nurses by the organization	
Size of Organization	The number of RNs employed by the organization	
Outcome Variable (DV)	**Conceptual Definition**	**Operational Definition**
Employee Innovation Behavior	Behavior from an employee toward recognition of a problem, generation of ideas, mobilization of support, and realization of the ideas related to the initial problem	Amo Innovation Behavior Scale- Own innovation subscale (3 items) Janssen scale of individual innovation behavior (9 items)

Human Subjects Approval

This study consisted of administering a modified version of the CEAI for health care instrument, proactivity instrument, creative efficacy survey, demographic questionnaire and employee innovation behavior survey to Registered Nurses from the state of Ohio. Names and addresses of all active RNs from the state of Ohio were obtained from the Ohio Board of Nursing for a nominal fee. Participation in the study was voluntary and anonymous. IP addresses were not collected from participation in the online survey. A web link was provided on a postcard sent to potential participants. Participation required informed consent and was described as part of the online survey. When subjects entered the online survey, the consent was part of the study explanation. The subject had to click on the consent button before accessing the survey. The consent described the following items: the responses are anonymous; subjects can opt to not answer any questions they so choose, and study results can be obtained by contacting the principal investigator. An informed consent statement is provided in Appendix B, which shows exactly what was contained in the online consent. Submission of answers by the participant using the web link helped to define participants in the study. The principal investigator (PI) maintained data management through use of an online survey instrument. At completion of the study, initial authors of the CEAI and the other instruments will have access to aggregated data obtained by the PI, if so requested, but no identifiable data was collected nor will be shared in any form. Data was stored on a secure server at Indiana University and was accessible to the PI online with password protection in place. The data was exported into an SPSS file and stored on the PI's own computer with password protection with a back-up CD burned and kept in a locked office. Data will be maintained for at

least three years. The computer used to store the study data was protected with both software and hardware firewalls. There was password protection in place to further safeguard the computerized data.

A minimal incentive was offered to increase participation in the study. The incentive was the chance to win one of four $25 online coupons to Amazon.com. Responses had to be submitted by the deadline listed on the postcard in order to be considered for the chance drawing. Participants were asked to submit their e-mail address at the completion of the study in order to be eligible to win one of the chances, but their e-mail addresses were not linked to their survey responses. The four winners were randomly selected from all of the submitted e-mail addresses by a third party and the online coupons were sent directly to the online e-mail provided. The potential benefits of the proposed study outweighed any potential minimal risks to study participants. Potential benefits included learning about innovation behavior among RNs and what organizational characteristics are found to be supportive of the process. The risks of participating in the study included the fact that some questions may make the subject uncomfortable and they may choose not to answer. There was a small risk that participants' e-mail addresses could be stolen from the PI's computer, but password protection was in place and the computer was stored in a locked office. E-mail addresses also were not connected to participant names which further minimized this risk. The primary investigator's contact information, and the advisor's contact information and IRB contact information was available for subjects as part of the consent in case of questions about the study or their rights as a research participant. Given the minimal risk involved in this study, exempt review by the

Institutional Review Board (IRB) at Indiana University (IU) was sought in the Behavioral and Social Sciences category of research and obtained.

Sample

The sample was derived by obtaining addresses for Registered Nurses from the State Board of Nursing in Ohio by contacting them and paying a very minimal fee to have the names and addresses of actively licensed RNs sent to the PI via postal mail on a CD. The CD only included nurses with active Ohio licenses. Postcards requesting participation in the study were sent to 1200 RNs randomly selected from the address list received from the Ohio State Board of Nursing. After 30 days less than 100 responses were obtained and a reminder postcard was sent to the original 1200 RNs. In addition, 1000 more postcards were sent to randomly selected RNs, resulting in a total of 2200 RNs contacted to participate. To achieve a random sample from the complete list of addresses provided by the Ohio Board of Nursing, the names were selected randomly by choosing every 5^{th} person starting with a random beginning point. Inclusion criteria included: RNs, actively working within a health care setting as a RN. Exclusion criteria included: those with an address outside the state of Ohio, those not actively working as a nurse, or those RNs who were not currently working within health care. Although 1200 postcards were initially sent, preliminary data analysis was to begin once a sample size of 267 participants had been reached or 60 days after postcards were mailed to participants, whichever came first. The desired sample size was selected after conducting a power analysis based on Cohen's medium effect size with an R^2 of 0 .06, a power of 0.80 and an alpha level of 0.05. At the end of the stated collection period a total of 67 usable surveys were obtained.

Procedures

A modified version of CEAI for health care, proactivity survey, creative efficacy survey, and innovation behavior survey were loaded onto the online survey application RED Cap. Participants were asked to complete the survey online. All of the instruments used in the study were combined into one online survey. Participants were mailed a postcard requesting research participation which included information about the survey, information about participation and the incentive, and a web link to access the survey. Informed consent was explained after accessing the survey web link prior to completion of the survey. Selecting the continue button on the survey site indicated participant consent.

Data from the instrument and demographics were collected and managed using the online survey tool. The data was collected and managed using RED Cap and SPSS software. Completion of the online survey took approximately 10-15 minutes per participant.

Instrumentation

The instruments used in this study were previously developed by other researchers. Some minor revisions were made to make the instrument applicable to nurses within health care. Permission for use of the instruments and to modify the instrument when necessary was obtained from all of the researchers for this study. Communication from the researchers was saved on the PI computer and a hardcopy of the correspondence was placed in the PI file. All of the items from the combined instruments can be found in Appendix C.

Corporate Entrepreneurship Assessment Inventory (CEAI)

A limitation to previous research in innovation was the lack of empirical research that attempted to measure the effectiveness of an environment or culture for the implementation of innovation (Scott & Bruce, 1994). It is important to understand what stimulates and supports innovation within organizations. The development of quantitative instruments is an important step. Applying the CEAI to innovation studies helps in determining if it is reliable in assessing work environments for innovation as well as CE.

Reliability and Validity of CEAI

A modified version of The Corporate Entrepreneurship Assessment Inventory (CEAI) for health care was used to measure RNs perceptions of their work environment. The CEAI instrument was developed by Hornsby, Kuratko, and Montagno in 1999 based on previous work completed in 1990 by Kuratko, Montagno, and Hornsby where they developed a survey called the intrapreneurial assessment instrument (IAI) which was to be used to evaluate an ongoing CE training program being offered at a Fortune 500 company. The initial IAI was comprised of 28 items measured on a 5-point Likert scale and was based on the five factors of management support, organizational structure, risk-taking, time availability, and reward and resource availability. The instrument was created using literature review, author expertise with CE, and critique of the items by upper-level management.

The aim of the study by Hornsby, Kuratko, and Montagno (1999) was to evaluate the CEAI, which had been adapted from the IAI. In this study, the CEAI was comprised of 48 items and consisted of the five factors referred to as management support, work

discretion, rewards/reinforcement, time availability, and organizational boundaries. The study compared US and Canadian managers to determine if they differed in how they perceived their work environment in relation to CE. This study did not find any statistically significant relationship between the factors of time availability and entrepreneurial behaviors.

In a subsequent study by Hornsby, Kuratko, and Zahra (2002) the CEAI was empirically tested using exploratory factor analysis, confirmatory factor analysis, and internal consistency of the remaining factors. The instrument was developed based on a thorough literature review, the researchers' experience with CE, and with experts from companies known for being leaders in CE. Only items with factor loadings of 0.40 or above were included. Exploratory factor analysis was conducted to establish the existence of the factors and then a confirmatory factor analysis was completed to validate the initial findings. With the final items from both samples, internal consistency reliability measures were used. The final results showed five factors comprising the organizational characteristics with coefficient alphas of 0.89, 0.87, 0.75, 0.77, and 0.64 for management support, autonomy, rewards/reinforcement, time, and organizational boundaries respectively (Hornsby, Kuratko, & Zahra, 2002). The CEAI has shown consistent reliability and validity data except for the factor of organizational boundaries (Hornsby, Kuratko, & Zahra, 2002).

In research conducted by Hornsby, Holt, and Kuratko (2008), the researchers further examined the CEAI to strengthen the psychometric properties of the instrument. The authors conducted content validity testing, exploratory factor analysis, and convergent validity of the CEAI. The authors completed convergent validity testing of the CEAI

using the three facets of entrepreneurship, innovativeness, proactiveness, and risk taking (Covin & Slevin, 1989). Content validity was completed utilizing 39 experts in CE. Experts rated the items as a good measure of the factors they were to represent. In order for the item to be kept, 60 percent of the experts had to agree it was a good measure. A total of 24 items met the 60 percent criterion and were retained.

Exploratory factor analysis was then completed with a sample of 290 managers/business professionals. Four factors emerged and a total of 20 items were distributed among the factors. There were seven items for work discretion, five items for time availability, five items for managerial support, and three items for rewards/reinforcement.

Confirmatory factor analysis was completed with a sample of 509 managers on the four factors and it further supported a four factor CEAI. Internal consistency of the factors was measured using coefficient alpha and was as follows: management support=0.72, work discretion=0.90, rewards/reinforcement=0.79 and time availability=0.74.

The final assessment on the CEAI was examining convergent validity. The CEAI was tested to see if it was positively correlated with entrepreneurial orientation of the organization. Entrepreneurial orientation was measured using a scale developed by Covin and Slevin (1989) that included the factors of innovativeness, proactiveness, and risk taking. Testing demonstrated that the CEAI factors were significantly related to the entrepreneurial orientation and provided support for convergent validity.

Development of the CEAI has been a positive step in obtaining more empirical data on CE. Still, the CEAI only examines organizational characteristics and does not

consider other components of the CE process, mainly individual characteristics. It also has not been used in studies related to employee innovation behavior. The CEAI factor of organizational characteristics has shown poor reliability in studies, so selecting the newly revised CEAI will help to solve this issue. Another limitation is the CEAI has not been tested in health care organizations utilizing nurses as the sample and using the outcome measure of innovation behavior. Minor revisions to the new 20-item CEAI so it is nurse friendly was completed for this study.

Reliability and Validity for Revised Instrument

In order for the instrument to be used with nurses, some slight wording modifications were required. The CEAI required very minor modification for use with RNs rewording some of the items regarding risk and financial terminology. The revised instrument was reviewed by the members of the dissertation committee to ensure changes made did not affect the overall content of the question. The other scales had minimal modifications based on suggestions from the dissertation committee. The combined instrument was evaluated by the dissertation committee prior to use. The content validity of the questionnaire was established by a panel of experts prior to initiation of this study. Experts included authors of the initial CEAI instrument, PhD nursing faculty, and at least one nurse entrepreneur.

Creative Efficacy

The creative efficacy scale is a 3-item scale developed by Tierney (1997). Creative self-efficacy is based on employees' beliefs that they can be creative in their work roles (Egan, 2005). The scale was based on Bandura's work with self-efficacy and from the extensive research on creativity by Amabile (1997) and Woodman, Sawyer, and Griffin

(1997). The instrument focuses on efficacy perceptions concerning being creative in one's work (Tierney, 1997). The initial instrument was composed of several items developed from the research and was given to 46 participants. Based on the initial study, the instrument was reduced to 13 items and was administered to 233 study participants. Exploratory factor analysis was completed and the instrument was reduced to three items. Reliability was not improved by including additional items. The current creative self-efficacy instrument was used with employees in manufacturing and operations positions and Cronbach's alpha were 0.83 and 0.87 respectively. The items include: "I have confidence in my ability to solve problems creatively," "I feel that I am good at generating novel ideas," and "I have a knack for further developing the ideas of others." Respondents used a 7-point scale where 1 was strongly disagree and went up to 7 being strongly agree. Those scoring higher were shown to have higher levels of creative self-efficacy. The Cronbach's alpha for the creative self-efficacy instrument used in subsequent research was found to be 0.85 (Tierney & Farmer, 2002).

Proactivity Scale

The proactivity scale was originally developed by Bateman and Crant (1993). In the initial instrument development research, the original scale started with 47 items based on a thorough review of the literature on proactivity. After initial review of the 47 items, the researchers selected the 27 items that were the most representative of proactivity. Factor analysis was completed with a sample of 282 undergraduate students in an organizational behavior course. Ten items had factor loadings below 0.40 and were dropped. With 17 items, the alpha coefficient for sample 1 was 0.89. The remaining 17 items were tested twice more with sample 2 (130 business students) and sample 3 (134 first year MBA

students). The coefficient alphas for both groups were 0.87. The Bateman and Crant proactivity scale showed acceptable reliability and validity and utilized a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale was revised by Seibert et al. (1999) to a 10-item scale. The 10 items were selected by taking the 10 highest averaging factors and eliminating those with loadings below 0.50. Validity and reliability was established in studies by Seibert et al. in 1999 and 2001 for the revised 10-item scale with a Cronbach alpha of 0.85. The scale used in the study by Amo (2005a) was the 10 item revised scale and had a Cronbach alpha of 0.87.

Employee Innovation Behavior

The employee innovation behavior scale was developed by Amo (2005a) and was used to learn more about innovation behavior. The instrument was developed based on the literature and research conducted on corporate innovation and employee involvement. It was a 5-item instrument which used a 5-point scale with 1=very little to 5=very large. Participants used in the study were MBA graduates of a Norwegian university. The Cronbach alpha for the initial instrument was 0.91. In a subsequent study conducted with MBAs in Norway, the Cronbach alpha remained high at 0.88. For a study conducted with nurses and other health care workers in Norway, Amo revised the employee innovation behavior scale to be more relevant for a non-business sample. A pre-test with health care workers found that the initial wording of the employee innovation behavior instrument was not relevant. The term innovation was changed to "improvements at work". The instrument was reduced to three items to evaluate an employees' own innovation behavior rather than asking about supportive others within the organization. The items were "I participate in discussions regarding improvements at work," I invite

others for discussion regarding improvements at work," and "I like to work with issues related to improvements at work." Statements were to be answered using a 7-point scale (1=strongly disagree to 7=strongly agree). Amo reports reliability and validity of the instrument for this study as acceptable, but no specific Cronbach's alpha was reported. For the purpose of this study, the 7-point scale will be modified from strongly disagree/strongly agree to the 7-point range of 1= never to 7= always.

In addition to the Amo scale, the Janssen Innovative Behavior scale was used to measure innovation behavior in this study. The scale by Janssen is a 9-item scale on individual innovation behavior. The scale has three items related to idea generation, three items related to idea implementation, and three items related to idea realization. The instrument has been used in four separate studies by Janssen (2000; 2001; 2003; 2005) and had acceptable Cronbach's alpha as discussed in the literature review. The scale by Janssen has been researched the most and asks questions pertinent to this study. Some minor rewording was completed to make the tool more applicable to nurses.

Data Analysis and Management

Data analysis was completed using SPSS descriptive statistics for the demographic data obtained from the sample. Means and standard deviations were obtained for all interval level data. Frequencies and percentages were calculated for categorical variables, such as education level and job category. All scales were assessed for reliability by calculating Cronbach's alpha scores. Statistical analysis was completed 60 days after the initial postcards were sent. Correlations were determined using inferential statistics and a multiple regression model was used to examine the relationships among the variables for organizational characteristics and individual characteristics with

employee innovation behavior. Research questions two through four used correlation statistics and Pearson's r were calculated for interval level data. To detect relationships between categorical variables and interval level data (such as employee innovation behavior) tests of differences between means was conducted. Research question five was analyzed using multiple regression statistics. Multiple correlation coefficients (R), coefficient of determination (R^2) and tests of significance (F) were completed. The statistical analysis was conducted using SPSS. Data was exported directly from RED Cap into SPSS by the primary investigator. A table detailing the research question, variables, and statistical test is provided in Table 2.

Table 2: Statistical Analysis

Research Question	Statistical Analysis
What are RNs' perceptions of organizational characteristics that are supportive of nurse innovation (management support, time availability, rewards/reinforcement, work discretion) in their health care work environment?	Descriptive Statistics- Mean, Standard Deviation
Is there a relationship between RNs' perception of the organizational characteristics supportive of innovation behavior and self-reported innovation behavior?	Correlation statistics- Pearson's R
Is there a relationship between selected RN individual characteristics and nurses' perceptions of their organizational characteristics supportive of nurse innovation?	Correlation statistics- Pearson's R for interval level variable (e.g., age, years of experience ANOVA was used to test for difference in means on organizational characteristics (CEAI subscales) among groups as defined by categorical variables (e.g., educational level, job classification)
Is there a relationship between selected RN individual characteristics and self-reported innovative behavior?	Correlation statistics- Pearson's R for interval level variable (e.g., age, years of experience ANOVA was used to test for difference in means on organizational characteristics (CEAI

	subscales) among groups as defined by categorical variables (e.g., educational level, job classification)
Do individual characteristics, (selected demographic variables, creative efficacy, and proactivity) and perceived organizational characteristics supportive of innovation behavior predict self-reported innovation behavior among a sample of RNs?	Multiple Regression statistics (R, R^2, F) First descriptive statistics was examined for violations of the assumptions of Multiple Regression. If any non-linearity was detected, appropriate data transformations were completed. Next, simple bivariate relationships among the variables were examined to inform Multiple Regression model building.

Chapter Three has provided information about the study design, research questions, consent, study variables, instrumentation, sample size and selection, and data analysis methods. Chapter Four will provide data interpretation and the study results. Included will be demographic information about the sample, response rate, and the actual number of surveys collected.

CHAPTER FOUR: RESULTS

The purpose of this study is to explore the relationship of individual and organizational characteristics to employee innovation behavior among nurses. Individual characteristics and perceived organizational characteristics of the health care setting were examined as predictors of innovation behavior in nurses. The results of this study answer the following research questions:

1. What are RNs' perceptions of organizational characteristics that are supportive of nurse innovation (i.e., management support, time availability, rewards/reinforcement, work discretion) in their health care work environment?
2. Is there a relationship between RNs' perception of the organizational characteristics supportive of innovation behavior and self-reported innovation behavior?
3. Is there a relationship between selected RN individual characteristics and RNs' perceptions of their organizational characteristics supportive of nurse innovation?
4. Is there a relationship between selected RN individual characteristics and self-reported innovative behavior?
5. Do individual characteristics, (selected demographic variables, creative efficacy, and proactivity) and perceived organizational characteristics supportive of innovation behavior predict self-reported innovation behavior among a sample of RNs?

This chapter will present information about the sample used for this study, will provide reliability data for the instruments used in the research, and then results for the five research questions. Information about individual characteristics (individual

demographics, description of the work setting [organizational demographics], and the individual characteristics of creative efficacy and proactivity) of sample participants and organizational characteristics (i.e., CEAI) will be provided, followed by results from the research questions posed for this study.

Sample

Initially, a total of 1200 RNs from the state of Ohio who had an active RN license were contacted by postcard requesting participation in the online survey. A reminder postcard was sent one month from the original mailing and an additional 1000 postcards were sent to randomly selected, actively licensed RNs in the state of Ohio. A total of 2200 actively licensed RNs from the state of Ohio were contacted by postcard. Of the 2200 contacted, 172 submitted some type of online response. Sample participants had to be English speaking and be actively working within health care. A total of 105 surveys were excluded either because the individual did not currently work in health care as a RN, only minimal information was filled out on the survey, or it was obvious duplicate entries had been made by a participant. The number of usable surveys was 67 resulting in a 3% response rate.

Sample Demographics

Of the 67 respondents, they were primarily female (98.5%) with only one male respondent (1.5%). The sample had a mean age of 59 years with 47% aged 66 and older. The educational level of RNs who participated in the study was as follows: Diploma (38.8%), Associate degree (17.9%), Bachelor's degree (31.3%), and Master's degree (11.9%). Data for educational level was collapsed into two groups, Diploma or Associates degree and Bachelor's or Master's degree and higher. This resulted in more

evenly divided groups, with 55.2% possessing below a Bachelor's degree and 44.8% possessing a Bachelor's degree or higher.

The work settings reported by sample participants included: hospitals (38.8%), long term care facilities (14.9%), community health agencies (11.9%), schools of nursing (4.5%), K-12 schools (3.0%), primary care offices (3.0%) and other (28.4%). Of the participants who selected "other", they listed work setting as churches, home care agencies, clinics, occupational health, health departments, MR/DD facility, insurance companies, and being self-employed as a consultant. Work setting was collapsed into two groups which included hospitals (39.4%) and other (60.6%) for analysis.

Sample participants most commonly cited their position as staff RN (52.2%), while remaining participants cited their position as being a nurse manager (4.5%), educator (7.5%) and other (35.8%). Those RNs who selected "other" reported their positions as being case manager, clinical analyst, liaison, insurance examiner, school nurse, and parish nurse. For analysis purposes, position title was combined into three groups: staff nurse (51.5%), administrative (12.1%), and other (36.4%).

The mean number of years the RN sampled has worked in their current position was 12.3 years while the mean number of years at their current organization was 13.7 years. The number of years the RN was in their current position was as follows: 5 years or less (32.8%), 6-10 years (19.4%), 11-20 years (32.8%), and over 20 years (14.9%). The number of years the RN was in their current organization was as follows: 5 years or less (26.6%), 6-10 years (20.3%), 11-20 years (34.4%), and over 20 years (18.8%).

Table 3: Individual Demographics

Variable	Mean (SD)	N (%)
Age	59.36 (17)	
Groups		
29-45		18 (27.3%)
46-65		17 (25.8%)
66 or <		31 (47%)
Educational level		
Diploma		26 (38.8%)
ASN		12 (17.9%)
BSN		21 (31.3%)
MSN		8 (11.9%)
Gender		
Female		66 (98.5%)
Male		1 (1.5%)
Years in current position	12.3 (11.45)	
5 or less		22 (32.8%)
6-10		13 (19.4%)
11-20		22 (32.8%)
20+		10 (14.9%)
Years in current organization	13.7 (12.07)	
5 or less		17 (26.6%)
6-10		13 (20.3%)
11-20		22 (34.4%)
20+		12 (18.8%)
Position Title		
Staff RN		34 (51.5%)
Administrative		8 (12.1%)
Other		24 (36.4%)
Work Setting		
Hospitals		26 (39.4%)
Other		40 (60.6%)

Organizational Demographics

Organizations ranged in size from employing 25 RNs or less (57.1%), employing between 26-100 RNs (30.4%), and those employing over 100+ RNs (12.5%). When examining characteristics of the organizations where participants were employed and looking only at hospitals, 30.4% had obtained Magnet status, 30.4% were pursuing Magnet, and 39.1% were not pursuing Magnet status. Magnet status was collapsed into two groups, Magnet status or actively pursuing, and not Magnet status. When looking at type of organization, 52.2% worked in organizations other than hospitals where Magnet status is not applicable. Of the organizations where study participants were employed, 49.2% also employed APNs while 50.8% did not employ APNs.

Table 4: Organizational Demographics

Variable	N (%)
Size	
≤25 RNs	32 (57.1%)
26-100 RNs	17 (30.4%)
>101 RNs	7 (12.5%)
Magnet status (hospitals only)	
Magnet status	7 (30.4%)
Pursuing Magnet	7 (30.4%)
Not Magnet	9 (39.1%)
Advanced Practice Nurses (APN)	
APNs employed	32 (49.2%)
No APNs	33 (50.8%)

Individual Characteristics

The two individual characteristics selected for this study were creative efficacy and proactivity. They were measured using the Creative Efficacy Scale (3 items) by Tierney (1997) and the Proactivity scale (10 items) by Seibert et al. (1999). A 7-point scale

ranging from -3 (strongly disagree) to 3 (strongly agree) was used to score these scales. The sample for this study had positive means for the two individual characteristics. The mean value indicates participants as a whole perceived themselves as possessing creative efficacy and being proactive.

Table 5: Descriptive Statistics Creative Efficacy and Proactivity

	N	Minimum	Maximum	Mean	Std. Deviation
Total Creative Efficacy	66	-5.00	9.00	4.0152	3.09089
Total Proactivity scale	67	-10.00	25.00	10.0448	8.83593
Valid N (list wise)	66				

Instrument Reliability

The study utilized an online survey to learn more about nurse innovation behaviors. Based on the conceptual framework for this study, individual characteristics and organizational characteristics were proposed as variables influencing self reported nurse innovation behaviors. Based on a thorough literature review, the study survey was composed of individual demographics, demographics from where the individual worked (organizational demographics), individual characteristics (creative efficacy and proactivity), and organizational characteristics (CEAI). Individual characteristics were measured using the Creative Efficacy scale (3 items) and the Proactivity scale (10 items). Organizational characteristics were measured using the CEAI with four subscales including work discretion (7 items), time availability (5 items), management support (5 items), and rewards/reinforcement (3 items). Two items on the time availability subscale were negatively worded and were reverse scored before analysis. As discussed in the

literature review, all of the scales used in this study had acceptable reliability (Cronbach alphas >0.70).

The outcome variable of employee innovation behavior was measured using a combined instrument composed of the Amo Innovation Behavior Scale (3 items) and the Janssen Scale of Individual Innovation Behaviors (10 items) and was referred to as the Total EIB (13 items).

Internal reliability was calculated for the scales measuring individual characteristics (proactivity and creative efficacy) and the scale measuring organizational characteristics (CEAI subscales and total scale). The subscales of the CEAI included work discretion, time availability, management support, and rewards/reinforcement. All but one subscale achieved a Cronbach alpha of 0.70 or higher. Rewards/reinforcement had an alpha of 0.689 which is still considered acceptable (DeVellis, 2003) and was included in data analysis.

For EIB, the Amo subscale, Janssen subscale and the total combined scale measured the outcome variable of employee innovation behavior (Total EIB). Reliability analysis was completed for the two subscales (Amo, α=0.848; Janssen, α=0.933) and the total combined scale (α=0.946). Reliability was acceptable for all three scales, with the total scale having the highest Cronbach alpha. Data analysis was conducted using the subscales and total scale for the research questions. There were no significant differences when using the EIB subscales versus the total scale. For consistency of results, the total scale was used for interpreting the data analysis and reporting of results for the research questions.

Table 6: Summary of Subscales and Scales

Subscales	Alpha	Valid Cases	Total Cases	# Items
Work Discretion	.878	63	67	7
Time Availability	.850	66	67	5
Management Support	.743	65	67	5
Rewards/Reinforcement	.689	66	67	3
Total CEAI	.849	61	67	20
Proactivity	.906	65	67	10
Creative Efficacy	.866	65	67	3
Total EIB	.946	65	67	12

Research Question One

What are RNs' perceptions of organizational characteristics that are supportive of nurse innovation (i.e., management support, time availability, rewards/reinforcement, work discretion) in their health care work environment? Descriptive statistics including mean and standard deviation were used to examine RN perceptions of the organizational characteristics of management support, time availability, work discretion and rewards/reinforcement. A 7-point scale ranging from -3 (strongly disagree) to 3 (strongly agree) was applied to show minimum and maximum scores. The theoretical range for the work discretion subscale (7 items) is from -21 to 21 total score, management support (5 items) from -15 to 15, time availability (5 items) from -15 to 15, rewards/reinforcement (3 items) -9 to 9, and the total CEAI (20 item) could have a total score ranging from -60 to 60.

Table 7: CEAI Subscales and Total Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Work Discretion (7 items)	67	-11.00	21.00	7.9104	8.61769
Time availability (5 items)	67	-15.00	14.00	1.2239	6.74834
Mgmt. Support (5 items)	67	-13.00	10.00	-1.6567	5.46491
Rewards/reinforce. (3 items)	66	-8.00	9.00	2.0000	3.62470
Total CEAI	67	-36.00	48.00	9.4925	16.09759

Because of the scaling model, mean scores above zero (i.e., positive value) indicate a positive perception of the work environment. All of the subscales of the CEAI except management support were positive. The mean subscale score for time availability was closer to zero with a large standard deviation indicating a neutral response. Management support, which had a negative mean, indicates the overall sample disagreed they had management support for innovation in their organizations.

Research Question Two

Is there a relationship between RNs' perception of the organizational characteristics supportive of innovation behavior and self-reported innovation behavior? This question was tested using correlation statistics (Pearson's R) to determine if there was any correlation between perceived organizational characteristics and employee innovation behavior as measured by the CEAI total scale and subscales and the Total EIB scale.

Table 8: Correlations of CEAI and EIB

		Total EIB scale
Total CEAI score	Pearson Correlation	.525**
	Sig. (2-tailed)	.000
	N	67
Management Support Subscale	Pearson Correlation	.521**
	Sig. (2-tailed)	.000
	N	67
Reward reinforcement subscale	Pearson Correlation	.133
	Sig. (2-tailed)	.288
	N	66
Time availability subscale	Pearson Correlation	.169
	Sig. (2-tailed)	.173
	N	67
Work Discretion Subscale	Pearson Correlation	.468**
	Sig. (2-tailed)	.000
	N	67

**P-value <0.001

Significant positive correlations were present between total EIB and the subscales of management support and work discretion ($p<0.01$). There was also a positive significant correlation between EIB and the total CEAI ($p<0.01$). Sample participants who reported higher management support and more work discretion also reported higher levels of innovation behavior. A direct correlation was also noted between organizational characteristics supportive of innovation and self-reported innovation behavior by participants. No relationships were seen between time availability or rewards/reinforcement and EIB.

Research Question Three

Is there a relationship between selected RN individual characteristics and RNs' perceptions of their organizational characteristics supportive of nurse innovation?

Pearson's R was used to examine relationships among variables measured on an interval level. To assess relationship between perceived organizational characteristics and categorical level variables (e.g., educational level, job classification), ANOVA was used to test difference in means between groups. When only two groups were present in the categorical variables, independent samples t-tests were used to calculate differences in means.

Individual Demographics

Individual demographics used in this study include: age, gender, number of years in current position, number of years in current organization, position title, and educational level. After data were obtained from sample participants it became obvious that some collapsing of the data categories was necessary in order to make meaningful comparisons of the groups. Groups of more equal size with similar characteristics were created through collapsing of the data categories. Some individual and organizational demographics (e.g. gender) were not analyzed due to low representation.

When years in their current position, position title, and age were correlated with the subscales and total CEAI scale, position years was found to have a significant negative relationship with management support ($r=-0.308$, $p=0.011$) which means the higher the number of years in current position, the lower scores were for management support. The only other significant correlation was between age and time availability which was a positive relationship ($r=0.245$, $p=0.047$).

Table 9: Individual Demographics and CEAI

	Years in Current Position	Organization Years	Age
Work Discretion			
Pearson Correlation	-0.211	-0.109	-0.208
Sig. (2-tailed)	0.087	0.392	0.094
N	67	64	66
Time Availability			
Pearson Correlation	0.076	0.164	0.245*
Sig. (2-tailed)	0.541	0.197	0.047
N	67	64	66
Management Support			
Pearson Correlation	-0.308*	-0.124	0.079
Sig. (2-tailed)	0.011	0.331	0.526
N	67	64	66
Rewards/Reinforcement			
Pearson Correlation	-0.124	0.146	0.145
Sig. (2-tailed)	0.320	0.254	0.250
N	66	63	65
Total CEAI			
Pearson Correlation	-0.213	0.001	0.054
Sig. (2-tailed)	0.083	0.992	0.668
N	67	64	66

*P-value <0.05

Education level

Participants were grouped into two educational levels. Education level was analyzed using a t-test for the groups of Diploma or ASN and BSN or MSN. The t-test showed no significant difference between level of education and the CEAI, although management support and education level approached significance.

Table 10: Education Level and CEAI

	Education Level	N	Mean	SD	t	Sig. (2-tailed)
Work Discretion	Diploma or ASN	37	6.81	8.79	-1.163	0.249
	BSN or Higher	30	9.27	8.34		
Time Availability	Diploma or ASN	37	1.46	7.16	0.135	0.754
	BSN or Higher	30	0.93	6.31		
Management Support	Diploma or ASN	37	-2.70	5.58	-1.768	0.082
	BSN or Higher	30	-0.37	5.12		
Reward/Reinforcement	Diploma or ASN	36	1.50	3.79	-1.233	0.222
	BSN or Higher	30	2.60	3.38		
Total CEAI	Diploma or ASN	37	7.14	17.27	-1.339	0.185
	BSN or Higher	30	12.40	14.27		

Work setting

Participants were separated into two groups for work setting. Hospital staff (n=26) and "Other" (n=40) were analyzed using an independent samples t-test. "Other" was mainly composed of work settings such as long term care, home care, and community health organizations. A significant difference was noted in the means of perceived time availability between hospital-based employees and those who worked in other settings, primarily in long term care or the community.

Table 11: Work Setting and CEAI

	Work Setting	N	Mean	SD	t	Sig. (2-tailed)
Work Discretion	Hospital Based	26	7.23	8.51	-0.464	0.644
	Other	40	8.25	8.86		
Time Availability	Hospital Based	26	-0.88	6.68	-2.027	0.047*
	Other	40	2.50	6.59		
Management Support	Hospital Based	26	-2.62	5.69	-1.004	0.319
	Other	40	-1.25	5.21		

Reward/Reinforcement	Hospital Based	26	2.00	4.27	0.026	0.979
	Other	39	1.97	3.23		
Total CEAI	Hospital Based	26	5.69	16.69	-1.453	0.151
	Other	40	11.52	15.43		

*P-value<0.05

The significance level (t=-2.027, p=0.047) for time availability indicates participants working in hospitals reported less time available to work on innovations (mean=-0.88) compared to those participants who worked in non-hospital settings (mean=2.50).

Position title

Position title was divided into three groups: staff RNs, administrative, and other. An ANOVA was run and a significant difference (F=6.454, p=0.003) was found when assessing management support within the organization. Administrative employees rated management support higher than staff RNs.

A post hoc test (Tukey HSD) was run and a significant difference was found between the means of administrative participants and staff RNs when perceiving management support. There were no significant differences between staff RNs and those classified as "other" and there were no significant differences between the "other" group and the administrative groups. Despite the significant results, findings should be interpreted with caution as group sizes are unequal and increase the likelihood of error.

Table 12: Tukey for Position Title

			Mean	Sig.
Mgmt Supp Subscale	Staff RN	Administrative	3. 75*	.002
		Other	-1.13	.245
	Administrative	Staff RN	-3.32*	.002
		Other	-1.13	.057
	Other	Staff RN	-3.32	.245
		Administrative	3. 75	.057

Organizational Demographics

Organizational demographics included size of the organization (number of RNs employed), Magnet status, and presence of APNs employed in the organization. When analyzing the relationship between perceived organizational characteristics supportive of innovation (i.e., CEAI) and Magnet status, data were collapsed into two groups (where hospitals only were categorized as either 1. Magnet or pursuing Magnet status, or were 2. Not Magnet and not pursuing Magnet status. There was a significant difference on the work discretion subscale with non-Magnet groups reporting higher work discretion compared to Magnet groups. Because of the nature of Magnet designation, only sample participants working in the hospital setting were used for this analysis.

Table 13: Magnet and CEAI

	Work Setting	N	Mean	SD	t	Sig. (2-tailed)
Work Discretion	Magnet or Pursuing	14	4.57	9.46	-2.108	0.049*
	Not Magnet	13	10.54	4.60		
Time Availability	Magnet or Pursuing	14	2.93	6.73	1.966	0.060
	Not Magnet	13	-2.00	6.26		

Management Support	Magnet or Pursuing	14	-1.43	4.80	1.394	0.176
	Not Magnet	13	-3.85	4.16		
Reward/Reinforcement	Magnet or Pursuing	14	3.71	4.32	1.375	0.181
	Not Magnet	13	1.54	3.86		
Total CEAI	Magnet or Pursuing	14	9.79	19.08	-0.600	0.555
	Not Magnet	13	6.23	10.90		

*P-value<0.05

Individual Characteristics

Determining if a relationship exists among the individual characteristics of creative efficacy or proactivity and perception of organizational characteristics (i.e., CEAI) was analyzed next. Correlations were obtained for creative efficacy and proactivity in relation to the CEAI subscales and total scale. Creative efficacy was positively correlated with management support ($p<0.05$), time availability ($p<0.05$), work discretion ($p<0.05$) and the total CEAI ($p<0.01$). Proactivity had a positive significant correlation with management support ($p<0.001$), work discretion ($p<0.001$), and total CEAI ($p<0.001$).

Table 14: Correlations Individual Characteristics and CEAI

Variables	Creative Efficacy	Proactivity
Management Support		
Pearson Correlation	0.286	0.415**
Sig. (2 tailed)	0.020*	0.000
N	66	67
Rewards/Reinforcement		
Pearson Correlation	-0.114	0.050
Sig. (2 tailed)	0.362	0.689
N	66	66
Time Availability		
Pearson Correlation	0.314*	0.177
Sig. (2 tailed)	0.010	0.153
N	66	67

Work Discretion		
Pearson Correlation	0.275*	0.374**
Sig. (2 tailed)	0.026	0.002
N	66	67
Total CEAI		
Pearson Correlation	0.350**	0.423**
Sig. (2 tailed)	0.004	0.000
N	66	67

**P-value <0.001

Research Question Four

Is there a relationship between selected RN individual characteristics and self-reported innovative behavior? Pearson's R was used to examine relationships among variable measured on an interval level. ANOVA was used to test difference in mean EIB among groups determined by demographic variables that were measured on the categorical level (e.g. educational level, position title). When only two groups were present in the categorical variables, independent samples t-tests were used to calculate differences in means.

Individual and Organizational Demographics

Analysis was completed between individual demographic data, organizational demographics, and EIB. Correlations were run for the individual demographics of age, years in current position, and years in current organization. No significant correlations were found for age groups (r=-0.212, p=-0.088), years in current position (r=-0.138, p=0.265), or years in current organization (r=-0.117, p=0.357) and self reported EIB.

The relationship between additional individual and organizational demographics and total EIB scores were examined. ANOVAs were run when more than two groups were compared and t-tests were used when only two samples were present. When looking at the organizational demographics of Magnet status (F=0.000, p=0.998) and

presence of APNs within the organization (F=2.96, p=0.098), there were no statistically significant differences in EIB scores. Type of organization, whether it was a hospital or "other" (e.g. long term care facility, or community agency) also did not demonstrate statistically significant differences in total EIB mean scores (F=0.736, p=0.298). A t-test was run to examine educational level. There was no significant finding between the EIB and education (t=-1.526, p=0.132).

The only demographic variable that demonstrated a statistically significant relationship with EIB was the individual demographic, position title. Groups were divided into the position titles of staff RNs, administrative, and other and ANOVA was used to determine if there were differences among these groups in terms of employee innovation behavior. There was a significant difference by position title (F=7.18, p=0.002).

Table 15: Position Title Descriptive Statistics

				95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Lower Bound	Upper Bound	Minimum	Maximum
Staff RN	34	13.5588	6.32547	11.3518	15.7659	-2.00	30.00
Administrative	8	21.5000	8.79935	14.1436	28.8564	5.00	32.00
Other	24	8.6667	10.78512	4.1125	13.2208	-14.00	28.00
Total	66	12.7424	9.25919	10.4662	15.0186	-14.00	32.00

Table 16: Total EIB scale and Position Title- ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1034.906	2	517.453	7.184	.002
Within Groups	4537.716	63	72.027		
Total	5572.621	65			

A post hoc test was completed to determine if there was a significant difference between particular groups. The test demonstrated a statistically significant difference in mean scores between the administrative group and those participants identified as "other". The difference between staff RNs and administrative participants approached significance ($p=0.052$), but did not meet the significance level of $p<0.05$. Those classified as "other" included nurses with positions in the community, schools of nursing, quality departments, information technology (IT), and insurance companies. Despite the significant findings, results should be interpreted with caution as group sizes were unequal.

Table 17: Post Hoc Test

(I) Work title groups	(J) Work title groups		95% Confidence Interval	
		Sig.	Lower Bound	Upper Bound
Staff RN	Administrative	.052	-15.9461	.0638
	Other	.086	-.5389	10.3233
Administrative	Staff RN	.052	-.0638	15.9461
	Other	.001	4.5168	21.1499
Other	Staff RN	.086	-10.3233	.5389
	Administrative	.001	-21.1499	-4.5168

Individual Characteristics

Correlations were also run for creative efficacy, proactivity, and total EIB. When examining creative efficacy scores and total EIB, a positive significant correlation was found. This indicated participants who scored higher in creative efficacy also scored high in self reported EIB. The correlation between proactivity and total EIB was also examined, and a strong, positive correlation was present between proactivity scores and

total EIB scores. This indicated participants who scored higher in proactivity also had higher self reported innovation behaviors.

Table 18: Correlation EIB and Individual Characteristics

		Total EIB Scale
Total Creative Efficacy	Pearson Correlation	.513**
	Sig. (2-tailed)	.000
	N	66
Total Proactivity Scale	Pearson Correlation	.765**
	Sig. (2-tailed)	.000
	N	67

**P-value <0.001

In summary, among nurses, employee innovation behavior was related to position (i.e., nurses in management positions reporting higher innovation than nurses in other positions). In addition, creative efficacy and proactivity were both strongly correlated with EIB.

Research Question Five

Do individual characteristics, (selected demographic variables, creative efficacy, and proactivity) and perceived organizational characteristics supportive of innovation behavior predict self-reported innovation behavior among a sample of RNs? For research question five, multiple regression analysis was completed to determine which combination of independent variables were predictors of self reported innovation behaviors. After analysis of the previous four research questions, with simple bivariate relationships among the variables examined, the independent variables selected for inclusion in the multiple regression equation were: age, years in current position, education level, creative efficacy, proactivity, and the CEAI subscales of management

support, work discretion, time availability, and rewards/reinforcement. Multicollinearity was evaluated by tolerance results of all the variables used in the model. The tolerance scores ranged from 0.530 to 0.820, resulting in no violations for any of the independent variables used in the model.

Five of the nine variables were found to be significant. Age (β=-0.191, p=0.028), years in current position (β=0.179, p=0.032), management support (β=0.210, p=0.028, rewards/reinforcement (β=0.150, p=0.049) and proactivity (β=0.593, p<0.000) explain 74.7% of what contributes to innovation behavior in this study. The regression results indicated age, years in current position, management support, rewards/reinforcement, and proactivity significantly contributed to the equation. The combination of these five independent variables significantly predict innovation behavior, R^2=0.747, R^2_{adj}=0.706, F (9, 18) =461.64, p<0.001, when combined with other variables in the equation. This model accounted for 74.7% of variance in self-reported innovation behavior with this sample. The following tables provide a summary of the regression model.

Table 19: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.864[a]	.747	.706	5.05864

a. Predictors: (Constant), Total proactivity scale, Rewards/reinforcement subscale, Age, Time availability subscale, Educational level, Work Discretion Subscale, Position Years, Total Creative Efficacy, Mgmt Supp

Table 20: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	4154.776	9	461.642	18.040	.000[a]
	Residual	1407.440	55	25.590		
	Total	5562.215	64			

a. Predictors: (Constant), Total proact scale, Rewardreinf subscale, Age, Time avail subscale, Professional degree, Work Discretion Subscale, PosYrs, Total Creat Effic, Mgmt Supp Subscale

b. Dependent Variable: Total EIB scale

Table 21: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients				
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	7.918	4.341		1.824	.074		
Education level	-.373	1.458	-.020	-.256	.799	.745	1.342
Age	-.104	.046	-.191	-2.252	.028	.642	1.557
Position Years	.145	.066	.179	2.201	.032	.693	1.442
Work Discretion Subscale	.168	.088	.152	1.911	.061	.727	1.376
Time avail subscale	-.105	.109	-.077	-.969	.337	.728	1.374
Management Support Subscale	.357	.158	.210	2.259	.028	.530	1.888
Reward/reinforcement subscale	.385	.191	.150	2.016	.049	.826	1.211
Total Creative Efficacy	.394	.259	.132	1.524	.133	.616	1.623
Total Proactivity scale	.628	.097	.593	6.477	.000	.550	1.820

a. Dependent Variable: Total EIB scale

Of the five significant variables in the regression model, all had a positive relationship with EIB except age. This suggests as individuals age innovation behaviors would decrease with other variables held constant.

Summary

As described in this chapter, analyses were run to test the five research questions posed in this study. A summary of the significant findings for each research question is provided in the summary table.

Table 22: Summary

Significant Findings	Results
Question One	
Total CEAI	Positive Mean
Management Support	Negative Mean
Time Availability	Positive Mean
Word Discretion	Positive Mean
Rewards/Reinforcement	Positive Mean
Question Two	
Total CEAI and EIB	r=0.525, p=0.000
Management Support And EIB	r=0.521, p=0.000
Time Availability and EIB	None
Word Discretion and EIB	r=0.468, p=0.000
Rewards/Reinforcement and EIB	None
Question Three	
Individual Demographics and CEAI	
Age and Time Availability	r=0.245, p=0.047
Education Level	None
Years in Current Position and Management Support	r=-0.308, p=0.011
Years in Current Organization	None
Work Setting and Time Availability	t=-2.027, p=0.047
Position Title and Management Support	
ANOVA	F=6.454, p=0.003
Staff RN and Administrative	p=0.002
Organizational Demographics	
Magnet Status and Work Discretion	t=-2.108, p=0.049

APNs	None
Size of Organization (# of RNs)	None
Individual Characteristics	
Creative Efficacy and Total CEAI	r=0.350, p=0.004
Management Support	r=0.286, p=0.020
Time Availability	r=0.314, p=0.010
Word Discretion	r=0.275, p=0.026
Rewards/Reinforcement	None
Proactivity and Total CEAI	r=0.423, p=0.000
Management Support	r=0.415, p=0.000
Time Availability	None
Word Discretion	r=0.374, p=0.002
Rewards/Reinforcement	None
Question Four	
Individual Demographics and EIB	
Age	None
Education Level	None
Years in Current Position	None
Years in Current Organization	None
Work Setting	None
Position Title	F=7.18, p=0.002
Administrative vs. Other	p=0.001
Organizational Demographics	
Magnet Status	None
APNs	None
Size of Organization (# of RNs)	None
Individual Characteristics	
Creative Efficacy	r=0.513, p=0.000
Proactivity	r=0.765, p=0.000

Question Five	
Multiple Regression	
Age	β=-0.191, p=0.028
Education Level	None
Years in Current Position	β=0.179, p=0.032
Creative Efficacy	None
Proactivity	β=0.593, p<0.000
Management Support	β=0.210, p=0.028
Time Availability	None
Work Discretion	None
Rewards/Reinforcement	β=0.150, p=0.049

In the next chapter, a discussion of the results for the research questions will be provided. Strengths and limitations of the study will be identified, as will future suggested research to be conducted on nurse innovation behavior. Finally, implications for nursing based on the study results will be discussed.

CHAPTER FIVE: DISCUSSION

The intent of this descriptive study was to explore the relationship of individual and organizational characteristics with employee innovation behavior among nurses. Individual characteristics and perceived organizational characteristics of the health care setting were examined to see if they were predictors of self reported innovation behavior in nurses. Learning more about what supports innovation among nurses is an important first step in eventually fostering greater innovation among nurses.

The purpose of this chapter is to discuss the findings of the research study and address implications of the study based on the data obtained for each research question. Limitations of the research study will be addressed and future research needed on the subject of employee innovation behavior will be identified.

Discussion of Findings

The discussion is based on the following research questions used in this study:

1. What are RNs' perceptions of organizational characteristics that are supportive of nurse innovation (i.e., management support, time availability, rewards/reinforcement, work discretion) in their health care work environment?
2. Is there a relationship between RNs' perception of the organizational characteristics supportive of innovation behavior and self-reported innovation behavior?
3. Is there a relationship between selected RN individual characteristics and RNs' perceptions of their organizational characteristics supportive of nurse innovation?
4. Is there a relationship between selected RN individual characteristics and self-reported innovative behavior?

5. Do individual characteristics, (selected demographic variables, creative efficacy, and proactivity) and perceived organizational characteristics supportive of innovation behavior predict self-reported innovation behavior among a sample of RNs?

Sample

The sample for this study was actively licensed RNs from the state of Ohio who are currently working in health care. A total of 67 RNs participated and all were female except one. The mean age of participants was 59 years. About 38% of the participants worked in a hospital setting and 52.2% identified themselves as staff RNs. Because more than half of the sample worked outside of the hospital setting, there were only small numbers of participants that worked in a facility where Magnet status had been obtained or where Magnet status was actively being pursued. The majority of participants had not been in the same position or the same organization for more than 20 years.

When comparing the sample demographics it is important to know the population statistics of Ohio RNs where the sample was obtained. Based on the most recent Ohio Board of Nursing workforce survey (OBN, 2004), in the state of Ohio 96% of nurses are female and 63% are over the age of 45 with a mean age of 48 years. Educational preparation of RNs is 31% diploma degree, 29% associate degree, and 31% with a bachelor's degree. Approximately 46% of nurses in Ohio work in the hospital with the remainder working in home health, community health, or ambulatory services (OBN, 2004). When comparing the sample with the statistics from the state of Ohio, it was not surprising that almost all of the respondents were female. Position title, time in current position and time in the organization did not result in anything unexpected. Where the

nurses worked was not representative as only 38% of the sample worked in the hospital setting compared to 46% in the state. What was of interest was the mean age for respondents. The mean age for study participants was 59 years with several over the age of 65 (46.3%). The state of Ohio reports a mean age of about 48 years for RNs. The high response from nurses over 59 could lead to bias as individuals at this age who chose to participate might have seen themselves as more innovative and that influenced their decision to participate in the study. Age of participants also led to slightly more of the sample having diplomas (38.8%) than is representative of current statistics for RN preparation in Ohio (31%) with associate nurses being the most underrepresented. Despite the mean age being 59 years and 47% of the sample being 66 or older, all of the participants were actively working in health care and voluntarily chose to participate in the research study. Their participation might indicate this group of nurses either had an interest in innovation or felt they had something to contribute to this innovation study. Despite the sample being smaller than desired and the age of participants being higher, the rest of the sample demographics did not indicate any irregularities.

Research Question One

For research question one, RNs' perceptions of organizational characteristics were assessed by calculating descriptive statistics for the CEAI items. The items were scored on a 7-point Likert scale with the values ranging between -3 (Strongly Disagree) to +3 (Strongly Agree). Possible score minimums and maximums varied based on the number of items for each subscale and were presented in Chapter Four. Overall the total CEAI score was positive and demonstrated that RNs in this sample viewed their organization as possessing the characteristics that have been shown to be supportive of innovation

(Hornsby et al., 2008). The standard deviations of the subscales and total scale showed some differences within the sample indicating there was some variety among the responses, but all of the subscales were seen as positive except for management support.

Management Support

The sample for this study disagreed that management support was present for innovation as evidenced by a negative mean. Looking at all of the data, the sample found their organizations to be supportive of innovation except in the area of management support. This finding is of some concern as the literature has shown that management support is one of the most significant factors in encouraging innovation among employees (Hornsby et al., 2008). To engage in innovative behavior, nurses need management support, resources, and a supportive work environment. The CEAI has never been tested with nurses, but in the business literature management support, rewards/reinforcement, time availability, and work discretion were shown to have a positive, significant relationship with innovative behaviors. This will be expanded upon in the discussion for research question two where correlations were run between the CEAI and employee innovation behavior.

When comparing the results with the business literature, research by Holt et al. (2007), Hornsby et al. (1999), and Hornsby et al. (2002) were selected. All three studies used the CEAI to measure organizational characteristics related to innovation. These studies used the 48 item CEAI, which included the factor of organizational boundaries. The CEAI utilized a 5-point Likert scale with 1 being strongly disagree and 5 being strongly agree, except for the factor of time availability which was reverse scored. The means provided as part of this study's results with RNs were calculated for total scores, while the means

for the three business studies were computed from the averages of the scale scores. For the purpose of analysis, anything above zero for the RN study was seen as a positive finding (including time availability) while in analyzing the business data, anything above 3 was seen as positive and anything below three was seen as a negative response with a score of 3 being neutral, except for time availability where 1 was a positive score and 5 was a negative score. The CEAI scale was revised in 2008 and included removal of the factor for organizational boundaries, a reduction of the items to 20 items, and a transition to a 7-point Likert scale. The revised CEAI was used in this study with RNs.

When comparing the data for the business research with this study related to perceived management support, the study by Holt et al. (2007) reported sample participants rated management support as fairly neutral with a mean of 3.01. Research by Hornsby et al. (1999) reported a mean of 2.9 while in later research they reported a mean of 2.88 for management support (2002), both of which were neutral. The RNs sampled reported a lack of management support for innovation (mean=-1.66). Those individuals who had higher perceived innovation behaviors also perceived their organization higher in organizational characteristics supportive of innovation. This supports the research of Janssen (2005) which found individuals who perceived management as supportive to have higher levels of innovative behaviors ($p<0.01$).

Nursing leadership is vital to establishing and sustaining the structure and circumstances to support the level of intensity so necessary to the innovation process (Gratton & Erickson, 2007). The nursing literature supports that when nurses trust management, and nurses are given adequate resources, they feel they have a significant impact on what happens in the workplace and it makes work more meaningful

(Laschinger et al., 2001). Management support has been shown to have a positive, significant relationship to nurse innovation behavior. In the innovation literature by Amo (2006a), individuals who reported higher levels of innovative behavior also perceived their managers as being very supportive. In research by Knol and van Linge (2008) they found nurses who perceived structural empowerment, defined as the employee's network of sponsors and peers, and the psychological empowerment dimension of impact, defined as the perception of whether their organization takes their ideas seriously, reported higher levels of innovation behavior.

Time Availability

The sample scored time availability as positive but it was the most neutral of all of the factors as it was closer to zero (mean=1.22). Some of the business literature has supported the importance of time availability, but it has not been supported consistently. Holt et al. (2007) did not find a relationship between time availability and innovation ($p>0.05$), but the study sample viewed time availability, which was reversed scored in the business studies as slightly positive (mean=2.75). Hornsby et al. (1999) reported a mean of 2.5 for time availability and in 2002 found a mean of 2.53 among US managers which was considered slightly positive. Overall the business literature rated time availability as slightly positive. Typically nursing has reported inadequate time availability, but this sample overall reported time as adequate. Demographic differences related to time availability will be discussed in Research Question Three.

Rewards/Reinforcement

Rewards/reinforcement had a mean of 2.0 which indicates the overall sample felt they were rewarded by their organization. The sample in Holt et al. (2007) rated

rewards/reinforcement as positive (mean=3.61) while Hornsby et al. (1999) reported a mean of 3.4. Later research by Hornsby et al. (2002) found a mean of 3.49. Research by Janssen (2000) found a positive correlation between effort-reward and innovation behavior. This was again supported by Janssen (2001) when a significant, positive relationship ($p<0.05$) was found between employee perceived reward fairness and innovative behaviors. The study sample reported rewards/reinforcement was present in their organization.

Work Discretion

Work discretion had the highest mean score of 7.9104. Participants felt they had the freedom to decide how they would complete their work and were able to work independently and make their own choices in their practice. The business literature also reported work discretion as positive. In the study by Holt et al. (2007) the mean for work discretion was 3.51. Hornsby et al. (1999) found sample participants rated work discretion as positive (mean=3.7) while in later research found a mean of 3.72 for work discretion (2002).

Based on the data for question one, several implications exist. Management support was found to be lower among this sample than in the business and nursing research. The most consistent finding in the research on innovation behavior has been the importance of manager support to the innovation process. Learning more about how nurses perceive management support in their organizations needs to be studied. If future research supports the perceived lack of management support for innovation within nursing, then steps need to be taken to increase management support. Research will need to be done to

learn how to create an environment that supports innovation among nurses and how managers can help to create a more supportive environment.

Autonomy has been studied in the nursing literature and has similar attributes compared to work discretion. The literature supports the importance of autonomy to job satisfaction and quality within nursing (Flynn et al., 2005; Laschinger et al., 2001). Work discretion was seen positively by this sample. Providing nurses with the work discretion to be autonomous in their practice gives nurses the freedom to do their job in a quality manner and perform as professionals. This can be seen as a support to an innovative culture. Encouraging more autonomy for nurses should be continued and increased in areas where it does not currently thrive. Nurse autonomy, a part of nurse empowerment, has been linked to higher levels of innovation behaviors among nurses (Knol & van Linge, 2008). This was also supported in this study; those RNs who reported more work discretion reported more innovation behaviors.

The findings point to the need for organizational change within health care organizations. Nurses at all levels of the organization need to be supported by their managers, be allowed to have autonomy and work discretion in their practice, and have a fair reward structure in place that recognizes the impact nurses possess in regard to quality, safety, and patient outcomes. In order for change to occur, leadership development for nurse managers will need to evolve. Future and current nurse managers have the ability to increase innovation behaviors among nurses by being more supportive, providing autonomy to their staff, and recognizing nurses' innovative potential. Until research has been completed to determine the best strategies for developing innovative managers, simple steps can occur. Having nurse managers become familiar with

innovation and current innovation research and informing them of how important their support is to the innovation process can be incorporated into leadership and management training for nurses.

Research Question Two

To determine the relationship between RNs' perceptions of organizational characteristics and self reported innovation behavior, scores on the CEAI and EIB were correlated. Employee innovation behavior was significantly correlated with work discretion ($r=0.468$, $p=0.000$), management support ($r=0.521$, $p=0.000$), and the total CEAI ($r=0.525$, $p=0.000$), indicating a moderately strong, positive relationship. Since the CEAI had not been used among nurses and the Total EIB scale had not been tested on nurses within the United States, this provides initial support for the relationships between organizational characteristics and innovation behaviors among US nurses. Time availability and rewards/reinforcement were not found to be significantly correlated to perceived employee innovation behaviors in this study. This finding indicates RNs in this study, who perceived more discretion in how they were able to complete their work, and perceived their direct manager as being supportive, reported higher levels of innovation behaviors. Time and rewards/reinforcement did not affect innovation scores. The total score on the CEAI was also higher for RNs in this sample who reported higher innovation behaviors, resulting in a significant positive correlation. This is consistent with the work by Antoncic (2007) who reported a positive, significant relationship between the total CEAI and innovation behaviors (standardized coefficient 0.51, $p<0.05$).

Previous research in the business sector has demonstrated management support and work discretion are important variables for employee innovation. Some of the business

literature has not supported all four factors from the CEAI. In the study by Scott and Bruce (1994) the only significant organizational factors related to innovation were management support and resource supply. In the study by Holt, Rutherford, and Clohessy (2007) only management support, work discretion, and rewards/reinforcement were found to have a significant positive relationship with corporate innovation. Janssen (2000, 2001) found reward fairness and management support to be positively related to innovation behaviors. In all of the studies, despite the other factors, management support was consistently found to have a positive relationship with innovation behaviors. When work discretion was measured, it also consistently supported innovation behavior. As with this study, time availability and rewards/reinforcement have not always demonstrated a significant relationship to innovation behavior.

It is of interest that time availability and rewards/reinforcement were not significant in this study analyzing the relationship between organizational characteristics and innovation behavior. Time availability has received more inconsistent findings in the research compared to management support. Research by Holt et al. (2007) did not find time availability to be of significance to innovative behaviors ($r=0.13$, $p>0.05$). Hornsby et al. (1999) also did not find any significance between time availability and innovative behaviors ($p>0.05$). It should be noted the Holt study was conducted among governmental employees, where half were active duty military and half were civil servants and the sample was primarily male. In the Hornsby study, the sample consisted primarily of managers and was predominantly male.

Rewards/reinforcement has been supported in the research by Janssen, despite it not being significant in this study. In studies conducted in 2000 and 2001, Janssen found

support for the importance of employees' perceptions of reward fairness and their innovative behaviors. When employees felt they were rewarded fairly for their efforts, despite the actual reward, they were more likely to engage in innovative behaviors. The Janssen research was completed in the industrial food industry by manufacture workers and not with nurses in health care.

Several possible explanations for time availability and rewards/reinforcement not being significant in this study exist. It should be noted that previous research with the CEAI has occurred in business settings rather than health care where organizational cultures differ. In business the emphasis is on sales, profitability and production processes and a direct tie to innovation can be perceived. In health care, the emphasis is on services, customer satisfaction, and quality patient outcomes and innovation might not be seen as directly related by nurses. Nurses have frequent interactions and an established professional relationship with clients while those in business might be removed from their customers. The business research was mainly conducted with males while the sample for this study was almost exclusively female. Gender differences along with differences in organizational culture could account for time and rewards not being significant in this study.

Some additional explanations for time availability not being significant in this study could be that more than half of the sample worked in areas other than the hospital setting where time might be less of a consideration. Also, nurses in administrative positions who reported higher innovation behaviors might perceive more time available for innovation as it is part of their role expectation. Older nurses also reported time availability to be less of an issue than younger nurses. Because the sample had a higher mean age, nurses

with possibly more experience may be less concerned with having enough time. Ultimately time availability was not significantly related to innovation behaviors in this study. Nursing is a profession that provides a variety of work and requires quick thinking and dealing with uncertainty and constant change from shift to shift. Time availability, although frequently cited as inadequate by nurses particularly in the hospital setting, may not influence the ability to behave innovatively. Nurses may be accustomed to not having ample time and are able to work under time constraints. Nurses may also have come to accept that time is something that will always be an issue and that they need to work with whatever time is available incorporating time management techniques within their practice.

Rewards/reinforcement also did not correlate with innovation behavior. The Cronbach alpha for rewards/reinforcement in this study was $\alpha=0.689$, which is slightly below the accepted level of $\alpha=0.70$. The factor was included in the study because of its proximity to the desired level, but did have the lowest reliability of all the factors from the CEAI.

In the work by Janssen (2000, 2001) reward fairness was identified as important, not necessarily just the presence of some reward. Although nurses in this sample viewed rewards/reinforcement as being positive, it did not correlate with innovation behaviors. Although most nurses receive annual reviews and their pay is dependent on good performance, frequently nurses are given set raises based on years within the organization and not paid directly for performance. Rewards for innovation behaviors by nurses are probably not prevalent in health care organizations. Learning more about how nurses are rewarded and if pay is tied to quality of work and reward fairness is perceived by the staff

could provide more insight into why rewards/reinforcement was not significant with this sample. Structuring a reward system in nursing where reward fairness is present and rewards are given for innovative behaviors might lead to higher levels of innovation among nurses in the future.

It is of interest that some of the perceived barriers to innovation within the nursing profession are the lack of time and the lack of additional money (rewards) and resources available to dedicate to innovation efforts. This research did not find a significant relationship between innovation behaviors and time availability or rewards/reinforcement. Future studies examining the CEAI and EIB will allow for more understanding about the importance of time and rewards/reinforcement to the innovation process among nurses.

Findings from this study support previous studies completed in the business sector that have supported the CEAI and corporate innovation. The fact that the CEAI was used for the first time with RNs and yielded significant results indicates the instrument was a valid tool to use with nurses. It also indicates that nurses who perceive greater work discretion and manager support perceive they have more innovation behaviors. This study should be replicated with a larger sample and from different states before the results can be generalized. Still, this provides information that would indicate allowing nurses' discretion in their work and utilizing more supportive managers could yield higher levels of innovation. One major area of concern was the overall sample who completed this study reported that they did not perceive their manager as being supportive. If this finding were to hold true in future studies, this would be an area where interventions

would need to be targeted to help develop and educate direct nurse managers in methods that make them more supportive of innovation.

Research Question Three

Individual characteristics of nurses were examined to determine if certain individual characteristics of the RNs sampled affected how they perceived organizational supports to innovation (CEAI) within their workplace. For this question, the individual characteristics used included individual demographics, demographics of the organization where the individual worked (organizational demographics), and the individual characteristics of creative efficacy and proactivity. The individual demographics selected for this study included years in current position, years in current organization, age, level of education, type of health care organization where he or she is currently working, and work setting or unit. The organizational demographics included Magnet status, if APNs are employed by the organization, and the number of RNs employed by the organization.

Significant relationships were found with a few of the individual characteristics and perceived organizational characteristics. The first significant finding was a negative relationship between years in current position and perceived management support ($r=-0.308$, $p=0.011$). The negative relationship indicates RNs who were in their position longer rated their manager as less supportive than those RNs that had been in their current position for a shorter period of time. There are several possible explanations for this finding. The questions used to measure management support refer to taking risks, innovations, and support for new projects. Individuals who have remained in the same position for several years may be less open to change and this could have influenced their answers. RNs employed in their position for a long time may have a more negative

perception of their manager's support for innovation because they have been there and have not seen many examples of innovations fostered by their managers or they could not be as familiar with the whole concept of innovation. This is an area where more research needs completed to see if this relationship exists in other studies and if so, why RNs with more years in their positions feel this way.

In addition to years in their current positions, a relationship approaching significance was identified between educational level of RNs and perceived management support. RNs in this sample with an ASN or Diploma degree perceive less management support compared to those RNs with either a BSN or MSN degree. Although the relationship is not statistically significant ($p=0.08$), it does provide some additional insight or support into the finding that management support is perceived differently by some RNs.

Another significant relationship was between age of the participants and their perception of time availability. This was a positive relationship ($r= 0.245$, $p=0.047$) and implies that RNs who are older perceive more time availability than those RNs who are younger. This could be attributed to more work and/or life experience. These RNs may be better at time management, prioritization, and anticipating problems early through their experience and expert skill set resulting in the perception of more time availability. Another explanation is these individuals could be working either part-time or in a less fast paced setting and their responses are reflected as being attributed to age being the difference rather than possible other contributing factors. Additional research is needed to see if these results are replicated.

There was a significant relationship between time availability and between RNs working in a hospital setting versus those who work in a community based, long term

care, or school settings. Hospital based RNs reported significantly less time availability compared to those in a non-hospital setting (t=-2.027, p=0.047). This can be attributed to patient/nurse ratios, frequent admissions/discharges, and the acuity level of the patients in the hospital setting. Despite this finding, time availability was not found to be related to employee innovation behaviors in this study.

Additional characteristics of the RNs analyzed included creative efficacy and proactivity scores. When looking at creative efficacy, RNs who scored high in creative efficacy also reported higher levels of management support, work discretion, time availability and total CEAI scores. RNs that scored as being more proactive perceived higher levels of work discretion, management support, and total CEAI scores.

Previous research has demonstrated a link between creative efficacy and proactivity to innovation behaviors (Amo, 2005b; Crant, 1996; Seibert et al., 2001; Tierney, 1997; Tierney & Farmer, 2002). There has also been previous research supporting the importance of organizational characteristics and innovation behavior (Hornsby et al., 1993; Hornsby et al., 2008). This study's findings support a relationship between creative efficacy, proactivity, and the organizational supports to innovation for nurses, which have not been supported previously in the literature.

The research has found employees who are more innovative report higher levels of creative efficacy. Research on creative efficacy also identify the importance of work environments and found those organizations that promoted job satisfaction, and had supportive managers and peers had workers with higher levels of creative efficacy. This supports the findings in this study that higher levels of creative efficacy, management support, and work discretion result in higher perceived innovation behaviors.

Proactivity research has consistently supported the relationship between being proactive and innovation behaviors. Crant (1996) found proactiveness to be the most significant predictor of entrepreneurial intention (defined as using innovation and creative problem-solving) as did Gupta and Bhawe (2007). A study by Amo (2005b) found a positive, significant relationship between proactivity and innovation behaviors, supporting earlier research by Baum et al. (2001). Proactivity was also significantly related to higher levels of innovation strategies in a study by Kickul and Gundry (2002).

There are several possible explanations for these findings. For example, individuals who have higher creative efficacy and are more proactive may choose to work in organizations where their innovative pursuits will be supported. Another explanation is individuals scoring higher in creative efficacy and proactivity could be more willing to take risks to solve problems, believe they have autonomy in their work while being committed to their organization, and feel a responsibility to organizational success; all attributes that support employee innovation behavior.

These results further support the importance of individual characteristics and organizational characteristics to employee innovation behaviors. This is an exciting finding that requires more research to determine if these relationships are found in future studies and to learn more about the relationship between these variables.

Overall this study supports the use of creative efficacy and proactivity as part of the proposed conceptual framework for employee innovation behaviors. It also supports the use of creative efficacy and proactivity scales as part of the instrument used to learn more about innovation behaviors among nurses

Research Question Four

For research question four, individual characteristics of nurses were examined to determine if nurses with certain characteristics reported different levels of self reported innovation behavior. The same grouping of data as completed in research question three was maintained for this analysis.

There was a significant difference on total EIB scores for RNs in different job categories. This variable was divided into three groups: staff RN, administrative, and other (being mainly educators, information technology, or in other community based positions). A post hoc test was completed and identified that the differences in scores were between staff RNs and administrative RNs. Those RNs who worked in administrative roles perceived their innovation behaviors as much higher than staff RNs. A role of nurse managers is to solve problems and develop solutions to pressing issues of their employees or department. Administrative nurses may have more opportunity and expectations for innovation/problem solving than staff nurses. This may explain why nurse managers perceive they have more innovation behaviors.

This provides an opportunity for nursing to see innovation as not just an expectation of nurse managers, but also for staff nurses. Supportive managers are an important component of fostering EIB. Nurses in management positions need to become familiar with innovation, see the importance or value of nurse innovation, and know how essential their support is to innovation behaviors among their employees. Learning more about how nurse managers can support staff nurses to develop or utilize their innovation skills needs to be researched further. Although this is an interesting finding, due to unequal

group sizes the results must be interpreted with caution. Replication of the results with more equal group sizes needs to be completed.

The individual characteristics of creative efficacy and proactivity were positively correlated with perceived employee innovation behaviors. Those RNs who scored higher in creative efficacy and proactivity also reported higher innovation behavior scores than those who scored lower in creative efficacy and proactivity. This provides additional support to previous research that found a positive correlation between creative efficacy, proactivity, and innovation behaviors (Amo, 2005b; Crant, 1996; Seibert et al., 2001; Tierney, 1997; Tierney & Farmer, 2002). These results support the use of creative efficacy and proactivity in the proposed conceptual framework for EIB and support the use of the variables in instruments used in future research for innovation behaviors of nurses. These findings also hold implications for practice. Identifying and implementing strategies that potentially cultivate creative efficacy and proactivity among employees should be considered. Helping nurse managers to understand and encourage the attributes of creative efficacy and proactivity could potentially increase the innovation behaviors among their staff.

Research Question Five

Multiple regression analysis was completed to determine which variables selected for this study predicted innovation behavior. Results from the first four research questions were utilized to determine the variables to include in the regression model. Based on those results, nine variables were selected for the regression and included: education levels, age, years in current position, work discretion, time availability, management support, rewards/reinforcement, creative efficacy, and proactivity. However, given the

sample size, this analysis must be considered exploratory due to the small ratio of observations to predictor variables.

Five of the nine variables were found to be significant. Age (β=-0.191, p=0.028), years in current position (β=0.179, p=0.032), management support (β=0.210, p=0.028, rewards/reinforcement (β=0.150, p=0.049) and proactivity (β=0.593, p<0.000) explain 74.7% of what contributes to innovation behavior in this study. Multicollinearity was evaluated and no violations were present for any of the independent variables used in the model. It is of interest that two of the variables shown to be significant in the univariate analyses were not significant when running multiple regression analysis. The independent variables of work discretion and creative efficacy were not found to be significant when all variables were in the equation. Also of significance was age and rewards/reinforcement, which had not been significant in earlier analyses, were in the multiple regression models.

The findings are important as they provide support for individual characteristics and organizational characteristics contributing to innovation behaviors of nurses. Proactivity was the most significant of the variables and this supports earlier research that identified proactivity as important to employee innovation behaviors, having a significant, positive relationship (Amo, 2005b; Baum et el., 2001; Crant, 1996; Gupta & Bhawe, 2007; Kickul & Gundry, 2002).

The importance of management support to employee innovation behaviors has received the most support in the literature. Studies in nursing and business have found a positive, significant relationship between management support and higher perceived innovation behaviors (Amo, 2006a; Scott & Bruce, 1994; Janssen, 2005). In all of the

research examining innovation behaviors and corporate innovation, management support was seen as an essential component in increasing innovation behaviors. It is important for nursing to understand the research on management support in relation to innovation behavior and develop interventions and curriculum to prepare future nurse managers to be supportive to their staff and encourage nurse innovation.

Reward/reinforcement was significant in the regression model. Research in business and nursing have supported a direct relationship between innovation behaviors and being rewarded (Amo 2006b; Janssen, 2001). When rewards were given fairly and were as basic as being acknowledged for their work, the employees had higher perceived employee innovation behaviors. Three items were used to measure rewards/reinforcement in this study. The three items reflected either management recognition or the fair use of rewards. The items used were: 1. My manager will give me special recognition if my work performance is especially good. 2. My manager will tell his/her boss if my work is outstanding. 3. The rewards I receive are dependent upon my work on the job. The items target the aspects of rewards found in other innovation behavior studies where a relation was also noted. This finding relates to practice, as nurse managers can benefit from knowing that employees view acknowledgement of good work, getting credit for good work, and having rewards distributed fairly and based on good work have been shown to increase employee innovation behaviors.

Age was found to have a negative relationship with innovation behavior, while years in current position had a positive relationship. Age had not been significant in research question four but was when running multiple regression analysis. Years in current position had a positive significant relationship to innovation behavior in the multiple

regression analysis but had no significant relationship to employee innovation behaviors in research question four. Years in current position had a significant negative relationship with perceived management support, and since management support has been shown to be strongly correlated to innovation behaviors, this could have affected the results. This finding suggests nurses who are younger are found to score higher in employee innovation behaviors and the longer nurses are in their current position the higher their employee innovation behaviors. One explanation is nurses who are younger may be more open to change and willing to take action to influence their environment. It seems contradictory though that nurses who are younger, but in their current position longer have higher perceived innovation behaviors. Those who have more years in their current position, but were younger, should have higher self reported innovation behaviors. Research shows that having expert knowledge and expertise allows individuals to perceive problems and be better able to develop solutions (Crant, 1996). Individuals in their current position longer would have a better understanding of their work environment and this could allow them to identify problems where innovative solutions should be developed. Since nurses who were in their position longer viewed managers as less supportive, but being in your position longer is related to higher innovation behaviors, this provides a potential for interventions to increase the perception of manager support among this group.

Conclusions

This study combines instruments used exclusively in business along with instruments used with nurses outside of the United States, to learn more about registered nurses in the US and their self reported innovation behaviors. This study encompasses more aspects of

the work environment and how it could impact innovation behaviors of RNs compared to past studies.

Although the sample size was smaller than was desired, there were some significant findings that provide additional insight into innovation among RNs. This provides a solid foundation for future research, to further explore supports that can be implemented within organizations to support RNs in their innovative pursuits during their work.

Strengths and Limitations

Strengths

This study had several strengths. First, the sample was obtained using random sampling methods. The instruments used in the study had been used previously and had acceptable reliability coefficients provided in the literature review. The Cronbach's alpha obtained in this study for the instruments used were all acceptable (>0.70) except the subscale of rewards/reinforcement, which was α=0.689 and is still considered acceptable. Content validity was also established by instrument developers in previous studies. Despite limitations in power due to the small sample size, there were many significant results found in the study. This descriptive study was also conducted to learn more about individual and organizational characteristics and their relationship to nurses' self reported innovation behaviors and it utilized reliable and valid instruments that had not previously been used among registered nurses in the US.

Limitations

This study has several limitations. The size of the sample is one of the biggest concerns. Based on the small sample size the power that was desired was not obtained. Only 67 usable surveys were obtained after 2200 postcards were mailed and 172

individuals accessed the survey site, resulting in a low response rate (3%). A low response rate resulted in an inadequate sample to find meaningful results for all of the analyses. In particular, the number of hospital nurses who responded did not reflect the population of nurses in the state of Ohio. The small sample resulted in some demographic variables to be eliminated from analysis as there were not enough data responses to analyze. The small sample affected generalizability of the results and decreased the ability to detect differences among participants in the small groups.

There was also the potential for sample bias. Those who started the survey and did not complete it, those who accessed the site but declined to participate, and those who simply did not choose to participate could increase the potential for having a biased sample. There was basically no representation from men (1.5%), low representation from hospital nurses (39.4%), and all respondents were actively licensed RNs from the state of Ohio and not from other states, which makes results not generalizable. Because of the small sample size, the numbers were fairly low for some of the demographic categories such as Magnet status, educational preparation, and job category. Also, the smaller sample size resulted in there being slightly less than the desired 10-15 responses per predictor variable for the multiple regression analysis. The sampling method was also a limitation. Participation was sought through postcards after names were randomly selected from the Ohio Board of Nursing database of all actively licensed RNs in the state of Ohio. Postcards had to be used as the board does not keep e-mail addresses. After receiving the postcard participants had to go online and complete the survey. Potential participants were excluded if they lacked access to a computer or the internet.

This study relied on self report. Responses on self-report surveys have the potential for social desirability response bias (Polit & Hungler, 1999). By only asking participants to rate their own innovation behavior, there was no input from co-workers or managers that could have either supported or refuted the participants' responses. Finally, the instruments selected for this study were supported in the literature but may not be all inclusive. By limiting the individual and organizational characteristics used in this study, important variables may have been excluded.

Future Research

This study was conducted because little was known about nursing innovation and the influences of individual and organizational characteristics. Despite the findings from this study, more research is needed to better understand nursing innovation. There continues to be very little research available on this topic and little is understood about what supports or hinders nurse innovation. Based on the results of this study, future research is needed in the following areas:

1. A multistate study utilizing a larger sample is needed to learn more about the relationship between individual and organizational characteristics and innovation behavior of RNs. Gaining access to e-mails from hospitals in several states and gaining their participation will likely increase the number of participants.
2. Replicating the study with a focus on the hospital settings would provide greater information about nurse innovation by staff nurses in the acute care setting. Gaining more information about other areas of nursing such as community, long term care, and schools of nursing and their innovation behavior remains important, but a focus on hospitals is essential. Acute care hospitals are

where the majority of RNs are employed and where control of costs and improved quality in patient care is needed.

3. Learning more about RNs' perceptions of their direct manager's support related to innovation. This was not seen as positive among this sample and it needs to be evaluated among other RNs. If management support is consistently reported as lacking, learning why nurses do not feel supported should be studied as it is an important variable for innovation.

4. Research is needed comparing Magnet with non-Magnet hospitals to determine if the Magnet initiative is supportive of nurse innovation or if there is any difference between Magnet hospitals versus those non-Magnet facilities.

5. Research using manager input into the evaluation of employee innovation behavior should be used to determine if employee self-reports are accurate or contain bias. Sampling the managers of the participants will strengthen the results and offer the potential to learn more about nursing innovation.

6. Replication of this study to determine if the five variables identified in multiple regression analysis remain significant and if any other significant variables are identified.

7. Finally, research should be conducted to determine if reports of innovation behavior yield true innovations by nurses. Qualitative research with actual nurse innovators would provide more insight into supports to nursing innovation.

Implications

Findings from this descriptive study have several implications related to nurse innovation behaviors. As presented in the first chapter, there are many pressing issues

within health care and nurses have the unique opportunity to develop solutions through innovation. Health care is faced with rising costs, safety and quality concerns, a challenging work environment, and recruitment and retention problems particularly among nurses. Innovations by nurses within healthcare are critical in addressing some of the problems present within the current system.

First, by learning more about how RNs perceive management support nursing can determine what needs to be included in nurse management training or education to allow for a more supportive relationship. This study showed most RNs in the sample rated their managers as unsupportive of innovation, but there was a positive correlation between perceiving management support and reporting higher innovation behavior scores. Nurses have frequently been chosen for management positions based on their exceptional clinical skills rather than previous management experience or educational preparation. Although this is not always the case, often lower level managers may not have had the preparation necessary to be expert managers. Even nurses in higher level management positions may not understand the innovation process and what is required of nurse managers to cultivate high levels of employee innovation. Nursing leadership support is vital to creating the organizational culture necessary for increasing innovation behaviors among nurses. Continued research in this area will continue to provide more understanding of what nurse managers need to do in order to be perceived as more supportive of the innovation process by their staff. This future research could also provide staff RNs with more insight into what they need to ask for from their managers, the definition of innovation and what it means to be innovative, and how to take their ideas and transform them into true innovations.

Second, the challenges present within health care continue and have become even more complex. Preparing current and future nurses to develop innovative solutions to improve patient safety, create better quality outcomes, develop ways to combat rising health care costs, and make improvements to work environment and recruitment/retention problems will be required in order to transform health care. Nurses are in the unique position to develop innovative solutions to these problems.

The contribution of nursing in achieving high quality patient outcomes has broad recognition (Aiken et al., 2001; Aiken et al., 2008; ANA, 2000; McGillis et al., 2003; Needleman et al., 2002). Nurses play an essential role in good patient outcomes and have the ability to improve patient safety and quality. Nurse-sensitive outcomes and the Magnet Recognition program recognize nurses as integral to patient safety and quality and also acknowledge the importance of nursing innovation to meet future challenges.

It is clear nurses can and should be a vital part of the solution to these problems in health care. The use of innovation to develop systems and processes that will increase quality and safety while controlling costs is a role nursing must assume. This study provides some key information to nursing. It supports the importance of management support, work discretion, and the total CEAI to innovation. It demonstrates that the majority of the nurses in this study do not perceive their managers as supportive. It also found time availability is a concern for younger nurses and those who are staff nurses in the hospital, but overall time availability is not significantly related to innovation behaviors in this study. Age was found to have a negative relationship with innovation behaviors, and it also identifies individuals who have more creative efficacy and are proactive report higher levels of innovation behavior. Using this information to conduct

more research studies that test potential interventions to increase innovation among nurses is necessary. Nursing innovation behavior can help improve quality of health care, improve the working environment of nurses, and attract new groups of prospective workers to health care (Adams, 1994; IOM, 2003; Wilson, Averis, & Walsh, 2003). Nursing must continue to pursue the information necessary to implement tested measures that increase innovations among RNs. From the regression analysis, this study found supports to innovation behaviors to be management support, rewards/reinforcement, proactivity, age, and years in current position. This study needs replicated to see if these variables remain significant, but nursing can start to consider ways to increase management support, provide fair, meaningful rewards/reinforcement, and encourage employees to be more proactive. Realizing younger nurses may be less resistant to innovation and supporting older nurses to consider innovative behaviors are all positive steps to encouraging innovation in nursing.

Third, it has been shown there are current barriers to innovation within nursing, particularly in the hospital setting. Based on the regression model, management support and rewards/reinforcement should be targeted for improvements. Development of strategies to support innovation should be a prime objective of nurse managers. One way to do this is to improve how nurses perceived management support. Research on work environments in nursing has found that when nurses are empowered and there is a positive work environment, nurses have more trust in their managers and perceive greater support (Laschinger et al., 2001). Nurses who perceive more autonomy also perceive greater management support (Mrayyan, 2004). A study by Kane-Urrabazo (2006) examined the role of nursing management in shaping organizational culture. That study

demonstrated that a culture of trust, empowerment, and consistency resulted in greater nurse satisfaction. Taking the research on work environment and innovation behavior to improve perceptions of management support has the potential to positively impact innovation behaviors among nurses.

Not only do nurse managers need to work on ways to be more supportive, but strategies to increase creative efficacy and proactivity of staff nurses should be a priority. This study and previous research has demonstrated the positive correlation between creative efficacy and proactivity. Creative efficacy was found to have a positive, significant relationship to EIB when analyzed individually but did not remain significant when included with the other independent variables used in multiple regression analysis. Cultivating creative efficacy among RNs is supported in the literature (Amabile et al., 1996), but more research is needed to see if creative efficacy is related to EIB. When examining creativity, the attributes of individual creativity include the willingness to take risks, having broad interests, attraction to complexity, intuition, tolerance to ambiguity, and self-confidence. Other antecedents are having expertise in the work domain, identification of gaps in knowledge, freedom and autonomy, diversity of viewpoints, encouragement, sufficient resources, intrinsic motivation, challenging work, and the ability to do what you love (Amabile et al., 1996). By targeting some of the supports to creative efficacy, it may be possible to increase creative efficacy of RNs. Understanding if creative efficacy supports innovation behavior needs to be clarified with additional research.

In regards to proactivity, Campbell (2000) identifies proactive individuals as displaying trustworthiness, leadership abilities, and positive working relationships.

Proactive individuals demonstrate a commitment to the organization and feel a responsibility for organizational success, and have personal integrity (Seibert et al., 2001). By developing supportive work environments and entrusting RNs to do the difficult work of innovating to create solutions, a natural commitment and responsibility to the organization will result. Creating programs or strategies based on future research studies to stimulate innovation behaviors in those who are less likely to be innovative are possible and should be a priority. There is research on the importance of proactivity to innovation behaviors, but little on how proactivity can be fostered in individuals, including nurses. Additional studies need to be developed to learn about ways proactivity can be enhanced.

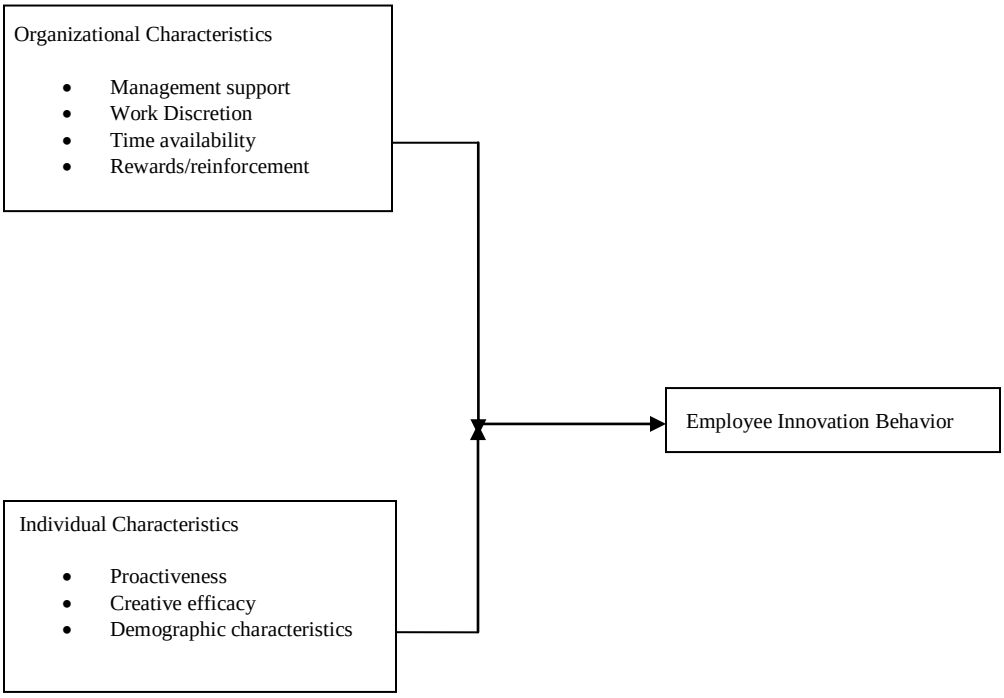
Finally, nurses need to build on this research to create environments that encourage innovation. A key component is to develop supportive managers and create an environment that encourages new ways of thinking while providing the time and freedom to do so. Some of the same attributes of a positive work environment are also congruent with an innovative environment, including a supportive manager, openness to new ideas, and the rewarding of good work.

Some of the same attributes in the research by Carroll (2005) included creating trust, envisioning the future, managing and supporting change, and worker involvement in making and deciding on new processes. All of these support the goals of the IOM report on work environment and are congruent with the attributes needed to support an innovative climate in health care. The literature has been consistent in showing nurse leaders as essential to the creation of a healthy work environment and retention of nursing staff (Sherman, 2005). One of the primary leadership tasks of nurses is to create an

environment where creativity and innovation can thrive (Gilmartin, 1999; Knol & van Linge, 2008). The nursing profession must take this data and data from future studies to develop and test ways of educating future managers and encouraging staff RNs to take their expertise and create innovative solutions to the issues they encounter daily. Nurses have the knowledge to identify and solve work environment issues, safety issues, and improve quality through innovative solutions. By fostering innovation among nurses, better patient outcomes and an overall better health care system is possible.

Appendix A

Framework for Study of Innovation Behaviors among Nurses



Appendix B

Dear Participant,

Thank you for your interest in participating in this survey. You are invited to participate in this research study about innovation among nurses. You were randomly selected as a possible subject because you are an actively licensed RN in the state of Ohio. If you decide to participate, you will be one of approximately 1,200 RNs contacted and 250 subjects who will actually be participating in this research.

The survey is administered by REDCap - a secure survey service, and your responses will be anonymous. Any identifying information will be removed by the survey service ensuring that all confidentiality is preserved. All responses will be reported as group data.

Your participation in this survey is optional, but we hope you will take the approximately 15 minutes to answer these questions. We are unable to reimburse you for your participation, but please know that your contributions to this study are valued. Except for your time and inconvenience, there are no foreseeable risks for you in participating in this study. While completing the survey, you can decide not to answer a particular question. You may stop the survey and decide not to proceed at any time. Reading these instructions and accessing the survey (clicking yes to the Continue button below) indicates that you understand the above information and give your informed consent to the completion of the survey.

If you have any questions about the research please contact Paula Baumann at pkbauman@indiana.edu or her faculty advisor, Dr. Anna McDaniel at amcdanie@iupui.edu.

By participating in this study you will have the opportunity to be entered into a drawing to receive one of four $25 gift certificates to Amazon.com. If you choose, at the end of the survey you will be asked to access a new URL where you will enter your e-mail address. This will open a new window so that your identity will not be linked to the survey results in any way, nor will it be used for any other purposes. Thank you for your participation.

Continue with the survey

Yes

No (Exit the survey by closing your browser)

reset value

* required

Appendix C

Survey Instrument- will be input into online survey format

Background Information

The following information will be useful in interpreting the results of this survey. We wish to assure you again that all information will be held in the strictest confidence, and that all data will be reported in summary form only.

Personal Information

What is your position title? (Drop down box)

_____

How many years have you been in your current position? _____

How many years have you been with this organization? _____

What is your current position level?

Mid-management _____ Senior management _____ Staff Nurse_____
Nursing Faculty_____ Other (please specify) _____

What is your age? _____

What is your gender? _____

Level of nursing education? (check highest level)

_____RN Diploma _____Masters degree
_____Associate RN _____ PhD
_____Bachelors RN _____ Other please specify

Health Care Organization Information
If you are currently working as a RN in a health care organization, please respond to this and all other sections in reference to the organization of which you are a member. If you are not currently employed in health care, please select the box below. (These individuals will be excluded)

I am not currently working as a RN in health care ☐

The health care organization I'll reference in responding to the survey is…

_____Urban Teaching hospital

_____Rural Teaching hospital

_____Urban non-teaching hospital

_____Rural non-teaching hospital

_____Long-term Care facility

_____Community Health Agency

_____School of Nursing

_____ Primary Care Office or clinic

_____K-12 School

_____Other (please describe) _____

In the hospital where I am employed, I primarily work in the following area:

_____Medical unit

_____Surgical unit

_____Surgery or Surgical Recovery

_____Intensive care

_____Emergency Department

_____Rehabilitation

_____Information Technology

_____Pediatrics

_____Obstetrics

_____Oncology

_____Not applicable, I am not employed in a hospital

_____Other (please describe) _____

The hospital where I am employed has obtained Magnet status _____ Yes _____No _____N/A

The organization I work for employs advanced practice nurses _____Yes _____No

Approximately, how many people does your organization employ? _____

Please respond to each of the following statements by using the scale of numbers provided. Select the number that "best reflects" your opinion.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

Section I: Work Discretion

1. It is basically my own responsibility to decide how my job gets done.

2. I have the freedom to decide what I do on my job.

3. I almost always get to decide what I do on my job.

4. I have much autonomy on my job and am left on my own to do my own work.

5. This organization provides the freedom to use my own judgment.

6. I feel that I am my own boss and do not have to double-check all of my decisions with someone else.

7. I have a lot of variety in how I carry out my daily work.

Section II: Time Availability

8. I have just the right amount of time and workload to do everything well.

9. I always have plenty of time to get everything done.

10. I feel that I am always working with time constraints on my job.

11. My co-workers and I always find time for long term problem solving.

12. During the past three months, my workload kept me from spending time on developing new ideas.

Section III: Management Support

13. This organization supports many small and experimental projects.

14. People are often encouraged to take calculated risks with ideas around here as long as patient safety is not compromised.

15. Senior managers encourage innovators to bend rules and rigid procedures in order to keep promising ideas on track.

16. People are encouraged to talk to employees in other departments of the organization about ideas for new projects.

17. Money is often available to get new ideas off the ground.

Section IV: Rewards/Reinforcement

18. My supervisor will give me special recognition if my work performance is especially good.

19. My manager will tell his/her boss if my work was outstanding.

20. The rewards I receive are dependent upon my work on the job.

Additional Items Measuring Study Variables

Creative Efficacy 1 to 7 scale as above

1. _____ I feel that I am good at generating novel ideas.
2. _____ I have confidence in my ability to solve problems creatively.
3. _____ I have a knack for further developing the ideas of others.

Proactivity 1 to 7 scale as above

1. I am constantly on the lookout for new ways to improve my life.
2. Wherever I have been, I have been a powerful force for constructive change.
3. Nothing is more exciting than seeing my ideas turn into reality.
4. If I see something I don't like, I fix it.
5. No matter the odds, if I believe in something I will make it happen.
6. I love being a champion for my ideas, even against other people's opposition.
7. I excel at identifying opportunities.
8. I am always looking for better ways to do things.
9. If I believe in an idea, no obstacle will prevent me from making it happen.
10. I can spot a good opportunity long before others can.

Individual Innovation Behavior

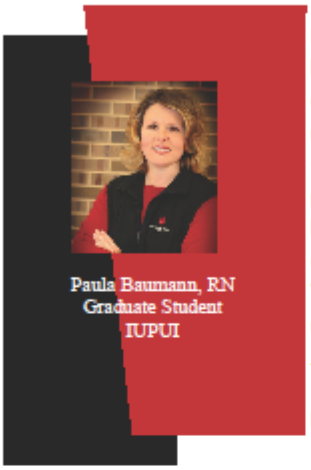
Please respond to each of the following statements by using the scale of numbers provided. Select the number that "best reflects" your opinion.

Never	Very rarely	Rarely	Neutral	Occasionally	Very Frequently	Always
1	2	3	4	5	6	7

1. _____ I participate in discussions regarding improvements at work.
2. _____ I discuss improvements at work with my colleagues.
3. _____ I like to work with issues related to improvements at work.
4. _____I create new ideas for difficult issues I encounter at work.
5. _____ I search out new working methods, techniques, or instruments to problems.
6. _____ I am able to generate original solutions to problems I encounter at work.
7. _____ I seek support from others for my innovative ideas.
8. _____ I seek approval for my innovative ideas to be used at work.
9. _____ My ideas have been implemented at my work.
10. _____ I get management excited about my ideas.
11. _____ I am able to take innovative ideas and make them useful to my work.
12. _____ I evaluate how valuable my ideas are to my workplace.

Additional comments:

Appendix D



Hello. My name is Paula Baumann and I am a graduate student in Nursing at IUPUI. I am collecting data for my research and would greatly appreciate your feedback for my study. I would like to learn more about nursing innovation and am asking for your input by filling out an online survey. It should take approximately 15 minutes to complete. By participating in the study once you have completed the survey you will be entered into a drawing with the chance to win one of four $25 online certificates to Amazon.com. I ask that you respond by March 28, 2010. Your participation will add to my data and aid in fulfilling my degree requirements. Thank you!

The survey is located on the web at:

http://www.iue.edu/ctl/survey/nurs_rns.htm T

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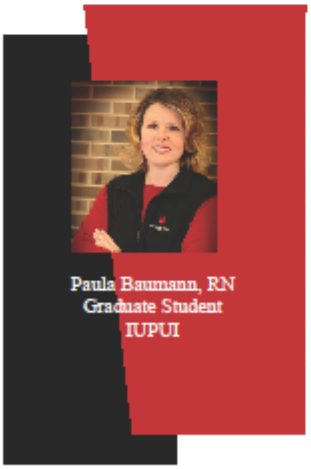

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CURRICULUM VITAE
PAULA KERLER BAUMANN

EDUCATION

Indiana University, Indianapolis, Indiana. PhD in Nursing, April 2011.
Ball State University, Muncie, Indiana. MBA, July 2003.
Miami University, Oxford, Ohio, BS in Nursing, May 1995.
Miami University, Oxford, Ohio, AS in Nursing, May 1994.

ACADEMIC APPOINTMENTS

Indiana University School of Nursing Indiana University East Richmond, Indiana	Lecturer	8/03 to present

CLINICAL APPOINTMENTS

Reid Hospital Education Department Richmond, Indiana	Consultant	8/07 to present
Reid Hospital Education Department Richmond, Indiana	RN Instructor Staff Nurse	4/98 to 8/07
Reid Hospital Home Services Richmond, Indiana	Staff Nurse	8/95 to 4/98
Richmond Healthcare Richmond, Indiana	Staff Nurse	4/95 to 8/95
McCullough-Hyde Memorial Hospital Oxford, Ohio	Staff Nurse	11/94 to 4/95
Westview Acres Care Center Eaton, Ohio	Staff Nurse	8/94 to 4/95

LICENSURE

Registered Nurse Licensure	Indiana Ohio

PROFESSIONAL SOCIETIES

ILN	2006-2010
ISNA	2007, 2008
Phi Kappa Phi	1994-present
National Nursing Staff Development Organization	1998-2003
Sigma Theta Tau International	1994-1999, 2007-present
Miami University Nursing Honor Society	1994

TEACHING ASSIGNMENTS

COURSE NAME	CREDIT HR	DIDACTIC or CLINICAL	SHORT TITLE	SEMESTER
B232	3	didactic	Intro to Nursing	Fall 2010
B233	4	didactic	Health and Wellness	Fall 2010
U101	2	didactic	First Year Seminar	Fall 2010
S473	2	clinical	Community Pract.	Fall 2010
S484	1	clinical	Research Utilization	Spring 2010
S483	3	clinical	Nursing Capstone	Spring 2010
S483	3	clinical	Nursing Capstone	Spring 2010
S473	2	clinical	RN/BSN Comm.	Summer 2010
S473	2	clinical	RN/BSN Comm.	Summer 2010
B232	3	didactic	Intro to Nursing	Fall 2009
B233	4	didactic	Health and Wellness	Fall 2009
U101	2	didactic	First Year Seminar	Fall 2009
S481	2	didactic	RN/BSN Mgmt.	Summer 2009
S482	2	clinical	RN/BSN Mgmt.	Summer 2009
S484	1	clinical	Research Utilization	Spring 2008

S483	3	clinical	Nursing Capstone	Spring 2008
S483	3	clinical	Nursing Capstone	Spring 2008
B233	4	didactic	Health and Wellness	Spring 2008
B232	3	didactic	Intro to Nursing	Fall 2008
B233	4	didactic	Health and Wellness	Fall 2008
S473	2	clinical	Community Pract.	Fall 2008
S473	2	clinical	RN/BSN Comm.	Summer 2008
S484	1	didactic	Research Utilization	Spring 2007
S483	3	clinical	Nursing Capstone	Spring 2007
B232	3	didactic	Intro to Nursing	Fall 2007
S473	2	clinical	Community Pract.	Fall 2007
A137	3	clinical	Appl. Sci & Tech	Fall 2006
A136	4	didactic	Science & Technology	Fall 2006
S483	3	clinical	Nursing Capstone	Spring 2006
S484	1	didactic	Research Utilization	Spring 2006
S484	1	didactic	Research Utilization	Spring 2006
S484	1	didactic	Research Utilization	Spring 2005
S483	3	clinical	Nursing Capstone	Spring 2005
A136	4	didactic	Science & Technology	Fall 2005
A137	3	clinical	Appl. Sci & Tech	Fall 2005
A136	4	didactic	Science & Technology	Fall 2004
A137	3	clinical	Appl. Sci & Tech	Fall 2004

S484	1	didactic	Research Utilization	Spring 2004
S483	3	clinical	Nursing Capstone	Spring 2004
S482	3	clinical	Nursing Management	Spring 2004
A136	4	didactic	Science & Technology	Fall 2003
A137	3	clinical	Appl. Sci & Tech	Fall 2003

SERVICE

University Committee Service

IU Health Advisory Committee	IU East	2010, 2011
Mindful Explorations	IU East	2010-present
MSN Curriculum Committee	IU East	2010-present
IU East Health Advisory Subcommittee	IU East	2010
First Year Seminar Faculty Committee	IU East	2009
NLNAC accreditation	IU East	2009
Search and Screen	IU East	2007-2009
Student Affairs	IU East	2004-present
Committee Chair	IU East	2009-present
Committee to Review salaries	IU East	2008-2010
OBR Survey participant	IU East	2008, 2009
Nurse Entrepreneur Conference Planning Committee	IUPUI	2006-2007
Nursing Gala	IU East	2004, 2006
Nursing Showcase	IU East	2004, 2006, 2007, 2009
Admission Progression Graduation Committee	IU East	2003-2004

IU East Faculty Senate	IU East	2003-present
NFC Committee	IU East	2003-present
CPR Committee	IU East	2003-present

Student Service

Faculty for Peer mentor in FYS course
Advised incoming pre-nursing students
Advisor to Bachelor nursing students- meet at least once per semester
Preceptor for Masters Student
Continuing student individual advising for test performance
Various informal counseling
Nurse Recruitment Day

Professional Service

ILN	2006-2011
ISNA	2007, 2008
Phi Kappa Phi	1994-present
National Nursing Staff Development Organization	1998-2003
Sigma Theta Tau International	2007-present

Community Service

St. Vincent DePaul Homeless Meal	2010
New Hope Soup Kitchen	2010
East Elementary PTA Fundraising Coordinator	2010, 2011
Bruce PTA Volunteer Coordinator	2009-present
Wayne County Career Day	2009
ANS Service project	2008-2010
School of Nursing Service Project Habitat for Humanity	2004-2006

East Elementary PTA Vice President	2006-2009
Scrips Coordinator	2008, 2010
Chair of playground fundraising campaign	2008, 2009
AHA BLS Instructor	1998-present
Delta Theta Tau Member	1997-present
Reid Hospital & Health Care Services Nursing Scope of Practice Committee	1999-2001

RESEARCH

Baumann, P. (2008). The Lived Experience of Nurse Entrepreneurs. Completed, 2008

Professional Activities
Presentations (Jury/External Review/Invitation)

Baumann, P. (2007). Unlocking your creativity. Nurse Entrepreneurship Conference, Indianapolis, IN.

Baumann, P. (2003). Central Lines, They're so Vein. Quest for Excellence Conference. Columbus, OH.

Baumann, P. (2003). Nursing in Uncertain Times: The Role of Entrepreneurship. Quest for Excellence Conference. Columbus, OH.

Baumann, P. (2003). Blood Administration. Quest for Excellence Conference. Columbus, OH.

Presentations

"IV Therapy," Reid Hospital, January and February, 2005.

"CPR Instructor Renewal," Reid Hospital, February, 2005.

"First Aid and CPR," Reid Hospital, May, 2004

"Blood Administration," Reid Hospital, July, 2003.

"Central Lines," Reid Hospital, July, 2003.

Student Projects and Presentations

"The cleanliness of high touch objects in patients' rooms and their relation to infection." Jessica Baxter, Amy Campbell, Danielle McCorkle, Amy Moloy, Sean Quinn, and Kelsey Talmadge, Nursing Scholarship Showcase, IU East, April 20, 2010.

"The Roots of Life." Jennifer J. Adams, Kisha A. Cain, Carrie S. Cook, Jessica M. Cooper, Leslie A. Jones, Annette K. Miller, and Machel D. Tipton, Nursing Scholarship Showcase, IU East, April 20, 2010.

"Strike a Chord: Music Therapy." Laura Beckley, Jennifer Clark, Melissa Fish, Kristin Kabowski, Amber May, and Amber Spurgin, Nursing Scholarship Showcase, IU East, April 21, 2009.

"Pulmonary irrigation: Best Practice?" Julie Ball, Dayna Conway, Tara Paul, and Dan Stuart, Nursing Scholarship Showcase, IU East, April 21, 2009.

"The effect of sound and light on the preterm infant." Dannika Allen, Amanda Edwards, Rebecca Spurlock and Derrick Stump, Nursing Scholarship Showcase, IU East, April 21, 2009.

"Generation Y Nurses: A Generational Conflict with Patient Care." Jennifer Bath, Terri Benjamin, Casey Fancil, and Jennifer Prescott, Nursing Scholarship Showcase, IU East, April 21, 2009.

"What sticks to your kicks?" Natalie Bastidas, Olivia Frasier, Amanda Julian, Carlee Linder, and Amanda Pyle, Nursing Scholarship Showcase, IU East, April 21, 2009.

"Patient Satisfaction: How relationship based care measures up." Kent Carfield, Susan Reece, Christal Whetsel, Rebekah Wood, Michelle Pace, and Ayren Thompson, Nursing Scholarship Showcase, IU East, April 10, 2007.

"Patient Satisfaction in the ED." Lance Pence, Samantha Klingel, Brooke Widner, Crystal Peck, and Lindsay Burns, Nursing Scholarship Showcase, IU East, April 10, 2007.

"Potential Complications of PICC versus Peripheral Line Placement by RNs." Jennifer Ingle, Kelli Fields, Sarah Lloyd, Leona Culvahouse, Erica Steele, and Laura Clevenger, Nursing Scholarship Showcase, IU East, April 10, 2007.

"Nursing Uniforms…Does it Affect the Perception of Quality of Care?" Shirley May, Kristin Wise, Miranda Jordan, and Heather Wierzbinski-Cross, Nursing Scholarship Showcase, IU East, April 10, 2007.

"Agency Staff and Its Effect on Patient Satisfaction." Ashley Schwegman, Lindsey Morrison, Angela Daugherty, Erin Harris, Rebekah Presson, and Betsy Vonderheide, Nursing Scholarship Showcase, IU East, April 10, 2007.

"TB Precautions." Angie Pepple, Tracey Goodart, Misha Wilson, Becca Zwiesler, Lindsay Stevens, and Jodi Emerson, Nursing Scholarship Showcase, IU East, April 10, 2007.

"Comparison of preparation sites for IV catheter placement." Steve Wilson, Brad Fowler, Adam Wilhelm, Dallas Heckley, and Danielle Sampley. Nursing Scholarship Showcase, IU East, April 18, 2006.

"Comparing methods of NG medication administration for effectiveness." Amy Ellen Truman, Jessica Hood, and Heather Hamilton. Nursing Scholarship Showcase, IU East, April 18, 2006.

"Magnet status and its effect on nurse satisfaction and retention." Brian Gilmore, Amie Jo Smith, Donna Gosnell, and Lori Lintz. Nursing Scholarship Showcase, IU East, April 18, 2006.

"Internal or external factors related to nurse retention rates." Trish Smith, Lori Yazel, and Joy Huddelson. Nursing Scholarship Showcase, IU East, April 18, 2006.

"Rapid Response Teams and its impact on patient outcomes." Natasha Bex, Olivia Taylor, Holly Monroe, and Danielle Wood. Nursing Scholarship Showcase, IU East, April 18, 2006.

"Comparison of Rectal and Temporal Temperatures." Stephanie Christian, Roxanne Roettger, Carrie Schmigdall, and Patricia Vanderpool. Nursing Scholarship Showcase, IU East, April 20, 2004.

"Mouth Care and Pneumonia in Ventilator Dependent Patients." Ben Fishback, Megan Stamps, Jessica Hensley, Beth Neubold, and Tony Myers. Nursing Scholarship Showcase, IU East, April 20, 2004.

"Pet Therapy and Mentation," Jackie Gabbard, Paul Moster, and Tammy Thalls. Nursing Scholarship Showcase, IU East, April 20, 2004.

"Checking NG Placement," Jennifer Wiist, Jennifer Kuhn, and Sherri Dinklage. Nursing Scholarship Showcase, IU East, April 20, 2004.

"Sterile versus Clean Technique in Wound Care," Kristen Bogue, Stacy Burdette, and Rhonda Centers., Nursing Scholarship Showcase, IU East, April 20, 2004.

Careers in Nursing to junior high students by Beth Neubold, Dave Terry, and Megan Stamps in collaboration with Nursing Recruitment, Rush County Schools, April 2004.

Continuing Education Courses Attended

CNE Workshop, Las Vegas, NV, September, 2010

NLN Conference, Las Vegas, NV, September, 2010

FYS Retreat, IU East, Richmond, IN, August 2009, May 2010

ATI training course, ATI, Indianapolis, IN, May 2009

Ohio Law, Ohio Board of Nursing, Online, April 2009

Determining your unique purpose in a nursing career, IU East, April 2009

Nursing Documentation and Limiting Liability, IU East, April 2009

Writing for Publication, Sigma Theta Tau, Cincinnati, OH, February 2008

Causes of Lawsuits, Reid Hospital, Richmond, IN, September 2007

Nurse Entrepreneurship Conference, Indiana School of Nursing, Indianapolis, IN, May 2007

Informatics 101 for Nursing Faculty, Indiana University, Richmond, IN February 2007

Quest for Excellence Conference, The Ohio State University, Columbus, OH September 2006

Nurse Entrepreneurship Conference, Indiana School of Nursing, Indianapolis, IN, February 2006

"Nursing Recruitment and Retention," Reid Hospital, Richmond, IN, November 2004

"Creative Teaching Techniques," TLC, IU East, Richmond, IN, 2004.

"Using SPSS," TLC, IU East, Richmond, IN, 2004.

"Using Oncourse," TLC, IU East, Richmond, IN, 2003

Grants, Fellowships, and Awards

IUPUI PhD research grant, 2009

Chancellor's Honor, 2006

ILN Scholarship award winner, 2006, 2007

Horizon Award Nominee, 2006, 2007

IUPUI Travel Fellowship, 2005, 2006, 2007

Baumann, P. (2003). "Complete Pain Assessment." Nursing Education Pain Symposium**,** Purdue Pharma. Unrestricted Grant.

Baumann, P. (2001). "Pain as the Fifth Vital Sign." Nursing Education Pain Symposium, Purdue Pharma. Unrestricted Grant.