RELATIONSHIPS AMONG VOLUNTARY SPECIALTY CERTIFICATION IN NURSING ROLE BREADTH SELF-EFFICACY, AND NURSES' USE OF PROACTIVE WORK BEHAVIORS

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ABSTRACT

CHARLENE HOLT WADE: Relationships among Voluntary Specialty Certification in Nursing, Role Breadth Self-efficacy, and Nurses’ Use of Proactive Work Behaviors (Under the direction of Dr. Donna S. Havens)

It is argued that specialty nurse certification is indicative of competence and contains healthcare costs by improved care and reduced errors. Little is known about the effect of certification, but it has been documented it increases nurses’ self-confidence. It is possible that the enhanced self-confidence or role-related self-efficacy described by nurses in previous studies may contribute to a more proactive and self-directed approach to practice that can be linked to better patient outcomes. Therefore, the purpose of this study was to describe the relationship between specialty certification and nurses’ use of proactive work behaviors and examine the effect of role-breadth self-efficacy as a motivational factor that mediates this relationship. This study provides the beginning evidence supporting investigations of proactive work behaviors as a factor contributing to improved patient outcomes. Guided by social cognitive theory of behavior that suggests humans interact with their personal and environment factors, is the foundation linking certification via proactive concepts to better patient outcomes.

This study was conducted using data collected from 2,500 randomly selected North Carolina registered nurses working at acute care hospitals. Nurses were asked how they rated themselves with regard to proactive work behaviors, work recognition, role
breadth self-efficacy, and having a proactive personality in addition to demographic information. All respondents’ answers were grouped by their certification status. Structure equation modeling was used to test the data according to the theoretical hypothesized statements. The results linked strong proactive personalities to proactive work behaviors; large amounts of work recognition predicts use of proactive work behaviors; that certified nurses have a stronger sense of role breadth self-efficacy; and current education level increases use of proactive work behaviors through increased role breadth self-efficacy derived from education.

These findings provide a first step towards determining which behaviors are associated with better patient outcomes. Nursing education has been one source of argumentative debate. My findings indicate that only a nurse’s current education level is statistically significant or the level of education a nurse had upon entering practice. My results indicate that specialty certification is equivalent to continuing education, increased proactive work behaviors and role breadth self-efficacy.
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It has been estimated that approximately 100,000 hospitalized patients die each year because of preventable medical errors (Kohn, Corrigan, & Donaldson, 2000). In the decade since this estimate was first reported, hospitals have been under increased pressure to improve both the quality and safety of healthcare in the United States. Improvements in these areas will need to address the complexity of the existing healthcare delivery system and the rapid evolution of changing treatment modalities, resulting from the introduction of innovative and highly sophisticated procedures, techniques, and equipment. At its most basic level, however, quality and safety depend on the qualifications and competence of healthcare providers. This is particularly true for nurses who are not only the largest group of providers but also the only group that maintains constant contact with patients during hospitalization.

State licensure provides external validation that nurses have acquired the knowledge needed to insure that the public is protected from malfeasance (Byrne, Valentine, & Carter, 2004). Yet, the licensure examination in nursing focuses on beginning competence at the generalist level even though many nurses make the transition to specialty practice early in their career. This trend, along with ongoing developments in health-related knowledge and technology, have resulted in questions about the use of a single entry-level examination as evidence of continuing competence throughout nurses’ career trajectory. Such questions have contributed to the growing popularity of specialty certification, which has been defined as “formal recognition of specialized knowledge, skills, and experience demonstrated by the achievement of standards that are identified by a nursing specialty to promote optimal health outcomes” (American Board of Nursing Specialties, 2005, p. 1). By 2008, in fact,
approximately 500,000 out of 2.9 million registered nurses (15 to 17% of all RNs in the United States) were certified in at least one specialty area (American Nurses Credentialing Center, 2009).

The growing popularity of specialty certification can be traced to several trends. In response to public demands for improved hospital quality and safety, many health care organizations now require, or at least strongly encourage, certification as a condition for initial employment or continued employment in a specialized area of practice. In fact, recent surveys of nurse administrators suggest that competency assessment and validation through voluntary specialty certification is highly valued in most practice settings (National Council of State Boards of Nursing, 1998; Stromborg, Niebuhr, & Prevost, 2005). Further, public demands for competent providers have led various healthcare disciplines to introduce post-entry level specialty certification. In nursing, for example, there are 67 professional nursing organizations that offer voluntary certification in 134 different specialties (American Association of Critical Care Nursing Certification Corporation, 2003). Based on growth in the number of organizations that offer certification and practicing nurses who are certified, specialty certification is now recognized as an expected step in nurses’ professional development (Frank-Stromborg et al., 2005; Styles, Schumann, Bickford, & White, 2008).

It has been argued that certification is indicative of competence in an area of specialized knowledge. Thus, certification has implications that might contain healthcare costs by improving quality of care and reducing errors that can be attributed to deficiencies in knowledge or clinical judgment (Ericsson, Whyte, & Ward, 2007; Frey, 1998; Jacobson & Winslow, 2005; Ung, Cook, Edwards, Hocking, Osmond, & Buttergweg, 2002). Additionally,
it has been suggested that certification increases nurses’ professional satisfaction (Anderson, Raudonis, & Kirschling, 1999).

Despite these presumed benefits, little is known about the effect of certification on patient outcomes. Although several studies have found that specialty certification increases nurses’ self-confidence (Wade, 2009), linking specialty certification in nursing to patient outcomes will first require evidence documenting the effect of specialty certification on the actual work behaviors used by specialty certified nurses in their practice. Organizational researchers argue that employees who have a strong sense of self-confidence or role-related self-efficacy are more likely to voluntarily engage in work behaviors that extend beyond ordinary job expectations (Crant, 1990; Parker, Mularkey, & Jackson, 1994). Therefore, it is possible that the enhanced self-confidence that specialty certified nurses have described in previous studies may contribute to a more proactive and self-directed approach to practice. This, in turn, may be linked to better patient outcomes.

Based on this argument, the purposes of this study will be to describe the relationship between specialty certification and nurses’ use of proactive work behaviors and examine the effect of role-breadth self-efficacy as a motivational factor that mediates this relationship. This study will provide beginning evidence to investigate how proactive work behaviors might contribute to improved patient outcomes.

**Background and Significance**

Role specialization can be traced to the guilds of the middle ages. It was during the late 19th and early 20th centuries that advances in scientific knowledge and development of new work technologies led to work specialization and, ultimately, the emergence of different disciplines and professions (Law & Kim, 2005). Historically, specialization was described as
beneficial in areas of work that expanded quickly and became too complex for one person to adequately master (Sclinaps & Sales, 1983). Segmenting work according to specialized skills and knowledge provided a way to insure efficient and effective job performance especially when work demands were complex, unpredictable, and required constant adjustments due to work exceptions (Styles et al., 2008).

Along with the benefits of role specialization, the presumed benefits of specialty certification have been well described in the nursing literature. In fact, much of the research on nursing certification has been conducted using qualitative methods to describe the benefits of certification as reported by certified nurses. In general, certified nurses describe improved patient outcomes as a primary benefit of certification. For instance, certified nurses have suggested that they are better able to manage patients’ pain, minimize avoidable adverse events, and prevent falls than are non-certified nurses (Byrne, 2005; Kendall-Gallagher & Blegen, 2009; Niebuhr & Biel, 2007). In addition, nurses have identified intrinsic rather than extrinsic rewards as the primary motivation for obtaining certification. Specifically, nurses have described specialty certification as a factor that fosters an enhanced sense of empowerment as well as greater self-confidence in their ability to effectively enact their role (Cary, 2001; Coleman et al., 1999; Gaberson, Schroeter, Killen, & Valentine, 2003; Grief, 2007). Furthermore, findings from other studies suggest that nurses identify greater job satisfaction as a benefit of certification (Frank-Stromberg et al., 2002; Smolenski, 2005; Tabari-Khomeirian, Kiger, Parsa-Yekta, & Ahmadi, 2007). Finally, from an organizational perspective, lower turnover and increased productivity at the unit level have been identified as benefits of specialty certification (Niebuhr & Biel, 2007; Sechrist, Valentine, & Berlin, 2006; Wade, 2009).
Despite these findings, the Nursing Certification and Competency Summit made it one of their essential goals to research links between specialty certification and improved patients’ outcomes. Conclusions from this summit suggested that the first priority in achieving this goal is to develop a better understanding of how specialty certification influences both the work processes and work behaviors through which nurses contribute to better patient outcomes. Exploring the “black box” in terms of work behaviors that certified nurses, in particular, use in their practice will provide a theoretically meaningful foundation for investigating patient outcomes that are associated with specialty certification in nursing.

**Theoretical Framework**

The theoretical framework for this study is based on Bandura’s (1977) Social Cognitive Theory of Behavior (SCTB). Central to this theory is the concept of self-efficacy, first introduced by Bandura in 1977. Bandura defines self-efficacy as “beliefs in one’s capability to organize and execute the courses of action that are required to manage prospective situations” (Bandura, 1997, p. 2). Bandura later incorporated self-efficacy into the social cognitive theory of human behavior, arguing that it, along with other socio-cognitive factors, allows individuals to self-regulate their behavior and, thus, shape the events and situations they encounter. In this section, the major premises of this theory will be summarized followed by an in-depth discussion of self-efficacy as the operant mechanism through which individuals self-regulate their behavior.

The underlying premise of SCTB is that humans do not simply react to their environment. Rather, human behavior is the result of a constant and dynamic interaction between personal and environmental factors. This interaction affects a person’s conscious intentions or goals (Bandura, 2001). Purposeful action results from a cognitive process of
self-reflection, self-evaluation, and self-regulation, which allows the individual to achieve a desired result by intentionally choosing and executing a course of action. In other words, the course of action is chosen based on a cognitive process in which people consider and make individual judgments about their knowledge, skills, and capabilities to successfully complete the course of action. Bandura uses the term agency to describe the intentional behaviors that individuals choose to enact based on this cognitive process (Bandura, 1997). To clarify, agency refers to the intentional actions themselves—not the process through which they are chosen. Agency also does not refer to an unintentional event resulting from intentional action. For example, Bandura would not consider the intentional action of spending a day at the beach as the agent resulting in a jellyfish sting. In other words, agency does not apply to actions that are performed with the intent of producing a desired outcome but result in something else.

In arguing that humans both shape and are shaped by their environment, Bandura offers a broader perspective of human behavior beyond that suggested by extant theories in the areas of behavioral and cognitive psychology. Behavioral theorists, for example, state that behaviors result from specific environmental stimuli and the outcomes that are experienced when responding to those stimuli. Cognitive theorists, on the other hand, emphasize the importance of cognition as a determining factor in the identification of intentional behaviors. These theorists identify self-efficacy as a product of cognitions that result from enactive mastery experiences and self-reflective changes. In SCTB, however, Bandura incorporates key concepts from both of these theoretical perspectives and further enlarges on these views by emphasizing vicarious, symbolic and self-regulating processes as primary factors in completing and reinforcing intentional behaviors. According to SCTB,
people can indirectly learn by observing the behaviors of others and the outcomes that occur in response to those behaviors. This allows people to foresee probable outcomes, set goals, and engage in intentional actions to achieve those goals. The result of this self-regulatory process is that people learn to be the agent of their own behavior. In SCTB, two important variables are seen as critical mediators of the relationships among environmental stimuli, behavioral responses to stimuli, behavioral outcomes, and subsequent behavior (Bandura, 1982; Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977). These variables are outcome expectancy, defined as the belief that a particular outcome will occur if a given behavior is enacted, and self-efficacy, defined as the belief that one has the capabilities to perform a particular task in a specific situation.

Bandura (1986) argues that the interaction among personal, cognitive, and environmental factors is a key determinant of human behavior. In turn, behaviors then play a critical role in shaping and modifying personal and environmental factors. A schematic representation of this triadic interaction is shown in Figure 1.1. Personal factors include cognitive, affective, and biological characteristics of individuals. Personal factors also can include attributes like socioeconomic status, educational background, and familial structure. These factors influence one’s ability to interpret information from the environment, self-regulate thoughts, feelings, and motivation, and purposively select the behavior that will be enacted. In like fashion, there is reciprocal interaction between behavior and the environment. Specifically, humans have the ability to recognize, interpret, and evaluate outcomes that are associated with their behavior. Thus, they are agents in altering their behavior to influence an outcome. If specific behaviors result in the desired outcome, these behaviors are reinforced. In contrast, when behaviors are associated with an undesirable
outcome, those behaviors are avoided in the future. Thus, researchers/theorists view human agency as the primary mechanism through which individuals make changes in their behavior and modify events in their environment (Pajares, 1997). The power to choose and enact intentional behavior is a key attribute of human agency, and human agency is strongly influenced by one’s sense of self-efficacy (Bandura, 1997). When individuals believe that their behavior can achieve a desired result and believe in their capability to perform the behavior in a specific situation, they are motivated to enact that behavior as well as repeat the behavior in the future. These beliefs influence the course of action that is chosen, the amount of effort that is exerted, and the extent to which perseverance is used so the desired outcome can be achieved.

Figure 1.1. Interaction of Personal (P), Behavioral (B), and Environmental (E) Factors Proposed in SCTB

Depending on the situation or event, these reciprocal interactions may or may not be of equal strength. In fact, the strength of these interactions will vary depending on the behavior, the situation, and the time it takes for an individual to react to the influence of personal and environmental factors. For example, an individual with diabetes may choose to eat an ice cream dessert at a dinner party. The peer pressure of watching everyone eating dessert, an environmental factor, may override consideration of the diabetes as a personal factor, resulting in the behavior. In this case, the magnitude of the interaction between an
environmental factor and the behavior exceeds the magnitude of the interaction between the personal factor and the behavior.

SCTB states that learning is a continuing process in which knowledge directs and motivates one’s behavior. People can exercise control over their behavior, but their behavior is also influenced by many other interacting factors. There is a functional dependence among and/or between events. Therefore, people can influence, but not necessary determine, the results of their intentional behavior (Bandura, 1997). Based on what people believe their capabilities are, intentional actions are generated to suit the situation. The outcome resulting from these behaviors may be delayed, which explains the variation that can be seen in the strength of the interactions among personal factors, environmental factors, and intentional behavior.

**Self-Efficacy**

Self-efficacy is a foundational concept in SCTB. Even though a person may know how to perform a specific task, Bandura argues that belief in one’s ability to successfully perform the task is critical to human behavior. Wood and Bandura (1989, p. 408) defined self-efficacy as “beliefs in one’s ability to mobilize the motivation and cognitive resources that are needed to complete the action that is needed to respond appropriately to situational demands.” Bandura (1997, p. 421) later revised this definition by describing self-efficacy as “people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives.” The second definition provides greater insight into self-efficacy as a critical component of human agency and as a central concept in SCTB. This definition also acknowledges the influential effect of self-efficacy during a
person’s lifetime rather than as an influential factor that is limited to a specific situation, time, or event.

The actual crux of self-efficacy theory is that an individual’s initiation of and persistence with an intentional behavior is determined by judgments and expectations regarding one’s behavioral skills or capabilities and the likelihood of successfully overcoming environmental obstacles. In turn, self-efficacy affects individuals’ perception of their capabilities. According to Bandura (1994), people with a strong sense of self-efficacy set higher goals for themselves and are more diligent in achieving them. Similarly, a strong sense of self-efficacy allows individuals to perceive difficulties as a challenge, recover more quickly from performance failures, and commit themselves to achieving goals. In contrast, people with limited self-efficacy experience doubt about their abilities and, thus, avoid tasks that are perceived as excessively difficult or challenging. In other words, people with limited self-efficacy tend to focus on personal deficiencies, have limited aspirations, and anticipate that their behavior will result in negative or undesirable outcomes.

Bandura (1982) identified enactive mastery, vicarious experience, verbal persuasion, and physiological arousal as the four sources of information through which self-efficacy beliefs are developed. Each of these sources of information will be discussed along with Bandura’s conceptualization of their theoretical linkage to self-efficacy.

Enactive mastery as a source of efficacy information is based on an individual’s actual mastery of a performance goal by overcoming obstacles through persistent effort. Since perceived self-efficacy derives from the individual’s interpretation of success, enactive mastery is considered to be the most powerful source of information through which self-efficacy beliefs develop. It has often been aligned with the concept of self-performance
because enhanced perceptions of success are associated with enhanced perceptions of self-efficacy. In contrast, self-efficacy beliefs erode when an individual engages in repeated but unsuccessful attempts to achieve a performance goal. The effect on self-efficacy resulting from subjectively interpreted failed attempts is especially pronounced when the failure cannot be attributed to lack of effort, situational obstacles, or adverse environmental conditions.

Studies have found that people who observe video replays in which they are able to successfully perform a task demonstrate significant improvements in both self-efficacy and task performance. These findings have been demonstrated even when editing has been used to omit missteps or the use of learning aids, suggesting that people tend to selectively recall successful performance attempts (Dowrick, 1983; Schunk & Hanson, 1989). These findings also suggest that competency attainment occurs over time as individuals subjectively perceive successful mastery of a task. In fact, self-efficacy increased even when setbacks were experienced as long as individuals perceived that their overall performance was improving. However, when a consistent decline in performance occurred following an interval of successful performance, individuals tended to view further performance improvement as unlikely and, thus, stopped their efforts to improve.

Vicarious experience or seeing others successfully perform a task also can be a source of efficacy information. The amount of time required to successfully master a skill may be reduced by first observing someone who successfully performs the task. This action raises an individual’s perception of their capabilities because it provides an opportunity to prejudge their abilities before making a performance attempt. Vicarious experience also allows individuals to identify strategies that can be used to effectively manage environmental
conditions that may affect task performance. Research suggests that seeing a role model successfully perform a difficult task typically raises the self-efficacy beliefs of the observer, especially if the role model is rewarded for the performance (Bandura, 1982; Cacioppo, Petty, & Losch, 1986; Gagne & Medsker, 1996). Vicarious experience can also occur through self-modeling in which one visualizes the self demonstrating successful task performance (Bandura, 1986; Corbin, 1972).

Gains in the level of self-efficacy acquired from vicarious experience are influenced by attention, retention, production, and motivation. Attention determines the components of the task that are selectively observed. Retention involves the cognitive process of transforming observations into rules and concepts that can be applied to new situations. Production refers to the ability to apply retained rules to produce new and perhaps more complex behaviors over time. Finally, motivation influences the behaviors that are enacted (Bandura, 1997). Specifically, motivation to perform a modeled behavior is enhanced when the outcome of the behavior is valued, personally satisfying, and provides a sense of self-worth (Bandura, 1997).

Verbal persuasion as a source of efficacy information can be defined as feedback that empowers people to believe that they possess the abilities and capabilities to achieve a performance goal. A classic example of verbal persuasion is the ability of a parent to verbally persuade a child to adopt new behaviors. Although the effect of this source of information on self-efficacy beliefs is weaker than that resulting from enacted mastery and vicarious experience, studies suggest that the effect of verbal persuasion is strengthened when individuals already believe, at least to some extent, that they can successfully achieve desired outcomes through their behaviors. If verbal persuasion is realistically believable and
communicated by someone who is valued by the receiver, studies suggest that it can influence skill development by fostering greater effort and persistence (Chambliss & Murray, 1979a, 1979b). However, when the individual’s self-efficacy beliefs are thought to be more relevant and accurate than are the opinions of others, verbal persuasion typically has a minimal effect on improving self-efficacy beliefs.

The final source of self-efficacy information, physiological arousal, comes from within the individual. Judgments about performance capabilities are determined, in part, through self-interpretation of one’s mood and physiological state of being. Stressful and particularly difficult situations cause an increase in heart rate, emotional arousal, and agitation. People with a record of successful performance are more likely to view such physiologic cues as energizing, whereas those who do not have such a record tend to view these cues as disruptive. In addition, mood can alter one’s attention span, which has implications for task performance and, in turn, self-efficacy beliefs. Along with this, a positive mood induces thoughts of past successes while a negative mood induces memories of past failures (Bandura, 1997). As such, physiological arousal can play an important role in how one’s perception of self-efficacy in a given situation is perceived and interpreted which, in turn, can influence the decision to undertake challenging tasks (Wright & Mischel, 1982).

Mood and physiological state can influence evaluative judgments about the ability to successfully achieve a performance goal. For this reason, assigning a different interpretation to one’s mood and physiological state can be useful in modifying one’s evaluation of performance capabilities. Schwartz & Clore (1988), for example, found that modifying the interpretation assigned to physiological cues is useful in situations when people rely on their
affective state as a basis for judgments about their capability to engage in intentional behaviors (Petrovich, 2004).

Regardless of the source, efficacy information only becomes useful when the individual can cognitively process it. Each source of information must be integrated and the relevance of the information must be judged so cues can be identified that will allow the individual to determine the potential for performance success. As such, any of the sources of efficacy information can be instrumental in raising or lowering self-efficacy beliefs. Because of the close association of behavior to the level of self-efficacy, self-efficacy is a strong predictor of behavior. It is important to note that self-efficacy refers to individuals’ judgment about their capabilities to successfully perform a given task in a specific situation. When individuals feel capable, they are more likely to embrace performance goals, persist when faced with obstacles (Lent, Brown, & Larkin, 1987), and cope more effectively with change (Hill, Smith, & Mann, 1987). For these reasons, self-efficacy is recognized as an important motivational construct that contributes to the explanation of human behavior (Gist & Mitchell, 1992).

**Comparison of Self-Efficacy with Other Concepts**

Appropriate measurement of self-efficacy depends on conceptual clarity, making it necessary to understand distinctions between self-efficacy and other similar but different concepts. For example, self-efficacy shares a number of common features with concepts like general self-confidence, self-esteem, self-concept, perceived competence (Deci, 1980), personal efficacy (Gurin & Brim, 1984), and personal agency (Ford, 1992). The major similarity between self-efficacy and these concepts is that they are all recognized as social cognitive factors that capture perceptions about one’s thought, beliefs, motives, and
capabilities. The major difference between these concepts is that self-efficacy is defined as individuals’ perceived capabilities to attain a designated level of performance and achieve a specific result (Pajares, 1997). For this reason, self-efficacy beliefs tend to focus on a specific task that is performed in a specific situation and are directly related to achievement of a desired goal (Bandura, 1989; Schunk, 1991). On the other hand, other similar concepts typically represent personality traits that are stable over time and more global because they focus on perceptions that are relevant across multiple diverse tasks and situations (Pajares, 1997).

**General Self-Confidence**

General self-confidence often is used interchangeably with self-efficacy even though they differ in definition, theoretical support, and construct composition (Cramer, Neal, & Brodsky, 2009). According to Bandura ((1982) and others (Ferguson, 1996), self-confidence is trust in one’s abilities, qualities and judgment which creates the perception that one can successfully perform a variety of tasks in a variety of situations and, in general, make things happen. As such, self-confidence differs from Bandura’s conceptualization of self-efficacy because it is not restricted to the performance of a specific task in a specific situation (Bandura, 1997; Zulkosky, 2009).

While self-efficacy is grounded in SCTB and supported by considerable empirical research, self-confidence is not linked to a specific theory that explains the mechanism through which people engage in intentional actions. In fact, theoretical conceptualizations of self-confidence generally do not address the differences between voluntary or intentional behaviors and involuntary behaviors. Further, despite limited consensus in the definition of general self-confidence, there is agreement that self-confidence reflects an enduring belief
about the self that may or may not be based on one’s past behavioral performance. In contrast, self-efficacy beliefs represent behavioral perceptions that are based on both successful performances in the past as well as prospective judgments about one’s performance capability before a task is attempted. Further, self-efficacy beliefs focus on specific tasks that people believe they can perform in a given situation rather than tasks that people believe they can perform in any or all situations (Gist & Mitchell, 1992; Parker, Wall, & Cordery, 2001).

**Self Esteem and Self-Concept**

Differences between self-esteem, self-concept, and self-efficacy have been a source of confusion in the literature for many years. Self-esteem refers to “an individual’s affective evaluation of the self” (Parker, 1998, p. 836). As such, self-esteem is closely tied to one’s evaluation of self-worth. As with general self-confidence, the distinction between self-concept and self-efficacy lies in the role of context-specific assessment of one’s ability to perform a task in a specific situation (Pajares, 1997). Also, self-esteem, like general self-confidence, is seen as an individual personality trait that is relatively stable over time (Brockner, 1988; Wood & Bandura, 1989) while self-efficacy beliefs can change over time and, more importantly, can be modified through training (Bandura 1977; Gist, 1989; Schwoerer & Rosen, 1989). Bandura (1977) addresses the distinction between these concepts by arguing that people can have increased self-efficacy resulting from their ability to successfully perform a given task even though that task does not contribute to the perception of self-worth. On the other hand, self-esteem can be enhanced when an individual successfully performs a task that others find difficult while self-efficacy in terms of the ability to perform similar tasks in different situations can remain low.
Perceived Competence

Humans adapt to life challenges by developing a variety of competencies that require differing levels of knowledge and skills. Perceived competence is a slightly different form of self-concept in that it is acquired through natural endowment (talents that one is born with), sociocultural experiences, and life circumstances that “alter the course of developmental trajectories” (Bandura, 1997, p. 36). Each of these factors is linked to different but distinct areas of human functioning. People perceive themselves as competent when they feel that they are able to achieve important outcomes. However, perceived performance does not enhance sense of capability in terms of performance expectations. Self-efficacy is concerned with the judgments about what can be done with the knowledge and skills that an individual possesses.

Unlike self-efficacy, general self-confidence, self-worth, self-esteem, and perceived competence typically are assessed using global measures that do not provide the level of specificity that is needed to predict intentional behavior in specific situations. According to Bandura (1997), self-efficacy beliefs can fluctuate depending on the difficulty of the task as well as the environmental context in which the task is performed. For example, assessment of one’s capability to drive a car can contribute to perceived competence when past attempts to drive have been successful. Beliefs about one’s capability to drive may fluctuate, however, when road or weather conditions change (Bandura, 1992).

Personal Efficacy

Personal efficacy is a component of self-efficacy and the core mechanism of human agency (Bandura, 2000). Defining each term separately provides a clearer understanding of not only their meaning but the similarities they share. Personal refers to an attribute uniquely
particular to the individual. Efficacy is the power to achieve a desired goal. The following is an example of how these words, when combined, can be used. Graduate students with high personal efficacy believe that they control what they learn based on their abilities to apply effort and achieve a goal. It is a generalized belief in one’s own efforts or capabilities to control desired outcomes as opposed to a belief in luck or the effect of powerful others. A strong sense of personal efficacy is vital for successful adaptation to change (Bandura, 1995). This is important because self-efficacy is a dynamic construct that changes over time as new knowledge and experiences are obtained.

**Personal Agency**

Personal agency is specifically defined by Bandura (1997) in terms of intentional behavior. As with all intentional behavior, specific outcomes are expected to result from the performance of these behaviors. Three sources of personal agency are described in SCTB: individual, proxy, and collective agency. Each of these sources is embedded in the belief that one can exercise control over the events and situations that are encountered. The individual as the source of personal agency is seen when one directly controls or influences some aspect of the environment through his/her own intentional behavior. When environmental or situational events are not amenable to individual control, however, the use of a proxy can be a source of personal agency. Personal agency through a proxy occurs when an individual enlists the help of another who, unlike the individual, is perceived to have the capability to control or influence environmental conditions through intentional behavior (Bandura, 2006). Finally, collectives can be a source of personal agency when a group of individuals pool their abilities, skills, and resources to achieve outcomes that cannot be achieved by a single
individual. In this case, the group’s shared beliefs in their collective capabilities are the foundation of personal agency.

**Integration of Self-Efficacy with Employee Work Behaviors**

Studies to investigate self-efficacy can be grouped into two broad categories: academic self-efficacy in terms of beliefs about one’s capacity to learn and work-related self-efficacy in terms of beliefs about one’s capacity to perform a job. Consistent with the purpose of this study, the following discussion will focus on work-related self-efficacy and job performance.

Bandura’s conceptualization of self-efficacy suggests that the motivation to engage in intentional behaviors is based on an individual’s belief in his/her capability to perform such behaviors successfully as well as the expectation that the behaviors will result in desired outcomes. Consistent with this conceptualization, organizational theorists recognize self-efficacy as an important factor that influences employee job performance. However, efforts to understand the relationship between self-efficacy and job performance require consideration of two major types of performance behaviors: in-role and extra-role behaviors (Lee & Ko, 2010). In-role behaviors refer to job-related behaviors that are required by the organization. These behaviors are codified in the formal job description and used by the organization to evaluate employee job performance. Extra-role behaviors, on the other hand, go beyond expected job requirements to include behaviors that are voluntarily initiated by an employee who has developed an enlarged understanding of his/her role in the organization, meaning that some employees intentionally engage in behaviors that they believe are relevant to their role but are not required or expected by the organization. Such behaviors can include taking a proactive approach to work by anticipating and acting to avoid potential problems.
(Crant, 1990), using personal initiative to promote positive workplace change (Frese & Fay, 2001), and voluntarily engaging in behaviors that directly contribute to the attainment of organizational goals (Morrison & Phelps, 1999).

In the past, organizational researchers focused on self-efficacy in terms of in-role rather than extra-role behaviors (Barling & Beattie, 1983). For this reason, limited attention was given to the full range of behaviors that may be associated with effective job performance, especially in service organizations like hospitals where frontline employees must respond to dynamic and unpredictable work demands (Campbell, McCoy, Oppler, & Sager, 1993; Murphy & Jackson, 1999). Unlike in-role behaviors, extra-role behaviors are not directly identified as a requirement of the job but, rather, are voluntarily proffered by an employee in response to an expanded conceptualization of one’s role in the organization. Because extra-role behaviors extend beyond job expectations, it is probable that self-efficacy is insufficient to explain the mechanism through which efficacy beliefs motivate intentional behaviors that go beyond role boundaries as defined by the organization. In response to this argument, Parker (1998) introduced the notion of role-breadth self-efficacy (RBSE) to explain the link between efficacy beliefs and the motivation to engage in a wide range of “integrative, proactive and interpersonal activities” that go beyond defined job tasks (Parker & Sprigg, 1999, p. 928). Specifically, Parker (1998, p. 835) defined RBSE as “employees’ perceived capability of carrying out a broader and more proactive set of work tasks that extend beyond prescribed technical requirements.”

Two specific processes have been suggested to explain the link between RBSE and the performance of proactive work behaviors. The first process is based on a deliberate decision-making approach in which an employee assesses the work situation to determine the
possible outcomes that might result from the use of proactive work behaviors. This decision-making approach is similar to that described in Vroom’s (1964) expectancy theory where an individual calculates the possibility of success by weighing the risks of acting against potential benefits. Parker, Williams, and Turner (2006) extended beyond Vroom’s theory by suggesting that the decision to engage in proactive work behaviors is influenced by the level of RBSE. According to this argument, individuals will be motivated to engage in proactive work behaviors when they believe they have the capacity to perform the behavior (RBSE), believe that the behavior will allow them to control the situation (control appraisal), and are willing to accept the risk of negative consequences that may result from the behavior (change orientation). The second process is based on the motivation to engage in proactive work behaviors either for the purpose of achieving a specific goal or for the purpose of fulfilling one’s role-related responsibilities. Parker (1998) argues that employees who have a strong sense of RBSE tend to have a sense of felt responsibility or psychological ownership of the work that motivates them to engage in proactive behaviors.

Drawing from Bandura’s self-efficacy theory and the role of self-efficacy in work motivation, Parker and colleagues (2006) have studied both individual personality attributes as well as attributes of the work environment as possible antecedents of proactive work behaviors. Specifically, a proactive personality, flexible role orientation, job autonomy, and RBSE have been significantly associated with employee performance of proactive work behaviors. Additionally, this research team also identified these factors as cognitive motivational variables that mediate the relationship between individual and work environment factors and proactive behaviors. Along with Parker, other researchers have
linked RBSE with proactive work behaviors (Griffin, Neal, & Parker, 2007) and a willingness to make suggestions to improve work situations (Axtell et al., 2000).

The importance of RBSE to the performance of extra-role behaviors is critical. Because these behaviors extend beyond those that are expected by the organization, they can be seen as high-risk behaviors that can result in negative consequences for an employee. While employees can defend their performance of in-role behaviors because these behaviors are codified in the formal job description, the performance of extra-role behaviors, which are voluntarily initiated by the employee, must be justified based on one’s knowledge and judgment. As such, the organization may or may not condone the use of extra-role behaviors by an employee and may or may not impose sanctions when these behaviors are enacted.

It is possible that specialty certification may contribute to nurses’ self-confidence in their knowledge and clinical judgment, thus increasing the level of perceived RBSE. In turn, RBSE may increase certified nurses’ willingness to voluntarily engage in an expanded set of work behaviors that go beyond expected job requirements. As such, certified nurses may differ from non-certified nurses in their willingness to openly challenge the status quo, persevere until patient care goals have been achieved, use their initiative to anticipate and resolve impending patient problems, and make independent patient care decisions (Crant, 2000). For this reason, it can be argued that RBSE may mediate the relationship between specialty certification and the performance of proactive workplace behaviors.

Chapter Summary

In this chapter, the need to investigate the effect of specialty nursing certification on patient outcomes was described. Before such research can be conducted, however, it is important to develop a theoretically meaningful understanding of the link between specialty
certification in nursing and the work behaviors that certified nurses’ use in their practice to achieve desired patient outcomes. Bandura’s social cognitive behavioral theory and his conceptualization of self-efficacy as a motivational factor influencing one’s decision to engage in an intentional behavior is an appropriate theoretical framework for understanding this linkage. Drawing from this theoretical framework, the proposed relationships among specialty nursing certification, RBSE, and the performance of extra-role behaviors were presented. In Chapter 2, an integrative review of the research literature on work related self-efficacy, role-breadth self-efficacy and proactive work behaviors will be presented. Based on this review, the research model for this study will be introduced along with identification of the research hypotheses that will be tested in this study.
CHAPTER 2
LITERATURE REVIEW

Although the behavior of people in organizations has been a consistent theme in the organizational literature since the early 1900s, ideas about employee work behaviors that result in effective job performance have evolved over time. In the early 1900s, organizational theorists described work behaviors in terms of narrowly defined work roles, rigidly structured task activities, and limited or no employee involvement in decision-making. By the end of the 1900s, however, the perspective of employee work behaviors radically shifted to one in which work is now recognized as complex and rapidly changing, requiring broadly defined work roles, flexibly structured task activities, and considerable employee involvement in decision-making (Schooler, Mulatu, & Oates, 1999).

Chapter 2 begins with a historical overview of key theoretical perspectives about employee work behaviors and effective job performance. Following this discussion, a review of the literature focusing on positive employee behaviors is presented with specific emphasis on research related to proactive behaviors and variables that have been linked to these behaviors. Consistent with the model that will be tested in this study, a synthesis of the research literature addressing antecedents of proactive work behaviors in terms of proactive personality and specialty certification, as individual employee attributes, and recognition of specialty certification, as a workplace or contextual attribute, is presented. Chapter 2 concludes with a discussion of role-breadth self-efficacy (RBSE) as a potential mediator of the relationship between voluntary specialty certification and employee proactive work behaviors. The research model that will be tested in this study is shown in Figure 2.1.
Methodology for the Integrative Literature Review

A literature search was completed using Academic Search Premier, Business Source Premier, JSTOR, and the American Psychological Association’s PsycINFO databases to identify articles published within the last 25 years that address variables that are relevant to this study. This time interval was chosen because literature addressing employee proactively can be traced to the early 1990s. The following search terms were used to identify sources for this integrative review: employee proactive behaviors, employee proactivity, proactive personality, workplace recognition and rewards, employee self-efficacy, and employee role breadth self-efficacy. Self-efficacy has been extensively researched in the organizational, educational, and health care literatures. Consistent with the purpose of this study, this review was limited to employee self-efficacy rather than academic self-efficacy or self-efficacy among patient populations. Similarly, a literature review using MEDLINE was conducted to access literature on voluntary specialty certification in nursing. Terms guiding this search included certification, specialty certification, and nursing certification. Literature addressing advanced practice certification and mandatory certification in areas like basic cardiac life support and the performance of specific skills like IV therapy or administration of chemotherapy drugs, for example, were excluded. Finally, a manual archival strategy was used to identify citations listed in the references selected from the computer searches to identify additional sources.

Evolution of Employee Work Behaviors as an Organizational Concept

Widespread interest in employee work behaviors and effective job performance was an outgrowth of the Industrial Revolution, which resulted in the shift from home-based production of custom-made to factory-based mass production of goods that could be
distributed to large segments of the population. With the shift from work completed by the
family unit to work completed by a collective group of workers, employee work behaviors
became a central concern of organizational researchers. By the end of the 19th century,
classical organizational theory emphasizing job simplification, first introduced by Adam
Smith in 1775, and division of labor, first introduced by Charles Babbage in 1832, gained
popularity as ways to insure efficiency and productivity while limiting costs through the use
of a less skilled and cheaper workforce. In 1911, Fredrick Taylor expanded these ideas using
principles of scientific management to break work tasks into discrete steps which were
sequenced to maximize employee efficiency and, thus, productivity. The most widely
recognized application of these principles was the introduction of the assembly line by Henry
Ford in 1914. Although job simplification and scientific management increased productivity
and efficiency, they also emphasized hierarchical lines of authority, centralized decision-
making, use of rules and regulations to control employee work behaviors, and a clear
distinction between managers and employees (Perrow, 1967). In particular, these
perspectives fostered the perception of employees as interchangeable entities who were
expected to follow detailed procedures that outlined the single best way to perform work
tasks. As such, decision-making by employees and employee discretion were seen as
counterproductive to the achievement of organizational goals (Parker, Wall, & Cordery,
2001; Scott, 2004; Shafritz & Ott, 1992). In fact, classical organizational theorists’ argued
that employees were not supposed to think on the job but, rather, follow directions without
exception (Dunn, 2010).

By the mid-1930s, job simplification and scientific management came under scrutiny
as having potentially negative effects on the physical, psychological, and mental well being
of employees because they resulted in work that was repetitive, boring, and tiring. In 1938, Chester Barnard proposed a new theory in which emphasis was placed on groups within organizations, upward communication, and delegation of authority. Barnard’s work was followed by publication of findings from the Hawthorne study, conducted from 1924 to 1933 by Eliot Mayo at the Western Electric Company plant called Hawthorne Works. The purpose of Mayo’s research was to determine the effect of work conditions (alterations in lighting) on employee productivity. Although Mayo failed to demonstrate that these work conditions were associated with changes in productivity, he found that work behaviors were influenced not only by organizational control mechanisms but also by the interactions among employees and their work environment. As a result, organizational theorists began to take a more humanistic approach, leading to the development of the human relations theory of organizations that emphasized communication and cooperation among informal groups, individual and group interaction, shared norms, and social relationships as factors that influence employee work behaviors (Docherty, Surles, & Donovan, 2001; Scott, 2003).

Based on the assumption that productivity is enhanced when the personal needs of employees are met, human relations theorists introduced numerous concepts like employee motivation and morale, person-environment fit, job satisfaction, and interpersonal dynamics as psychosocial factors that influence work behaviors (Rossetti, n. d.).

As organizations became more diverse and complex in the years following World War II, theorists gave increasing attention to the importance of adequate alignment between the work itself and structural attributes of organizations as well as ways in which work could be designed to achieve effective employee performance. Unlike scientific management that was based on the premise that there is one best way to structure work activities,
organizational theorists in the late 1950s and early 1960s argued the opposite premise by suggesting that there is no single best way to structure work in an organization. Structural contingency theory, first described by Lawrence and Lorsch in 1967, was based on the premise that some structural forms are preferred in some organizations but are counterproductive in others, meaning that one approach to the structure of work can result in optimal performance in one setting but have no effect or even reduce performance in another setting (Pennings, 1975). Structural contingency theorists argued that decisions about structural attributes like centralization, formalization, standardization, and decision-making authority should be based on the type of work that is performed by the organization. Over the years, structural contingency theorists identified a plethora of work characteristics that can be used to guide decisions about organizational structure. For example, Perrow (1967) introduced task variety and task analyzability as key work characteristics that should determine how work is structured. Perrow defined task variety as the extent to which work activities are routine, repetitive, and programmable and task analyzability as the number of work exceptions that are encountered during task completion and the extent to which problem-solving can be used to resolve these exceptions. Other characteristics identified by structural contingency theorists included technological complexity, (Woodward, 1965), task predictability (Tushman, 1979; Van de Ven & Delbecq, 1974), task variability (Litwak, 1961), task routineness (March & Simon, 1958), task programmability (Simon, 1960), and task difficulty (Perrow, 1967). Drawing from these characteristics, structural contingency theorists argued that, when work is routine and predictable, structural attributes like formalization of rules and policies, standardized procedures, and centralization of authority can be used to insure effective job performance. However, in organizations where work is
unpredictable, highly variable, and requires complex problem solving, structural attributes like horizontal coordination, decision-making latitude, and employee discretion are needed to insure effective performance.

Paralleling the work of structural contingency theorists, other researchers explored relationships among job characteristics and employee work behaviors and work-related attitudes. Hackman and Oldman (1976) introduced the first job design theory called the Job Characteristics Model. This theory focused on job characteristics thought to be associated with employee affective (for example, job commitment and job satisfaction) and behavioral (for example, job performance, absenteeism, turnover) outcomes. Specifically, these theorists recognized meaningfulness of the work (skill variety, task identity, and task significance), experienced responsibility (autonomy), and knowledge of results (feedback) as characteristics that promote employee job satisfaction and motivation, and ultimately, improve job performance. Other work design theories expanded on the Job Characteristics Model by focusing on relationships among job characteristics and employees’ physical, psychological, and emotional health and well being. For example, Karasek (1979) introduced the demand-control theory based on the premise that when an imbalance exists between job demands (time pressure, workload, and cognitive demands) and job control (decision latitude and skill discretion), employees experience psychological strain which can be detrimental to health and well being. Similarly Demerouti, Bakker, Nachreiner, and Schaufeli (2001) introduced the Job Demands-Resources Model, arguing that employee’s psychological responses to their work depended on a balance between work demands and availability of resources needed to meet those demands. Among the job resources identified in this theory, employee participation in decision-making and autonomy were specifically
identified. This theory suggests that high work demands coupled with low control contribute to negative psychological responses like disengagement and burnout. In contrast, a balance between job demands and resources contribute to positive responses like greater affective commitment and psychological engagement.

Although structural contingency and work design theories approach the explanation of employee work behaviors from different perspectives, they are similar in two important ways. First, unlike classical organization theory where employees were viewed as passive participants in the employer-employee relationship, these theories recognize the importance of employee participation in decision-making, decision latitude, and autonomy, especially when the work is complex, unpredictable, and variable as is the case in health care organizations. Similar to classical organizational theory, however, these theories also are based on the assumption that employee attitudes and behaviors can be manipulated by modifying the structural, task, and environmental features of the work setting to match key characteristics of the work itself.

In response to the rapidly increasing pace of change in organizations as well as the shift from manufacturing to service and knowledge-based organizations, theorists began to advocate for a revisionist perspective of employee attitudes and behaviors. Criticizing previous theories for their emphasis on negative concepts like stress, fatigue, psychological strain, and burnout, these theorists argued for greater emphasis on positive concepts like employee vigor, enthusiasm, work engagement, self-efficacy and self-confidence, and their potential for improving job performance (Luthans, 2002). Several streams of research consistent with this revisionist perspective can be found in the organizational literature. First, Organ (1988) introduced the idea of organizational citizenship behaviors, arguing that
effective employee performance depends on both in-role or organizationally defined behaviors and extra-role or voluntary behaviors that are proffered by the employee as a way to contribute to the “maintenance and enhancement of the social and psychological context that supports task performance” (Organ, 1988, p 91). Second, other theorists added a relational perspective to traditional work design theories that emphasizes the social context in which work is completed and interdependent relationships that influence employee behaviors (Grant, 2007; Humphrey, Nahrgang, & Morgeson, 2007). Finally, other researchers contributed a proactive perspective to traditional work design theories, arguing that employees not only are shaped by their role in the organization but also have the capacity to actively shape their role by voluntarily taking the initiative to create changes in how work is completed (Grant & Ashford, 2008; Grant, Parker, & Collins, 2009). Although these three perspectives differ in their theoretical emphasis, each is based on the assumption that employees are not passive participants in the employee-employer relationship who simply complete assigned tasks as instructed but, rather, actively participate in shaping work tasks, roles, and the environment of an organization. In so doing, employee proactivity is thought to be an important determinant of organizational effectiveness, especially in settings like hospitals where the work is complex, unpredictable, and uncertain (Bateman & Crant, 1999; Frese, Fay, Hilburger, Leng, & Tag, 1997; Frese, Kring, Soose, & Zempel, 1996).

**Employee Proactivity**

Employee proactivity can be defined as an active and self-starting approach to work in which employees go beyond formal job requirements to enact their role in the organization in the best way possible (Crant, 2000; Frese et al., 1997; Parker, Bindl, & Strauss, 2010). Proactive employees bring a sense of vigor, enthusiasm, and commitment to their work that
is both self-motivating and a source of motivation for others. To date, research on employee proactiveness has followed a phenomenon-driven or inductive approach to knowledge development in which researchers have focused on isolated behaviors and attitudes that are thought to represent proactivity (Grant & Ashford, 2008). Proactive employees have been described as individuals who are self-starters, act on their own initiative, persist in achieving goals, persevere in bringing about change, and demonstrate single-mindedness in their efforts to achieve worthwhile goals. Proactive employees challenge the status quo, suggest constructive and positive changes to work procedures and organizational processes, take charge to effect change in how work is completed, taken anticipatory action to prevent work-related problems, flexibly adapt to a wide range of work situations, and create and implement innovative ideas (Bakeman & Crant, 1993; Chiaburu, Baker, & Pitariu, 2006; Crant, 1995; Frese & Fay, 2001; Morrison & Phelps, 1999; Ohly & Fritz, 2007; Parker, 1998, 2000; Parker & Collins, 2010; Parker et al., 1994; Warr & Fay, 2001).

There are several common themes that can be identified from the behaviors and attitudes that are used to describe employee proactivity. First, proactive employees are self-motivated, meaning that they complete job requirements independently with little supervision or external guidance. Second, these employees are goal-directed, meaning that they actively modify existing work conditions to maximize job performance. Third, they are future-oriented, meaning that they anticipate potential problems and act to prevent those problems from developing. Finally, they readily adapt to changing circumstances and promote or initiate creative change, meaning they actively seek to improve work methods and organizational processes.
In general, efforts to develop a theoretical explanation of employee proactivity have focused on the way employees proactively define and enact their role in the organization. There is emerging consensus that proactive employees create, shape, and alter the work they perform in response to their own understanding of the definition and boundaries of their role. Staw and Boettger (1990) were among the first to provide a theoretical explanation for work activities that go beyond standard job expectations. These researchers introduced the idea of task revision which they defined as “taking action to correct a faulty procedure, an inaccurate job description, or a role expectation that is dysfunctional for the organization” (Staw & Boettger, 1990, p. 534). According to Staw and Boettger (1990), employees can comply with established, though faulty, routines, or they can challenge and revise flawed routines in order to perform their job well. Differing markedly from the perspectives of prior theorists who suggested that employees passively comply with organizationally defined roles expectations, this argument has provided the foundation for continued development of a theoretically sound explanation of employee proactivity.

Along with task revision, the theoretical explanation of employee proactivity has been expanded to include the notion of flexible role orientations. Role orientations can be defined as the self-constructed boundaries of one’s work role in terms of cognitive, task, and relational components of the job that the employee sees as relevant to the way they complete work activities (Parker et al., 1997; Saks & Ashforth, 1996; Wrzesniewski & Dutton, 2001). Employees with inflexible or narrow role orientations tend to define their role in terms of meeting formal job expectations, doing as they are told, and complying with standardized job requirements. In contrast, those with flexible role orientations shape their role according to personal values and beliefs about the importance of the work in defining their self-identity.
Wrzesniewski and Dutton (2001), for example, use the term job crafting to describe how flexible role orientations are used to create and interpret one’s work in ways that are meaningful and relevant to the individual. The use of flexible role orientations to create a work role that is meaningful to the individual contributes to a sense of personal responsibility for and ownership of the work. Such employees are motivated to accept extra tasks and assignments, accept organizational problems as their responsibility, and recognize the importance of being proactive which, ultimately, result in increased work engagement, organizational commitment, and employee productivity (Axtell et al., 2000; Campbell, 2000; Howell & Boies, 2004; Ilgen & Hollenbeck, 1991; Parker et al., 1997; Speier & Frese, 1997).

Research on Employee Proactive Work Behaviors

Research on employee proactivity can be broadly grouped into three major areas of inquiry: work attitudes and employee proactivity, variables that predict the use of proactive work behaviors, and outcomes that can be attributed to proactive work behaviors. Each of these areas of inquiry will be addressed in the following sections.

Work Attitudes and Proactive Work Behaviors

Four employee attitudes have been studied in relation to proactive work behaviors: work engagement, organizational commitment, affective job commitment, and intrinsic motivation. The relationship between employee work engagement and use of proactive work behaviors has been studied most frequently. Studies indicate that higher work engagement is associated with greater use of personal initiative, specifically, and proactive work behaviors in general (Binnewiess, Ohly, & Sonnentag, 2007; Hakanen, Perhaniem, & Toppinen-Tamar, 2008; Sonnetag, 2003). In contrast, equivocal results have been documented from studies to investigate the relationships among organizational commitment, affective job commitment,
intrinsic motivation, and the use of proactive work behaviors. Hertog and Belschak (2007) found a positive relationship between organizational commitment and employee proactivity, measured as the use of personal initiative. However, Parker et al. (2006) were unable to demonstrate a relationship between affective job commitment and the use of general proactive work behaviors. Similarly, Ohly and Fritz (2007) did not find a relationship between employees’ level of intrinsic motivation and the use of proactive work behaviors.

**Antecedents of Proactive Work Behaviors**

Proactive personality has been the most frequently studied predictor of proactive behaviors and the predictor that has yielded the most consistently positive relationship with proactive work behaviors. Because proactive personality is specified as a predictor variable in the research model for this study, research addressing proactive personality will be discussed in a separate section of this literature review. Remaining variables studied as predictors of proactive work behaviors can be grouped into two categories: individual employee characteristics and job-related characteristics.

**Individual Characteristics.** With the exception of proactive personality, self-efficacy has been the most frequently studied predictor of proactive work behaviors. Several studies have documented a positive relationship between general self-efficacy and the use of proactive work behaviors (Bledow & Frese, 2009; Mitchell, Hopper, Daniels, George-Falvy, & James, 1994; Morrison & Phelps, 1999). However, no relationship was reported in the only study that was found in which job-related self efficacy and proactive work behaviors, measured as the number of voluntary employee suggestions, were investigated (Ohly, Sonnetag, & Pluntke, 2006). Other researchers have documented positive relationships between proactive work behaviors and such individual characteristics as positive self image
(Lyons, 2008), responsiveness to change (Hornung & Rousseau, 2007), strong goal orientation (Parker & Collins, 2010), and conscientiousness (Parker & Collins, 2010). In contrast, studies have found that female employees who are older (Warr & Fay, 2001) and employees who identify themselves as conservative (Fay & Frese, 2001) are less likely to engage in proactive work behaviors.

**Job Characteristics.** Numerous job characteristics have been studied as possible predictors of proactive work behaviors. Not surprisingly, the job characteristic that has been studied most frequently is autonomy or job control. Although Ohly & Fritz (2007) found no relationship between job autonomy and proactive work behaviors when measured as the number of voluntary suggestions offered by employees, other studies have found that greater autonomy and job control are associated with increased use of proactive work behaviors (Frese et al., 1996; Frese, Teng, & Wijnen, 1991; Hertog & Belschak, 2007; Hornung & Rousseau, 2007; Lyons, 2008; Ohly & Fritz, 2007; Parker, et al., 2006; Wrzesniewski & Dutton, 2001). Further, Salanova and Schaufeli (2008) found that work engagement moderated the relationship between job control and proactive work behaviors. In other words, employees who worked in settings that provided greater job control were more likely to use proactive work behaviors when they also reported higher levels of work engagement. Other researchers have examined work characteristics that are associated with the use of proactive work behaviors. Studies suggest that task variety (Salanova & Schaufel, 2008), task routineness (Ohly et al., 2006), work complexity (Frese et al., 1996; Rank, Carsten, Unger, & Spector; 2007; Wrzesniewski & Dutton, 2001), work demands (Fay & Sonnentag, 2002), and time pressure (Fay & Sonnentag, 2002) are positively associated with the use of proactive work behaviors in general, and, in particular, personal initiative. Finally, efforts to
document a relationship between amount of supervision or supervisory support and use of proactive work behaviors have met with limited success. While Parker et al. (2006) found no relationship between supervisory support and employees’ use of proactive work behaviors, both (Ohly, et al., 2006) and Lyons (2008) found that less supervision was associated with greater use of proactive work behaviors. Leadership qualities of supervisors in terms of creating and sustaining a vision of excellence in the workplace (Griffin, Parker, & Mason, 2010) and giving regular performance feedback (Salanova & Schaufeli, 2008) have been identified as characteristics that are associated with increased use of proactive work behaviors by employees.

**Proactive Work Behaviors and Outcomes**

In comparison to the identification of antecedents of proactive work behaviors, limited research has been done to describe outcomes that are associated with the use of these behaviors. Grant and Ashford (2008) argue that the limited investigation of outcomes can be attributed problems associated with measuring outcomes that can be directly linked to the job performance of individual employees.

Researchers who have studied outcomes associated with employee proactivity have focused primarily on job performance. Employee proactivity has been linked to objective measures of job performance like increased sales (Crant, 1995; Grant, 2007; Mitchell et al, 1994; Pitt, Ewing, & Berthon, 2002; Porath & Bateman, 2006), positive customer service ratings (Kirkman & Rosen, 1999), and positive supervisor performance ratings (Parker, 2007; Parker et al., 1994; Parker & Wall, 1998). Employee proactivity also has been linked to career success (Seibert, Crant, & Kraimer, 1999), job and career satisfaction (Seibert et al., 1999; Kirkman & Rosen, 1999), innovation (Kickul & Gundry, 2002; Parker, 1998; Seibert
et al., 1999, leadership and entrepreneurial behaviors (Becherer & Maurer, 1999; Crant, 1996; Deluga, 1998), and membership in continuous improvement groups (Parker, 1998). At the team level, proactive work behaviors have been linked to increased team empowerment, team performance, and team commitment (Kirkman & Rosen, 1999; van Dam, Oreg, & Schyns, 2008).

**Research on Proactive Personality**

Proactive personality has been the most frequently studied concept in the literature on employee proactivity. Bateman and Crant (1993) first introduced the concept of proactive personality by arguing that people are differentially predisposed to behave proactively. In other words, some people tend to show initiative, take action, and persevere to create environmental change while others tend to be passive, adapt to environmental circumstances, and rely on others to create change. Bateman and Crant (1993) defined proactive personality as a relatively stable and enduring personality trait that predisposes an individual to engage in proactive behaviors. These researchers operationalized this concept as the extent to which a person discerns opportunities for change, shows personal initiative, takes action, and perseveres to make constructive changes in their work and/or the organization.

Because proactive personality is defined as the demonstration of proactive behaviors, research in this area has been primarily focused on identifying behaviors that are thought to result from a proactive personality. For this reason, it is difficult to draw clear distinctions between the research focused on antecedents and outcomes associated with proactive personality and those associated with proactive behaviors (Chan, 2006; Crant & Bateman, 2000; Grant & Ashford, 2008; Parker & Sprigg, 1999; Seibert et al., 1999; Seibert et al., 2001; Thompson, 2005).
A variety of individual attributes have been investigated as antecedent variables that are associated with proactive personality. Positive relationships have been documented between proactive personality and individual attributes as creativity (Kim, Hon, & Crant, 2009), work and life satisfaction (Chan, 2006; Greguras & Diefendorff, 2010; Kim et al., 2009; Ng, Eby, Sorensen, & Feldman, 2005), work and career self-efficacy (Fugate, Kiniki, & Ashforth, 2004; McArdle, Waters, Briscoe, & Hall, 2007), role breadth self-efficacy (Parker & Sprigg, 1999), intrinsic and extrinsic motivation (Erdogan & Bauer, 2005; Joo & Lim, 2009), need for positive achievement and goal attainment (Bateman & Crant, 1993; Greguras & Diefendorff, 2010), ability to set long-term learning goals (Karaevli & Hall, 2006), and entrepreneurial intentions (Becherer & Mauer, 1999; Crant, 1996).

Studies also have been conducted to identify behavioral outcomes that are associated with proactive personality. Findings have linked proactive personality to the use of innovative behaviors (Bateman & Crant, 1993; Seibert et al, 2001), increased adaptability to new work situations (Chan & Schmidt, 2000), organizational commitment (Chan, 2006; Joo & Lim, 2009) and objective indicators of job performance like supervisor ratings, promotions, and salary increases (Chan, 2006; Crant, 1995; Fuller, Hester, & Cox, 2010; Gerhardt, Ashenbaum, & Newman, 2009; Grant & Ashford, 2008; Thompson, 2005). Finally, other researchers have investigated variables that either mediate or moderate these relationships. For example, Bateman & Crant (1993) found that strategic orientation of the organization mediated the relationship between proactive personality and organizational flexibility or responsiveness to change. Chan (2006), on the other hand, found that situational judgment moderated the relationship among proactive personality, job satisfaction, and organizational
commitment. In other words, the relationship among proactive personality, job satisfaction, and organizational commitment depended on employees’ evaluation of the work situation. Similarly, Joo and Lim (2009) found that the learning culture of an organization moderated the relationship between proactive personality and organizational commitment. Finally, studies have consistently documented that the relationship between proactive personality and the use of proactive behaviors is mediated by role breadth self-efficacy (Axtell & Parker, 2003; Crant, 2000; Parker, 1998, 2000; Parker et al., 2006; Parker & Collins, 2010).

Studies also have found that people with a strong proactive personality are more likely to be involved in improvement groups or extracurricular activities aimed at creating constructive organizational change (Bateman & Crant, 1993; Major, Turner, & Fletcher, 2006; Parker, 1998), actively pursue opportunities to learn new skills and knowledge that enhance competence (Major et al., 2006; Siebert et al., 2001; VandeWalle & Cummings, 1997), participate in professional development opportunities, and identify and act on opportunities that promote career success (Arthur & Rousseau, 1996; Erdogan & Bauer, 2005; Fuller & Marler, 2009; Hall, 2004; Mihail, 2008; Seibert et al., 1999; Seibert et al., 2001). Finally, because employees with a strong proactive personality are motivated to assume responsibility for future-oriented work changes and improvements, researchers have argued that these individuals choose, create, and influence opportunities to enhance career success (Kim et al., 2009; Seibert et al., 2001; Thompson, 2005).

In the Social Cognitive Theory of Behavior, Bandura identified interactions among personal, cognitive, and environmental factors as key determinants of human behavior. In particular, personal factors are thought to influence one’s ability to interpret information from the environment, self-regulate thoughts, feelings, and motivation, and purposively
select the behaviors that will be enacted. Based on this theoretical premise and evidence documenting a consistent relationship between proactive personality and the use of proactive behaviors, the following hypothesis was proposed.

**Hypothesis 1**

Nurses with a strong proactive personality will be more likely to engage in proactive work behaviors.

Similarly, consistent with the research literature suggesting that people who possess a proactive personality are more likely to engage in career development activities, the following hypothesis was proposed.

**Hypothesis 2**

Nurses with a strong proactive personality will be more likely to pursue voluntary specialty certification in nursing.

**Research on Voluntary Specialty Certification in Nursing**

Although several quantitative studies on voluntary specialty certification in nursing have been published recently, most of the research on this topic has been conducted using qualitative inquiry. In general, qualitative studies have been done to identify factors that motivate nurses to become certified and benefits that are perceived to result from achieving certification. In this section, findings from these qualitative studies will be discussed first followed by findings from the few quantitative studies that have been reported in the nursing literature.

Although extrinsic factors like increased pay and career advancement opportunities have been identified as sources of motivation for becoming certified, most studies suggest that nurses are intrinsically motivated to seek specialty certification (Bekemeier, 2007, Byrne...
et al., 2004; Cary, 2001; Coleman et al., 1999; Foley, Kee, Minick, Harvey, & Jennings, 2002; Gaberson et al., 2003; Niebuhr, 1994; Piazza, Donahue, Dykes, Griffin, & Fitzpatrick, 2006; Stromborg et al., 2005; Wynd, 2003). Specifically, nurses have described specialty certification as giving them a greater sense of empowerment and self-confidence in their nursing role (Cary, 2001; Coleman et al., 1999; Faherty, 1991; Gaberson et al., 2003; Grief, 2007; Piazza et al., 2006). Nurses also have reported that certification provides external validation of their knowledge and competence in a specialized area of practice (American Board of Nursing Specialties, 2006). Although Ferguson (1996) suggested that such validation contributes to an increased sense of self-esteem and self-efficacy in one’s ability to perform successfully in a variety of situations, no quantitative studies were found in which linkages among these variables have been described.

Certified nurses identify improved patient outcomes as a primary benefit of becoming certified. In fact, certified nurses describe themselves as better able to manage patients’ pain, minimize avoidable adverse events, and prevent falls compared to non-certified nurses (Anderson et al., 1999; Byrne et al., 2004; Cary, 2001; Coleman et al., 1999; Gaberson et al., 2003). In addition, greater job satisfaction has been identified as a benefit of certification (Frank-Stromberg et al., 2002; Smolenski, 2005; Tabari-Khomeiran et al., 2007). From an organizational perspective, lower turnover and increased productivity at the unit level also have been identified as benefits of specialty certification (Niebuhr & Biel, 2007; Sechrist et al., 2006; Wade, 2009).

Quantitative studies have focused primarily on examining variables that are associated with certification. Linkages have been documented between certification and knowledge of practice guidelines (Zulkowski, Ayello, & Wexler, 2007), participation in
continuing education and professional organizations (Coleman et al., 1999), role
development (Cary, 2001; Gaberson et al., 2003; Manojlovich & DeCicco, 2007; Niebuhr &
Biel, 2007; Sechrist et al., 2006; Smolenski, 2005; Stromborg et al., 2005), and leadership
ability (Cary, 2001; Gaberson et al., 2003; Manojlovich & DeCicco, 2007; McNeese-Smith,
1995, 1999; Niebuhr & Biel, 2007; Sechrist et al., 2006; Smolenski, 2005; Stromborg et al.,
2005).

Studies to investigate the presumed benefits of specialty certification in terms of
objectively measured patient outcomes are limited, and the findings have been disappointing
(Nelson et al., 2007; Niebuhr, 1994; Redd & Alexander, 1997; Wynd, 2003). One of the
major obstacles to this type of research has been the problem of differentiating care that is
provided by certified as opposed to non-certified nurses. In an effort to address this problem,
Frank-Stromborg et al. (2002) collected data at a home care agency by dividing patients into
two groups, those who received care from oncology certified nurses and those who received
care from non-certified nurses. Based on data obtained through retrospective chart audits, no
differences were found in adequacy of pain management, level of fatigue, incidence of
adverse medication events, rate of infections or pressure ulcers, and unplanned home visits or
hospital admissions between these groups. In contrast, Kendall-Gallagher and Blegen (2009)
compared patient outcomes according to the number of certified nurses among the unit-level
nursing staff in 48 intensive care units and found that units with a higher proportion of
certified nurses had a lower rate of patient falls.

In the Social Cognitive Theory of Behavior (Bandura, 1982), enactive mastery is
identified as a source of information through which self-efficacy beliefs develop. Enactive
mastery is based on an individual’s actual mastery of a performance goal. Since perceived
self-efficacy derives from successful performance, enactive mastery is considered to be the most powerful source of information through which self-efficacy beliefs develop. Self-efficacy, in turn, is recognized as an important motivational construct that contributes to the explanation of human behavior. Achieving specialty certification in nursing can be seen as a form of enactive mastery that increases one’s sense of self-efficacy and, thus, fosters successful job performance. Consistent with this argument and research literature suggesting that nurses who achieve specialty certification feel a stronger sense of empowerment and self-confidence as a nurse, the following hypothesis is proposed.

**Hypothesis 3**

Specialty certified nurses will report greater use of proactive work behaviors in their practice than will non-certified nurses.

**Research on Workplace Recognition of Certification**

Workplace recognition can be defined as a constructive response that reflects a judgment about an employee’s contributions not only in terms of job performance but also in terms of dedication, work engagement, and achievement of professional accomplishments that are consistent with the mission and goals of the organization (Brun & Dugas, 2008). Although a comprehensive theoretical framework for understanding employee recognition has not been described in the organizational literature, several theoretical perspectives have been used to explain the underlying mechanisms that support the value of employee recognition (Long & Shields, 2010). In particular, theoretical support for non-monetary recognition can be traced to Skinner’s (1969) behavioral reinforcement theory and Bandura’s (1986) Social Cognitive Theory of Behavior, both of which argue that behaviors are likely to be repeated when they are recognized and rewarded. Similarly, Maslow’s (1943) need
fulfillment theory has been used to explain the influence of non-monetary recognition on human behavior based on the argument that all humans have an innate desire to be recognized for their accomplishments. Herzberg’s (1966) theory of motivation also has been used to suggest that recognition is linked to employee motivation, with monetary rewards seen as an extrinsic source of motivation and non-monetary rewards seen as an intrinsic source of motivation. Finally, the behavioral outlook perspective argues that human behavior is strongly influenced by its consequences in terms of effort and reward (Long & Shields, 2010). The recognition described in this perspective is seen as most congruent with employer recognition for certification because it is conditional in nature, meaning that it is a posteriori recognition of behaviors that are directly tied to the mission and goals of the organization.

Although employee recognition has not been widely researched in the organizational literature, studies suggest that it is linked to higher employee motivation, affective commitment, organizational involvement, job satisfaction, job enjoyment, retention, perceptions of organizational support, diligence, and the use of innovative and creative work behaviors (Appelbaum & Kamal, 2000; Brun & Dugas, 2008; Eisenberger & Rhoades, 2001; Janssen & van Yperen, 2000; Long & Shields, 2010; Savoie, 1993; Wayne, Shore, Bommer, & Tetrick, 2002; van Vegchel, de Jonge, Bakker, & Schaufeli, 2002). Defining organizational involvement as a psychological bond that encourages work role behaviors that extend beyond the employee’s job description, Romzek (1985) found that employees who received recognition for this type of behavior reported a greater sense of organizational involvement and the magnitude of this relationship was stronger for professional than for clerical or technical employees. Of particular relevance to this study, relationships also have
been documented between employer recognition and increased employee self-esteem, self-confidence, and perceived competence. According to Brun and Dugas (2008), employees who are recognized for their expertise, skills, and professional qualifications report higher self-esteem and a stronger sense of personal competence. Similarly, van Vegchel et al. (2002) found that recognition was associated with increased self-esteem and the motivation to put extra effort into the job. According to these researchers, recognition sends a message to employees that they are seen as competent. Similarly, Wayne et al. (2002) argued that recognition serves as a symbol of acknowledgement and appreciation and is a powerful source of feedback that enforces employee perceptions that they make a positive contribution to the organization and can be trusted to act in the best interests of the organization.

Much of the nursing literature on recognition and certification can be described as opinion articles about the importance of employer recognition of certification. Only 11 quantitative studies were found in which employer recognition and specialty certification in nursing were investigated. Three studies identified the extent to which staff nurses receive recognition and the types of recognition they see as most meaningful. In a study of 239 nurses working at 16 randomly selected hospitals, Goode et al. (1993) found that 44% of the sample reported that they received recognition through verbal feedback and 42% reported that this recognition was provided by their head nurse. Only 6% of the nurses in this study said they received recognition for certification, with twice as many nurses employed in medium and large hospitals who reported recognition for certification when compared to nurses employed in small hospitals. Two studies identified types of recognition that are seen as most meaningful to staff nurses (Blegen, Goode, Johnson, Maas, McCloskey, & Moorhead, 1992; Cronin & Becherer, 1999). In both studies, monetary rewards were
identified as the recognition that is most meaning, with verbal feedback, job feedback, and paid days off to attend workshops among the top five most meaningful types of recognition.

Several studies have investigated the relationship between employer recognition for certification and nurse outcomes. Goode and Blegen (1993) developed a unit-based intervention focused on recognition for competent performance, outstanding performance, and achievements like gaining specialty certification. In an evaluation of this intervention in the obstetrics and gynecology division of a single hospital, these researchers found that staff nurses who received frequent recognition were more satisfied with their job and more likely to stay at their job when compared with staff nurses who received infrequent recognition. Further, the pre-intervention vacancy rate on the obstetrics and gynecology division was 8-10% with a post-intervention rate of only 2-4%. Similar results have been reported by others who found that employer recognition is associated with greater job satisfaction (Blegen et al., 1992; Irvine & Evans, 1995; Larsen, 1993; McNeese-Smith, 1997) and intent to stay at work (Joshua-Amdi, 2003; Sourdif, 2004). Finally, in a study of 206 Jordanian staff nurses, Abualrub and Al-Zaru (2008) found that staff nurses who received frequent recognition reported lower job stress and were more likely to stay on the job. More importantly, recognition for personal achievements buffered the effect of job stress on intention to stay. In other words, as job stress increased, employees who received recognition for personal achievements were more likely to remain on the job when compared to nurses who received less recognition for personal achievements.

Based on the theoretical premise that behavior is influenced by its consequences in terms of effort and reward and research evidence suggesting that recognition for certification
is associated with increased employee self-esteem, self-confidence, and perceived competence, the following hypotheses were proposed.

**Hypothesis 4**

Nurses will be more likely to pursue specialty certification when they work in a setting where voluntary specialty certification in nursing is recognized.

**Hypothesis 5**

Specialty certified nurses who work in a setting where they are recognized for achieving voluntary specialty certification in nursing will be more likely to engage in proactive work behaviors.

**Research on Role Breath Self-Efficacy (RBSE)**

Role breadth self-efficacy refers to one’s perceived capability to carry out an array of work activities that extend beyond core tasks that are included in a formal job description. The RBSE concept has been identified as both a characteristic of a proactive personality as well as a motivational state that predicts proactive work behaviors (Crant, 2000; Gist & Mitchell, 1992; Griffin et al., 2007; Parker, 1998). However proactive personality reflects a stable trait and RBSE is considered to be malleable since it changes in response to alterations in the work environment and one’s organizational experiences. For this reason, there is general consensus that proactive personality and RBSE should be conceptualized as separate and distinct predictors of proactive work behaviors.

Role breadth self-efficacy (RBSE) was introduced by Parker (1998), who argued that increasingly complex and changing organizational environments require skilled employees who have the ability and confidence to expand their work roles to include behaviors that go beyond ordinary job requirements. As such, RBSE extends Bandera’s conceptualization of
self-efficacy from the capacity to successfully perform specific tasks to the capacity to successfully perform a work role based a broader and more proactive perspective of the role itself. Variables identified as antecedents of RBSE include membership in professional or improvement groups (Axtell & Parker, 2003; Crant, 2000; Parker, 1998), task control and breadth of work role training (Axtell & Parker, 2003), self-confidence (Strauss, Griffen, & Rafferty, 2009), predisposition to innovation and creativity (Nauta, van Vianen, van der Heijden, van Dam, & Willemsen, 2009), and employment in a work setting that supports autonomy (Hornung & Rousseau, 2007; Nauta et al., 2009; Pajares & Urdan, 2006; Parker, 2007; Parker et al., 2006).

A variable can be defined as a mediator when it accounts for a predictor-outcome relationship. According to Baron and Kenny (1986), a mediator provides insight into the internal psychological process that explains an independent and dependent variable relationship. In numerous studies, RSBE has been identified as a mediator of the relationship between employee characteristics (skill and responsiveness to change, for example) and job performance (Axtell & Parker, 2003; Galperin, 2005; Judge, Jackson, Shaw, Scott, & Rich, 2007; McAllister, Kandar, Morrison, & Turban, 2007; Morgeson et al., 2005; Nauta et al., 2009; Parker, 1998, 2000). Of particular relevance to this study, RSBE has been identified as a mediator of the relationships among employee autonomy and co-worker trust as independent variables and the use of proactive work behaviors as the dependent variable (Parker et al., 2006). RBSE also has been found to mediate the relationship between employee receptiveness to change and job satisfaction (Parker, 2000).

According to Bandura (1982), enactive mastery is identified as a source of information through which self-efficacy beliefs develop. Achieving specialty certification in
nursing can be seen as a form of enactive mastery that not only increases one’s sense of general self-efficacy but also one’s sense of role-breadth self-efficacy. Consistent with this argument, the following hypothesis is proposed.

**Hypothesis 6**

Nurses who are specialty certified will report a stronger sense of role-breadth self-efficacy than will non-certified nurses.

In the Social Cognitive Theory of Behavior (Bandura, 1982), self-efficacy, seen as a motivational factor, plays an important role in the willingness of an individual to embrace performance goals, persist when faced with obstacles, and effectively cope with change. Based on this argument and the research literature suggesting that RBSE mediates the relationship between antecedent variables and the use of proactive work behaviors, the following hypothesis was proposed.

**Hypothesis 7**

RBSE will mediate the relationship between specialty certification in nursing and the use of proactive work behaviors.

**Chapter Summary**

Chapter 2 began with an historical overview of employee work behaviors, including employee proactivity. A synthesis of the literature addressing the variables in the research model developed for this study (proactive personality, specialty certification, employer recognition of certification, RBSE, and proactive work behaviors) was presented. This chapter concluded with a discussion of role-breadth self-efficacy (RBSE) as a potential mediator of the proposed relationships between individual and contextual attributes and use of proactive work behaviors. As an emerging body of research in the organizational
literature, there are gaps in terms of understanding factors that are associated with the use of proactive work behaviors among nurses as well as other health care providers. In Chapter 3, the proposed methodology for testing the research model in this study will be addressed.
Figure 2.1

Theoretical Model: **Relationships Among Specialty Nurse Certification, Role Breadth, Self-Efficacy, and Work Role Behaviors**

- **Proactive Personality**
- **Specialty Nurse Certification**
- **Role Breadth**
- **Performace of Proactive Work Behaviors**

Control Variables:
- Entry into Nursing Practice Education
- Age
- RN Experience

Hypotheses:
- Hypothesis 1:+
- Hypothesis 2:*
- Hypothesis 3:*
- Hypothesis 4:*
- Hypothesis 5:*
- Hypothesis 6:*
- Hypothesis 7:***+
CHAPTER 3

METHODOLOGY

The first purpose of this study was to test a theoretical model describing relationships among the independent variables of proactive personality and specialty certification as individual nurse attributes, recognition of specialty certification as a workplace or contextual attribute, and the use of proactive work behaviors by nurses as the dependent variable. The second purpose was to investigate role-breadth self-efficacy as a possible mediator of the relationship between voluntary specialty certification and nurses’ use of proactive work behaviors. In this chapter, the research design is described along with the target population and sample for this study. Following this discussion, the instruments used to measure the study variables are presented. This chapter concludes with a discussion of the procedures used to collect data for this study and the statistical analyses that were performed to analyze the data. In particular, rationale for the use of structural equation modeling (SEM) to test the research model, underlying assumptions of the statistical model, and the approach for addressing missing data are described. Finally, indices used to evaluate fit of the research model to the data are reviewed and a priori values that indicate adequate fit are specified.

Research Design

This non-experimental study was conducted using a cross-sectional survey design. The study is non-experimental because it did not involve manipulation of an independent variable, use of a control group, or random assignment to groups, characteristics that are recognized as defining attributes of an experimental study (Belli, 2009). A cross-sectional survey design was chosen because this design requires data collection at only one time point!
one time point, is well suited to data collection when the sample is geographically
dispersed, and is adequate for preliminary examination of the research questions in this
study.

Target Population and Sample

The target population was all individuals who were licensed by the North
Carolina Board of Nursing (NCBON) to practice as registered nurses (RNs) in 2011. The
sample for this study was individuals who were randomly selected from a list of licensed
RNs who were employed in North Carolina and agreed to complete and return a mailed
questionnaire. The sample was restricted to RNs who were direct care providers working
in a non-advanced practice role and employed in an acute care hospital. For this study,
acute care hospitals were defined as “critical access, cancer, specialty medical/surgical
(surgical, women’s, cardiac, orthopedic, etc.), children’s, federal, or state hospitals that
provide acute care services (American Hospital Association, 2009, p. 3). Acute care
hospitals were chosen because these settings employ the largest number of nurses with
voluntary specialty certification.

After receiving approval from the Institutional Review Board, Office of Human
Research Ethics at University of North Carolina at Chapel Hill, names and mailing
addresses from the electronic database maintained by the North Carolina Board of
Nursing (NCBON) were purchased. The NCBON database included the names of all
nurses who were licensed to practice as a RN in North Carolina in 2011. The NCBON
database includes fields for employment status (full or part-time and employed in or
outside of North Carolina), employment setting (i.e., hospital-in patient, hospital-
outpatient, home care/hospice, public clinic or health department, mental health facility,
student health, occupational health, school of nursing, and private duty), area of practice (medical-surgical, critical care, perioperative, obstetrics and gynecology, emergency care, public/community health, geriatrics, pediatrics), and practice position (administrator, supervisor, instructor, head nurse, staff/general duty). These fields were used to restrict the list of names to RNs who met the following eligibility criteria: RNs working in North Carolina (employment status), employed in an in-patient hospital (employment setting), working in medical-surgical, critical care; obstetrics and gynecology, perioperative, emergency care, or pediatrics (area of practice), and practicing as a staff or general duty nurse (practice position). Nurses working in a hospital-based psychiatric, rehabilitation, skilled nursing, observation, day surgery, or ambulatory care unit were excluded because these units differ from other units in patient acuity, work complexity, use of technology, and work demands, factors that could influence the extent to which nurses engage in proactive work behaviors. Additionally, relatively few nurses have voluntary specialty certification in these areas of hospital practice.

There were 112,918 licensed RNs in North Carolina in 2011, with 47,953 of these employed in an acute care hospital (NCBON, 2011). Based on the inclusion criteria for this study, 43,710 RNs were eligible to participate (NCBON, 2011). Of these eligible nurses, the names and mailing addresses of 2,000 randomly selected RNs were purchased from the NCBON.

Because the NCBON database does not provide information about the voluntary certification status of RNs in North Carolina, mailing lists also were purchased from electronic databases maintained by professional organizations that provide specialty certification. Three professional nursing organizations, Association of Peri-Operative
Registered Nurses (which provides AORN certification), Emergency Nursing Association (ENA) (which provides CEN certification) and Oncology Nursing Society (ONS) (which provides OCN certification) were contacted with a request to purchase their mailing list of certified nurses. A purchase approval was granted by ENA and ONS. The Association of Peri-Operative Registered Nurses, however, failed to respond to the purchase request in an appropriate length of time. Therefore, names and mailing addresses of RNs licensed in North Carolina who were CEN certified (n = 825) or OCN certified in 2011 (n = 823) were purchased. When matched with the names and mailing addresses obtained from the NCBON, the total number of possible respondents was 3,648. Items were included on the study questionnaire asking all participants if they were employed in an acute care hospital (yes/no), employed in a management or staff nurse position, and employed full-time, part-time, or on occasional status. This step was taken to insure that all participants, regardless of the electronic database from which their names were drawn, met the criteria for this study.

Several approaches were used to estimate the needed sample size for this study. Kline (2005) recommends that less complex path models have a ratio of 20 subjects for each free parameter in the model. Based on the research model for this study, which included seven parameters, an estimated sample size of 280 subjects (140 non-certified and 140 certified nurses) was identified. However, increasing the sample size can increase power and reduce sampling errors (Kline, 2005). Therefore, a statistical power analysis also was calculated. In the power analysis, probability of a Type II error was reduced by specifying an alpha level at .05 with a power at .80 (Cohen (1988; Kline, 2005; Maxwell & Delaney, 2004). The recommended sample size (including both
certified and non-certified groups) needed to achieve a power of .80 for 11 degrees of freedom (df) and an alpha (α) of .05 was between 666 and 782 (MacCallum, Browne, & Sugawara, 1996).

A postcard announcing the study followed by a study questionnaire sent one week later were mailed to the 2,000 RNs who were randomly selected from the mailing list purchased from the NCBON and 250 RNs who were randomly selected from each of the mailing lists purchased from ONS and ENA. In total, 2,500 questionnaires were distributed. To enhance the response rate, a reminder postcard again was sent to all potential participants two weeks after the study questionnaire was mailed.

Measurement of Major Study Variables

The research model for this study was based on Bandura’s (1982) social cognitive theory of human behavior (SCTB), which states that humans are both products and producers of their environment. Consistent with SCTB, the research model included individual (proactive personality and specialty nurse certification) and contextual (workplace recognition of certification) characteristics that were identified as directly linked to nurses’ use of proactive work behaviors and indirectly linked to these behaviors through RBSE as a mediator. Psychometric properties of the instruments used to measure the major variables in this study are summarized in Table 3.1.

Proactive Personality

Proactive personality, an independent variable in the research model, can be theoretically defined as a personal predisposition toward proactive behavior and was
Table 3.1

_Psychometric Properties for Measures of Key Study Variables_

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Coefficient</th>
<th>Content Validity</th>
<th>Factorial Validity</th>
<th>Hypotheses Supported</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactive Personality Scale</td>
<td>.85-.89</td>
<td>---</td>
<td>X</td>
<td>X</td>
<td>Bateman &amp; Crant, 1993</td>
</tr>
<tr>
<td>Role-breadth Self Efficacy Scale</td>
<td>.96</td>
<td>---</td>
<td>X</td>
<td>X</td>
<td>Parker, 1998</td>
</tr>
<tr>
<td>Proactive Work Behaviors Scale</td>
<td>.96</td>
<td>---</td>
<td>X</td>
<td>X</td>
<td>Griffin &amp; Parker, 2007</td>
</tr>
</tbody>
</table>
measured using the Proactive Personality Scale (PPS) developed by Bateman and Crant (1993). This six-item Likert-type questionnaire asks people to rate the extent to which they are unconstrained by situational forces and will take action to influence their environment. A sample item from this scale is, “If I see something I don’t like, I fix it.” Items are anchored to five response options ranging from “certainly not agree” (1) to “certainly agree” (5). The possible range of scores for this scale is 6 to 30, with higher scores indicative of a stronger proactive personality. In previous studies, Cronbach’s alpha reliability estimates of .85 to .89 have been reported (Bateman & Crant, 1993; Crant, 1996; Parker, 1998; Seibert et al., 1999; Thompson, 2005). Support has been demonstrated for the factorial validity of the Proactive Personality Scale as a measure of a one-dimensional construct (Bateman & Crant, 1993; Claes, Beheydt, & Lemmens, 2005; Parker, 1998) and hypothesized relationships have been supported using data from this scale (Parker, 1998).

**Voluntary Specialty Certification in Nursing**

Voluntary specialty certification, an independent variable, was defined as a credential awarded to an individual nurse by a professional nursing organization for successful completion of a knowledge test developed by experts in an area of specialty nursing practice. This variable was measured using the following yes/no item: Do you currently hold voluntary specialty certification awarded by a professional nursing organization? A space on the questionnaire was provided so those who responded yes to this question could record the name of the professional organization from which certification was received. Also, respondents who answered “yes” were asked to identify the specialty area(s) in which they were certified. Finally, participants who responded that they were not currently certified were asked about their future intention of becoming certified using the following yes/no
question: “I plan to become certified.” Respondents who answered, “yes” to this item were asked to provide the expected year during which certification would be achieved and identify the specialty area in which they intended to become certified.

**Workplace Recognition of Certification**

Workplace recognition of certification can be defined as acknowledgement of employees in the work setting who have achieved voluntary specialty certification from a professional nursing organization. Workplace recognition was measured by asking participants to select from a list the type or types of recognition that are given in their workplace for achieving specialty certification. The list was developed using the findings from a qualitative study in which staff RNs were asked to identify ways in which they receive meaningful recognition in response to their accomplishments (Goode et al., 1993). Additionally, participants were given the option to identify types of recognition that were not included on the list. Scores were determined by summing the number of items selected by each participant. Scores on this measure could range from 0 to 17, with higher scores indicative of greater workplace recognition for certification.

**Role Breadth Self-Efficacy**

Role-breadth self-efficacy, a proposed mediator in the model, was measured using the Role Breadth Self-Efficacy (RBSE) Scale developed by Parker (1998). This scale consists of seven items that ask participants to rate the level of confidence in their ability to carry out specific activities that enhance work performance. Items on this scale include, for example, carrying out assignments such as analysis of a long-term problem, representing one’s assigned unit in meetings with higher level management, and developing new procedures or protocols for the unit. The RBSE scale was constructed using a Likert-type format with

#
items rated on a five-point scale ranging from “not at all confident” (1) to “very confident” (5). Scores on this instrument can range from 7 to 35, with higher scores indicative of greater role breadth self-efficacy. In previous studies, Cronbach’s alphas from .73 to .96 have been reported for this scale (Axtell & Parker, 2003; Crant, 2000; Nauta et al., 2009; Parker, 1998; Parker & Sprigg, 1999). In multiple studies, the RBSE Scale has provided data that supported hypothesized relationships, thus providing support for the construct validity of this instrument (Axtell & Parker, 2003; Nauta et al., 2009; Parker, 1998).

**Proactive Work Behaviors**

To understand the measure of work behaviors, the work role must be defined followed by performance ratings for that role as demonstrated by an individual, a team of individuals, or the organization. Defining work roles as “performance responsibilities” (Murphy & Jackson, 1999, p. 335), Griffin et al. (2007, p. 330) proposed a “model of positive work role behaviors” in which performance responsibilities can be attributed to the effectiveness of the individual, the team, or the organization. This model categorizes performance responsibilities into three levels of effectiveness: proficiency, adaptivity, and proactivity. The category of proficiency is used to describe completion of performance responsibilities in ways that fulfill only the basic requirements of a job. These behaviors are expected and usually found in a written job description. Adaptivity describes how well an individual completes performance responsibilities through their ability to cope with, respond to, or support change in their work environment. Proactivity categorizes behaviors through which an employee completes performance responsibilities by proactively improving the work environment and the way work activities are done. For the purposes of this study, only completion of performance responsibilities that are demonstrated by the individual or a team
of individuals were measured. Therefore, nurses’ use of proactive work behaviors was measured in terms of the self-reported frequency with which nurses or the nursing team complete performance responsibilities at the level of proficiency, adaptivity, and proactivity. Eighteen items developed from the model proposed by Griffin et al. (2007) were used to measure nurses’ proactive work behaviors. All items on this scale are preceded by the stem: “How much over the past month have you . . . ?” Section one includes nine items that address effectiveness at the level of proficiency (3 items), adaptivity (3 items), and proactivity (3 items). The second section includes nine items that pertain to team level completion of performance responsibilities behaviors at the level of proficiency (3 items), adaptivity (3 items), and proactivity (3 items). The response scale for each section ranges from 1 (very little) to 5 (great deal). Scores for the total scale can range from 18 to 90, with higher scores indicative of more frequent use of proactive work behaviors. A Cronbach’s alpha of .96 has been reported for this scale (Axtell & Parker, 2003). Table 3.2 provides a summary of the components of this instrument based on the theoretical model proposed by Griffin et al. (2007).

**Measurement of Demographic and Control Variables**

In this section, measurement of the variables that were used to describe the study sample is reported. Additionally, three variables (nursing experience, age, and
Table 3.2

*Model of Proactive Work Role Behaviors*

<table>
<thead>
<tr>
<th>Work Role Behaviors</th>
<th>Levels of Work Role Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proficiency (Non-Certified RNs)</td>
</tr>
<tr>
<td><strong>Individual Level</strong></td>
<td>Fulfills role requirements</td>
</tr>
<tr>
<td></td>
<td>Ensures core task are completed properly</td>
</tr>
<tr>
<td><strong>Team Level</strong></td>
<td>Coordinates work with team.</td>
</tr>
</tbody>
</table>
educational preparation in nursing) were controlled when testing the research model for this study. Measurement of these variables also is reported in this section.

**Demographic Variables**

**Type of specialty certification.** This variable was measured using a single item in which participants were asked to identify the specialty area(s) in which they are currently certified.

**Unit tenure.** Unit tenure was measured using a single item in which participants were asked to identify the number of consecutive months or years that they had been employed on their current unit.

**Facility Tenure.** Facility tenure was measured using a single item in which participants were asked to identify the number of consecutive months or years that they had been employed at their current facility.

**Tenure in a nursing specialty.** This variable was measured using a single item in which participants were asked to identify the number of consecutive months or years that they had been employed in their self-identified specialty area.

**Unit type.** This variable was measured using a single item in which participants were asked to identify the type of department/unit where they were currently employed.

**Gender.** Gender was measured using a single item in which participants were asked to identify their gender as male or female.

**Control Variables**

**Years of nursing experience.** Years of nursing experience was measured using a single item asking participants to record the number of years they have actively practiced as a RN.
**Educational preparation in nursing.** Educational preparation in nursing was measured using two items in which participants were asked to identify both their basic (entry-level) and current level of education in nursing by selecting one of the following options: diploma in nursing, associate degree in nursing, baccalaureate degree in nursing, master’s degree in nursing, or other. Participants also were asked to respond to a single yes/no item in which they were asked if they had earned a degree in a field other than nursing. Participants who responded yes to this item were given a space on the questionnaire to record the highest degree they had earned and the area of study in which the degree was earned.

**Age.** Age was measured using a single item which participants were asked to enter their age in years.

**Procedures for Data Analysis**

Prior to data analysis, all returned surveys were marked on the coded mailing list. Demographic data were checked to identify and remove duplicate questionnaires since an RN who was certified by ONS or ENA could have received two questionnaires, one using the mailing list from NCBON and one using the mailing list from ENA or ONS. In total, only two participants returned duplicate questionnaires and only one of the two questionnaires for these participants was included in the subsequent data analyses. All survey responses were recorded on a data sheet created using the SPSS version 19 statistical program. Questionnaires with missing data were grouped separately from the other returned questionnaires. Following this step, the returned questionnaires were divided into certified and non-certified groups. A univariate descriptive data process in the SPSS program was run to determine the amount of data missing for the key variables. Demographic characteristics of the respondents and descriptive information provided about the major study variables were summarized using frequency counts.
and percentages. Also, the mode and median were obtained for all demographic variables and major study variables that were measured at the nominal level. For demographic variables and major study variables that were measured at the ordinal or ratio level, the mean and standard deviation were obtained.

**Management of Missing Data**

Missing values are known to be a problem for study designs that include data collection utilizing mailed surveys. Respondents, for whatever reason, often return surveys without answering all questions. Although missing values cannot be avoided, their effect can be minimized. Selecting the best possible method for handling missing values is important because analyses of data that include missing values for the major study variables can produce biased estimates, reduce statistical power, and lead to misinterpretation of results. The most frequent categories of missing values are missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR). Missing values completely at random means that a missing value for one variable has a high probability of being unrelated to a missing value for other variables. Although analyses remain unbiased when values are missing completely at random (Polit, 1996), the primary consequence of using data with MCAR values is loss of statistical power (Graham, 2009). Data with values missing at random (MAR) means that missing values are unrelated to the variable being measured and, thus, can be ignored because the missing values show no systematic pattern (Kline, 2005). Values that are missing not at random cannot be ignored because this type of missing values is related to the variable being measured and can skew the study results if the problem is not resolved (Polit, 1996).

Of the three categories of missing data, MCAR would be the most likely type of missing data in this study because data were collected through a survey instrument. Randomly
overlooked survey questions is the most common reason for missing data when using survey questionnaires and this type of missing data has a high probability of being unrelated to the values of other variables (Dillman, 2007). However, information that needs to be known regarding the data set “can be estimated from any of the missing data patterns, including the pattern in which missing data exists for all variables” (Graham, 2009, p. 552).

Prior to model testing, data were reviewed for missing values. Questionnaires with more than 10% missing data for any of the major study variables were excluded. Full-information maximum likelihood (FIML) estimation was used to address missing data that did not exceed 10% for any of the major study variables. Of the newer methods available to handle missing values, FIML is least likely to have convergence failures and performs well with MCAR (Bowen & Guo, 2010). Working with the raw data, FIML has been shown to effectively handle data with more than 25% missing values (Bowen & Guo, 2010). In one step, FIML addresses missing values by providing estimates of standard errors and estimates of model parameters simultaneously. FIML does not require the use of multiple files and is recommended when using the Mplus program. Additionally, FIML allows hypothesis testing with minimum bias (Bowen & Guo, 2010, p. 77).

**Assessment of Distributional Assumptions**

Similar to most data collected in social science research, the variables in this study were measured either at the categorical or ordinal level. As such, even though response options were assigned a numerical value (e.g. “1” for strongly disagree, “5” for strongly agree), the value has meaning only in relation to the other values on the scale. Therefore, special analysis procedures are required because categorical and ordinal data typically violate distributional assumptions. Mplus identifies variables that are measured at the nominal level, thus insuring the use of proper
estimation methods to handle data that are not normally distributed. Using the assumption that the data are continuous and have a normal distribution, a polychoric correlation estimates the $r$ for two categorical variables that have two or more response options (e.g., Agree, Disagree, No Opinion) (Kline, 2005, p.25). Weighted least squares estimation is another option that can be used with Mplus to estimate models using categorical responses.

**Statistical Procedures for Model Testing**

Structural equation modeling (SEM) was used to test this model because of the flexibility it offers for confirming a theoretically hypothesized research model. Using observed data for each of the theorized latent factors, a combination of regression and factor analysis allows two aspects of the model to be tested at the same time. Regression tests determine the strength and direction of the relationships among the hypothesized latent factors. Factor analysis examines how well the latent variables (or the structure of the model) have been measured by the observed variables. A simultaneous mathematical comparison provides researchers with concrete, measurable ways to identify causal effects regarding complex human problems (Bowen & Guo, 2010).

In preparation for model testing, a confirmatory factor analysis (CFA) was performed on all instruments used in this study, with particular focus on the work recognition and proactive work behavior scales. These scales were modified from their original form which could change their psychometrics properties. CFA identified the measurement model by indicating the total number of latent factors and observed variables that measured them. It also identified multiple loading or low loading variables that could contribute to future problems with model fit. Identifying this problem early allowed for adjustments prior to model testing. Each scale was set by specifying the factor loading at 1.0. This step was taken because the scale of each latent
factor is equal to the scale of its observed variables (Bowen & Guo, 2010). When specifying the model, the measurement error of each observed variable and error terms along with each latent variable must be correlated. Based on the assumption of inter-factor covariance and correlations, Mplus does this automatically by setting the path to 1.0 and estimating the variance (Muthen & Muthen, 2007).

**Statistical Testing of the Measurement Model**

The research model specifying the causal relationships is interpreted as an *a priori* path analysis model as shown in Figure 3.1. The observed variables are responses to the questions on the study questionnaire that were used to measure each unseen or latent variable. With the exception of the measure of workplace recognition for certification, each observed variable was measured using a 5-point Likert-type scale. The sum of the ratings for each study variable determines the scale of the latent variable it measured. An error measure is associated with each observed variable, indicated on the path diagram by a circle and an arrow pointing towards the variable. The measurement model specifies the number of defined factors represented in the data, identifies variables that are hypothesized to be related to each factor, and determines correlations among the latent variables and error terms (Bowen & Guo, 2010).

Unlike CFA, path analysis simultaneously examines regression equations among the observed variables. In regression analysis, variables are identified as independent, dependent, or control. For example, Bateman and Crant (1993) linked proactive personality to proactive work behaviors and Parker et al. (2008) found that proactive personality and proactive work behaviors were significantly associated through RBSE as a mediator. Therefore, in this study, proactive work behaviors were identified as the dependent variable and proactive personality and RBSE were identified as independent variables, with RBSE also specified as a mediating variable.
Based on empirical evidence and CFA, this model indicates the causal direction of relationships among the latent variables and their observed indicators (Bowen & Guo, 2010). Directional arrows were used to indicate both the direction of the causal relationship and the direct effects between variables. In the path diagram, the latent exogenous (also known as predictor) variables are proactive personality, specialty certification, and workplace recognition for certification. Although the model does not explain the causal structure of the exogenous variables, the relationships among exogenous variables are hypothesized to exist and, thus, diagrammed with bidirectional arrows (Klein, 1995). Path coefficients are statistical estimates of direct effects which, when combined with statistical estimates of indirect effects, yield information that enhances understanding of complex problems (Bowen & Guo, 2010).

The relationships of proactive personality, role breadth self-efficacy, and proactive work behaviors have not been previously investigated utilizing a sample of nurses. Therefore, the strength of the underlying theory hypothesizing the direction of the variable relationships is especially important because, in testing model variations, two models may prove to be the statistically equivalent when theoretically they are not (Bowen & Guo, 2010).

Starting values for estimates can be selected in different ways but they are related to the values provided in the input matrix. Choice of the estimation method to obtain parameter values, standard errors, and fit indices is necessary to trust the results of model testing. For this study, weighted least squares (WLS) estimation was used because it works well when estimating models with categorical indicators (Kline, 2005).

**Statistical Testing of the Structural Model**

After establishing adequate fit of the measurement model, the structural model was tested. The hypothesized model was formulated by reviewing nursing, business, organizational,
and management literatures to develop support for the hypothesized relationships among the
model variables. The structural model was specified using the same steps that were used to test
the measurement model, except three additional steps were added. First, observed variables were
added. Second, the directional and non-directional relationships among latent and observed
variables, including RSBE as a proposed mediator, were specified using subscripts that indicated
the number of the variable to which a path is pointing and the number of variables from which it
originated, respectively (Bowen & Guo, 2010). Third, the latent structural error terms for
endogenous variables were specified because variances of the error terms rather than variance of
the dependent variable were estimated.

Consistent with the purposes of this study, alternative models were developed and tested.
Testing alternative models assists in determining the most parsimonious model that is consistent
with theoretical predictions and provided the best explanation for the intercorrelations among
study variables and limits the extent to which the findings can be attributed to chance (Fabrigar,
Wegener, MacCallum, & Straham, 1999; Morgeson & Humphrey, 2006). After comparing
models, the one that provided the best fit to the observed data was selected.

Assessment of Fit

Fit refers to the ability of the model to reproduce the correlation or covariance matrix.
However, a good-fitting model is not necessarily a valid model. Although there can be literally
hundreds of measures of fit, the number of fit indices are not what determines the validity of a
good fitting model. Typical measures used to assess model fit include the chi square ($\chi^2$)
statistic, standard errors, or other fit indices. Although, $\chi^2$ is inflated when non-normality is
present, inflated estimates are less problematic when items have been rated using more than four
response options. Therefore, $\chi^2$ is more robust when ordinal data are modeled. Because all but
one instrument used in this study employed five-response options, \( \chi^2 \) was viewed as adequately robust and used to assess model fit in this study. Additionally, absolute fit indices, two relative fit indices, and a predictive fit index were evaluated to determine goodness of fit between the model and the observed data. The comparative fit index (CFI) provides a measure of complete covariation between the observed and hypothesized correlation matrices. Although a CFI value greater than .90 is indicative of adequate fit, Hu and Bentler (1999) recommend a more stringent criterion, suggesting that inferences about fit should be based on a CFI value that is closer to .95. The root mean square error of approximation (RMSEA) also can be used as a relative fit index and is considered to be the most informative criterion in covariance structure modeling (Kline, 2005). RMSEA reflects the amount of variation between the observed and hypothesized correlation matrices that can be attributed to error. RMSEA values less than .05 indicate good fit, values between .05 and .08 indicate reasonable fit, and values higher than .08 indicate poor fit (Kline, 2005). Finally, the Akaike’s information criterion (AIC), which is based on the number of parameters to be estimated along with the statistical goodness of fit, is used to evaluate alternative models for parsimony. In this case, smaller values of AIC indicate a better fit (Kline, 2005).

**Chapter Summary**

In this chapter, a non-experimental cross-sectional survey was identified as the research design for this study. The target population and sample for this study were described. The instruments that were used to measure the study variables were presented. The plan for statistical analysis of the data was described. Possible problems that could be encountered during data analysis and the methods available to minimize their effect were presented. In Chapter 4, study findings are reported.
Figure 3.1 SEM Path Diagram of the Research Model

Proactive Personality (PP)

Specialty (S)

Role Breadth (RB)

Self-Efficacy (SE)

Proactive Work Behavior (PWB)

Basic Nurse Behaviors (BB)

Age

RN of Certification (WR)

Education (BED)

Control

Experience
CHAPTER 4

DATA ANALYSIS AND RESULTS

The data analysis and results of the study, organized into six major sections, are presented in this chapter. In Section 1, methods used to pilot test the questionnaire for this study are described and results are summarized. In Section 2, data collection and survey response rates for the primary study are presented. A description of the total sample and the certified and non-certified subgroups is provided in Section 3. The descriptive and distributional characteristics of the major study variables are presented in Sections 4 and correlations among the study variables are discussed in Section 5. In Section 6, results from model testing and tests of the hypotheses specified in Chapter 2 are presented.

Nursing Practice Survey Pilot Study

It is generally recommended to evaluate a small sample questionnaire before collecting data for a new study (Bowen, Bowen, & Wooley, 2004). Two groups of nurses were recruited to participate in a pilot test of this study questionnaire. Five specialty certified registered nurses (RNs), each representing different nursing specialties and acute care facilities, were recruited and assigned to a specialty certified group. Another five RNs who worked in different nursing specialties and facilities but were not specialty certified were recruited and assigned to a non-certified group. The nurses assigned to these groups were recruited using the names of RNs identified through personal contact with colleagues and by word of mouth. Pilot study participant credentials and work characteristics are shown in Table 4.1!
Table 4.1

*Credentials and Work Characteristics of Pilot Study Participants*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Work Setting</th>
<th>Certification Status</th>
<th>Years Certified</th>
<th>Specialty Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acute Care-Cardiology</td>
<td>No</td>
<td></td>
<td>Cardiology</td>
</tr>
<tr>
<td></td>
<td>Bedside</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Acute Care-Emergency</td>
<td>No</td>
<td></td>
<td>Emergency Dept. Forensics</td>
</tr>
<tr>
<td>3</td>
<td>Acute Care-Perioperative</td>
<td>No</td>
<td></td>
<td>Operating Room</td>
</tr>
<tr>
<td>4</td>
<td>Acute Care-Orthopedics</td>
<td>No</td>
<td></td>
<td>Joint replacement</td>
</tr>
<tr>
<td>5</td>
<td>Acute Care-Perioperative</td>
<td>No</td>
<td></td>
<td>Post Anesthesia Care Unit</td>
</tr>
<tr>
<td>6</td>
<td>Acute Care-Oncology</td>
<td>Yes</td>
<td>5</td>
<td>Oncology-Surgical Floor</td>
</tr>
<tr>
<td>7</td>
<td>Acute Care-Perioperative</td>
<td>Yes</td>
<td>10</td>
<td>Operating Room</td>
</tr>
<tr>
<td>8</td>
<td>Acute Care-Emergency</td>
<td>Yes</td>
<td>20</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>9</td>
<td>Acute Care-Mother/Child</td>
<td>Yes</td>
<td>8</td>
<td>Labor &amp; Delivery</td>
</tr>
<tr>
<td>10</td>
<td>Acute Care-Med/Surg</td>
<td>Yes</td>
<td>6</td>
<td>Medical/Surgical Floor</td>
</tr>
</tbody>
</table>
The purpose of the pilot study and instructions for completing the questionnaire were provided during two meetings held separately with the participants assigned to each group. Pilot study participants were asked to read and complete the study questionnaire, recommend improvements to the questionnaire design and/or formatting, and identify items that should be reworded, added, or deleted. Two nurses in each group completed the survey in the absence of the researcher. The remaining three of the five nurses assigned to each group were selected according to availability to review the questionnaire using a cognitive pretesting (CP) methodology that involved interviewing each individual while the questionnaire was being completed (Woolley, Bowen & Bowen, 2006). Cognitive pretesting has been shown to improve questionnaire design because it allows the researcher to evaluate real-time comprehension/interpretation, memory/recall of requested information, and identify behavioral responses to the items (Foddy, 1998; Jobe & Mingay, 1989; Willis, 2005). The six nurses who participated in the cognitive pre-testing completed the study questionnaire independently but in the presence of the principal investigator who recorded information about facial expressions that might be indicative of frustration, boredom, or difficulty comprehending the items. Additionally, behaviors like hesitation in answering a question or the number of times that a question was read before marking an answer were recorded as possibly indicative of difficulty in reading or understanding an item. Open-ended questions (e.g. What about that question did you find confusing or difficult to answer?) were asked by the researcher when a participant appeared to read a question more than once or exhibited a facial expression that could be interpreted as evidence of frustration or misunderstanding.

After completing the pilot study, all participants met with the other members of their group to discuss areas in which the study questionnaire could be improved. Based on
feedback from all participants, a total of 12 items were revised, one was deleted, and three were added. Changes made to the study questionnaire are presented in Table 4.2. Where appropriate, this table includes the original item, the revised item, and the rationale for the revision.

Data Collection and Survey Response Rates

The target population for this study was all individuals who were licensed by the North Carolina Board of Nursing (NCBON) to practice as registered nurses (RNs) in 2011. The sampling frame was an individual who were randomly selected from a list of licensed RNs who were employed in North Carolina and met the eligibility criteria for the study. The sampling frame was created using the names and addresses of RNs included in electronic databases maintained by the NCBON, the Emergency Nursing Association (ENA) (which provides CEN certification) and Oncology Nursing Society (ONS) (which provides OCN certification).

Survey questionnaires were sent by U.S. mail to the residential address of 2500 RNs and 527 were returned, resulting in an overall response rate of 21%. Among all surveys returned, 57 were excluded because the respondents did not meet the eligibility criteria (n = 46) or returned a survey with more than 10% missing data (n = 11), resulting in 471 surveys that were used for this analysis. Of these, 290 (61.6%) surveys were returned by non-certified nurses and 181(38.4%) were returned by certified nurses.
Table 4.2

Revisions to the Study Questionnaire Resulting from the Pilot Study

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
<th>Revisions</th>
<th>Rationale for Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q6</td>
<td>How much over the past month have you: Learned new skills to help you adapt to changes in your core tasks?</td>
<td>How much over the past month have you: Learned new skills to help you adapt to changes in your main tasks</td>
<td>The term core tasks was changed to main tasks to improve clarity.</td>
</tr>
<tr>
<td>Q8</td>
<td>How much over the past month have you: Come up with ideas to improve the way your core tasks are done?</td>
<td>How much over the past month have you: Come up with ideas to improve the way in which your main tasks are done?</td>
<td>The term core tasks was changed to main tasks to improve clarity.</td>
</tr>
<tr>
<td>Q14</td>
<td></td>
<td>Question Added: How much over the past month have you: Responded constructively to changes in the way your unit works?</td>
<td>Item was erroneously omitted from the pre-test questionnaire.</td>
</tr>
<tr>
<td>Q15</td>
<td>How often over the past month have you responded constructively to changes in the way your unit works?</td>
<td>Deleted</td>
<td>Redundant</td>
</tr>
<tr>
<td>Q19-Q35</td>
<td>To what extent are/is…</td>
<td>In your opinion to what extent do the following behaviors provide meaningful recognition?</td>
<td>Original stem was confusing to pre-test participants.</td>
</tr>
<tr>
<td>Item</td>
<td>Question</td>
<td>Revisions</td>
<td>Rationale for Revision</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>-----------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Q23</td>
<td>Congratulations given to the staff nurse by the supervising unit nurse manager in front of peers?</td>
<td>Congratulations given by the unit nurse manager to staff nurses in front of peers?</td>
<td>Unit manager is closer to the terminology used on nursing units</td>
</tr>
<tr>
<td>Q24</td>
<td>Peer review opportunities provided to share projects or materials that the staff nurse developed?</td>
<td>Peer review opportunities provided to staff nurses to share projects or materials developed?</td>
<td>Changed to improve readability.</td>
</tr>
<tr>
<td>Q25</td>
<td>Patient evaluations that compliment individual nurses on the unit are posted on a bulletin board for all to see?</td>
<td>Patient evaluations that compliment individual nurses posted on a bulletin board for all to see?</td>
<td>Wording simplified.</td>
</tr>
<tr>
<td>Q28</td>
<td>Certification in an area of specialty nursing acknowledged by a pay raise?</td>
<td>Acknowledging specialty nurse certification by a pay raise?</td>
<td>Improved question clarity.</td>
</tr>
<tr>
<td>Q29</td>
<td>School progress/formal education is acknowledged with a pay raise?</td>
<td>Acknowledging school progress/formal education with a pay raise?</td>
<td>Wording change to better match the item stem.</td>
</tr>
<tr>
<td>Q30</td>
<td>Achievements announced in the hospital newsletter?</td>
<td>Announcing achievements in the hospital newsletter?</td>
<td>Wording change to better match the item stem.</td>
</tr>
<tr>
<td>Q31</td>
<td>Letters of congratulations sent to staff nurses for achievements?</td>
<td>Sending letters of congratulations to staff nurses for achievements?</td>
<td>Wording change to better match the item stem.</td>
</tr>
<tr>
<td>Item</td>
<td>Question</td>
<td>Revisions</td>
<td>Rationale for Revision</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Q33</td>
<td>A salary bonus or hourly differential provided for national certification?</td>
<td>Acknowledging national certification with a salary bonus or hourly differential?</td>
<td>Wording change to better match the item stem.</td>
</tr>
<tr>
<td>Q36-Q41</td>
<td>To what extent do you agree/disagree: Very Little; Somewhat; Occasionally; Almost Always; A Great Deal</td>
<td>To what degree do you agree or disagree with the following statements: No Opinion; Strongly Disagree; Disagree; Agree; Strongly Agree</td>
<td>Improved question clarity.</td>
</tr>
<tr>
<td>Q38</td>
<td>Certification promotes recognition from other health care professionals</td>
<td>Certification promotes recognition from other health professionals working on the unit.</td>
<td>Improved question clarity.</td>
</tr>
<tr>
<td>Q39</td>
<td>Certification promotes recognition from other health care professionals</td>
<td>Certification promotes recognition from other health care professionals outside the unit.</td>
<td>Improved question clarity.</td>
</tr>
<tr>
<td>Q36-Q41</td>
<td>A Great Deal was deleted as an anchor.</td>
<td>A Majority of the Time was added as an anchor.</td>
<td>Improved question clarity.</td>
</tr>
<tr>
<td>Q36-Q41</td>
<td>A Great Deal was deleted as an anchor.</td>
<td>A Majority of the Time was added as an anchor.</td>
<td>Improved question clarity.</td>
</tr>
<tr>
<td>Item</td>
<td>Question</td>
<td>Revisions</td>
<td>Rationale for Revision</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Q42-Q47</td>
<td>How confident would you feel carrying out these activities? Very Little; Somewhat; Occasionally; Almost Always; Very confident; How well do these statements describe you? No Opinion; Strongly Disagree; Disagree; Agree; Strongly Agree; Not at all confident (1) to Very confident (5)</td>
<td>Improved question clarity.</td>
<td></td>
</tr>
<tr>
<td>Q62</td>
<td>Question Added: What is your current level of education in nursing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q63</td>
<td>Question Added: Have you earned a degree in another field?</td>
<td></td>
<td>Pre-test participants who earned a higher degrees in another discipline though this option should be added.</td>
</tr>
<tr>
<td>Q66</td>
<td>In what department/clinical area do you work?</td>
<td>Transitional Care Unit and Oncology were added to the Skilled Nursing option.</td>
<td>Recommended by pre-test participants.</td>
</tr>
</tbody>
</table>

![](image)
Description of the Study Sample

Demographic characteristics of the total sample and the certified and non-certified subgroups are reported in Table 4.3. Respondents ranged in age from 23 to 73, with a mean age of 44. Overall, 28% of the total sample reported that they were between 50 to 59 years of age and 26% reported that they were between 30 to 39 years of age. Nurses in the certified group were slightly older than nurses in the non-certified group (mean = 47.56 and 42.14, respectively).

The typical respondent was female and reported the baccalaureate degree as both the basic and current educational level in nursing followed closely by the associate degree. A discretion became apparent between the percentage of nurses who reported their basic and their current education level as the associate degree (41% to 36.1%, respectively). There was another discretion between the percentage of nurses who reported their basic and current education level as the baccalaureate degree (44.4% and 41.8%, respectively). This discretion indicated that these nurses obtained additional formal education after completing their basic education in nursing. A discretion also appeared among participants when grouped by certification status, with a decline in the percentage of certified nurses who reported their basic and current educational level as the associate degree (31.5% to 23.75%) and the percentage who reported their basic and current educational level as the baccalaureate degree (49.7 to 43.1%). Similarly, the percentage of nurses in the non-certified group who reported the associate degree as their basic and current educational level declined from 47% to 43.8%. Although there was no change in the percentage of non-certified nurses who reported the baccalaureate degree as both their basic and current education level (41% and 41%, respectively), 4.5% had
earned the master’s degree since graduating from their basic educational program. In contrast, 18.3% of certified nurses reported their current education as the master’s degree.

Finally, the total sample included 96 nurses with a formal degree in another discipline, with biology identified most frequently (n = 17) followed by psychology (n = 12) and health sciences (n = 7).

As shown in Table 4.3, several of the demographic characteristics of this sample were similar to the nursing workforce characteristics reported by the U.S. Department of Health and Human Services (HRSA) (2010) in the 2008 National Sample Survey of Registered Nurses. Specifically, the percentages of nurses according to gender, current education at the associate degree level, and mean age in this study were comparable to those reported by HRSA (2010). However, compared to the 2008 National Sample, a higher percentage of nurses in this study identified the baccalaureate degree (44.4% compared to 34.2%) and a lower percentage identified the associate degree (41% compared to 45.4%) and diploma (14.6% compared to 20.4%) as their basic educational preparation in nursing. Similarly, a higher percentage of nurses in this study identified the baccalaureate degree (41.8% compared to 36.8%) and a lower percentage identified the diploma (10% compared to 13.9%) as their current level of education in nursing.

The sample for this study was highly experienced with an average of 17.49 years in nursing, 8.08 years on their current unit, 10.39 years at their current facility, and 13.28 years in their specialty area. Nurses in the certified group were more experienced than were nurses in the non-certified group (mean = 21.34 and 15.1, respectively) and also were more experienced on their current unit (mean = 8.86 and 7.49, respectively), at their current facility (mean = 10.39 and 9.84, respectively), and in their specialty area of
Table 4.3

Demographic Characteristics of Study Sample with Comparison to 2008 HRSA\textsuperscript{a} Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>2008 HRSA Sample</th>
<th>Total Sample N = 471</th>
<th>Certified N = 181</th>
<th>Non-Certified N = 290</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>92.1%</td>
<td>442 (93.8%)</td>
<td>165 (91.2%)</td>
<td>277 (95.5%)</td>
</tr>
<tr>
<td>Male</td>
<td>7.9%</td>
<td>29 (6.2%)</td>
<td>16 (8.8%)</td>
<td>13 (4.5%)</td>
</tr>
<tr>
<td>Basic Education in Nursing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Degree</td>
<td>45.4%</td>
<td>193 (41%)</td>
<td>57 (31.5%)</td>
<td>136 (47%)</td>
</tr>
<tr>
<td>Baccalaureate Degree</td>
<td>34.2%</td>
<td>209 (44.4%)</td>
<td>90 (49.7%)</td>
<td>119 (41%)</td>
</tr>
<tr>
<td>Diploma</td>
<td>20.4%</td>
<td>69 (14.6%)</td>
<td>34 (18.8%)</td>
<td>35 (12%)</td>
</tr>
<tr>
<td>Current Education in Nursing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Degree</td>
<td>36.1%</td>
<td>170 (36.1%)</td>
<td>43 (23.75%)</td>
<td>127 (43.8%)</td>
</tr>
<tr>
<td>Baccalaureate Degree</td>
<td>36.8%</td>
<td>197 (41.8%)</td>
<td>78 (43.1%)</td>
<td>119 (41%)</td>
</tr>
<tr>
<td>Diploma</td>
<td>13.9%</td>
<td>47 (10%)</td>
<td>23 (12.7%)</td>
<td>24 (8.3%)</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>---</td>
<td>46 (9.8%)</td>
<td>33 (18.3%)</td>
<td>13 (4.5%)</td>
</tr>
<tr>
<td>PhD/DNP</td>
<td>---</td>
<td>11 (2.3%)</td>
<td>4 (2.2%)</td>
<td>7 (2.4%)</td>
</tr>
<tr>
<td>Non-Nursing Degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Degree</td>
<td>---</td>
<td>74 (77.1%)</td>
<td>24 (68.6%)</td>
<td>50 (82%)</td>
</tr>
<tr>
<td>Baccalaureate Degree</td>
<td>---</td>
<td>6 (6.3%)</td>
<td>2 (5.8%)</td>
<td>4 (6.5%)</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>---</td>
<td>16 (16.7%)</td>
<td>9 (25.7%)</td>
<td>7 (11.5%)</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>11 to 20 (64%)</td>
<td>17.49 (12)</td>
<td>21.34 (12.11)</td>
<td>15.03 (11.29)</td>
</tr>
<tr>
<td>Current Unit</td>
<td>---</td>
<td>8.08 (7.51)</td>
<td>8.90 (7.65)</td>
<td>7.48 (7.41)</td>
</tr>
<tr>
<td>Current Facility</td>
<td>---</td>
<td>10.39 (8.99)</td>
<td>11.19 (8.84)</td>
<td>9.70 (8.98)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>47 (44.18 (11.95)</td>
<td>47.56 (11)</td>
<td>42.14 (12)</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Findings from HRSA (2010) 2008 National Sample Survey of Registered Nurses.
practice (mean = 16.11 and 11.55, respectively). Year of nursing experience in this sample were comparable to that reported for nurses in the 2008 National Sample Survey. Specifically, 64% of the nurses who participated in the National Sample Survey reported between 11 to 20 years of experience in nursing.

Employment characteristics of the study sample are reported in Table 4.4. Overall, 95% of these nurses were employed either at an academic medical center (n = 147; 31.2%), an urban community hospital (n = 106; 22.5%), a non-academic teaching hospital (n = 97; 20.6%), or a rural community hospital (n = 96; 20.4%). Employment status for the certified and non-certified groups were comparable to the total sample with 96% and 95% of the nurses in these groups, respectively, who were employed either at an academic medical center, an urban community hospital, a non-academic teaching hospital, or a rural community hospital.

The most frequently identified work area reported by these nurses was the Emergency Department (n = 99; 21%). The Emergency Department also was the most frequently identified work area for both the certified (n = 57; 31.49%) and non-certified subgroups (n = 42; 14.82%). For the total sample, the second and third most frequently identified work areas were adult intensive care (n = 50; 106%) and perioperative care (n = 39; 8.28%). However, the second and third most frequently identified work areas reported by the certified group were perioperative care (n = 18; 9.74%) and oncology (n = 15; 8.28%) and, for the non-certified group, adult intensive care (n = 38; 13.10%) and neonatal intensive care (n= 22; 7.58%).
### Table 4.4

**Employment Characteristics of Study Sample with Comparison to 2008 HRSA\(^a\) Sample**

<table>
<thead>
<tr>
<th>Variable</th>
<th>2008 HRSA Sample</th>
<th>Total Sample N = 469(^b)</th>
<th>Certified N = 180</th>
<th>Non-Certified N = 289</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
</tbody>
</table>

**Hospital Type**

- **Academic Hospital**
  - 4.3% 147 (31%) 58 (32%) 88 (30%)
- **Teaching Hospital**
  - --- 97 (21%) 36 (20%) 61 (21%)
- **Federal Government**
  - 3.3% 16 (3.4%) 6 (3%) 10 (3.5%)
- **Urban Community**
  - 82.6% 106 (27%) 39 (22%) 68 (23%)
- **Rural Community**
  - --- 96 (20%) 39 (22%) 58 (20%)
- **Critical Access**
  - 2.8% 5 (1%) 2 (1%) 3 (1%)
- **Specialty**
  - 7.8% 1 (0.2%) --- 1 (0.3%)

**Unit Type\(^c\)**

- **Medical-Surgical**
  - 29.3% 51 (11%) 22 (12%) 29 (10%)
- **Labor & Delivery**
  - 5.5% 10 (2%) 3 (2%) 7 (2%)
- **Special Procedures**
  - 5.5% 21 (4.5%) 9 (5%) 11 (4%)
- **Emergency Care**
  - 11.9% 99 (21%) 57 (32%) 42 (14.5%)
- **Adult Intensive Care**
  - 19.2% 50 (11%) 13 (7%) 37 (13%)
- **Neonatal Intensive Care**
  - 0.6% 29 (6%) 7 (4%) 22 (8%)
- **Oncology**
  - --- 27 (6%) 15 (8%) 12 (4%)
- **Pediatrics**
  - --- 18 (4%) 6 (3%) 12 (4%)
- **Perioperative Care**
  - --- 39 (8%) 18 (10%) 21 (7%)
- **Progressive Care**
  - --- 13 (3%) 3 (2%) 10 (3.5%)
- **Skilled Nursing**
  - --- 14 (3%) 9 (5%) 5 (2%)
- **Women’s Health**
  - 3.9% 31 (7%) 13 (7%) 18 (6%)
- **Rehabilitation**
  - --- 19 (4%) 6 (3%) 13 (4.5%)


\(^b\)N=369 due to missing data.

\(^c\)Not all clinical areas included.
A higher percentage of nurses in this study were employed in academic medical centers and teaching hospitals (51% compared to 4.3%) and a lower percentage were employed in urban and rural community hospitals (43% compared to 82.6%) than was reported in the 2008 National Sample Survey. These findings suggest that nurses working in large metropolitan areas of North Carolina may have been over-represented in this sample. In general, the percentage of nurses in this sample who were employed on medical-surgical, labor and delivery, special procedures, and critical care units were lower than the percentage of nurses working on these types of units in the 2008 National Sample Survey. In contrast, the percentage of nurses who were employed in emergency care, neonatal intensive care, and women’s health in this study was higher than that reported for nurses in the 2008 National Sample Survey. The percentage of nurses who worked in emergency care units may have been higher for this sample because 250 study questionnaires were distributed using names and addresses provided by the Emergency Nursing Association.

Certification characteristics of the study sample are reported in Table 4.5. In total, 181 respondents (38% of the total sample) reported that they currently held voluntary specialty certification in nursing with 290 respondents (62% of the total sample) who reported that they were not currently specialty certified. The most frequently identified area of specialty certification was emergency care, reported by 57 (31.5%) of all certified nurses. Other frequently identified areas of specialty certification included oncology (n = 24; 13.3%), operating room (n = 15; 8.3%), women’s health (n = 13; 7.2%), and critical care (n = 12; 6.62%). In total, these areas along the emergency care were reported by 61% of the certified nurses in this study. The percentage of nurses in this study who were
specialty certified in these areas also was higher than the percentages reported in the 2008 National Sample Survey.
Table 4.5

Certification Characteristics of Study Sample with Comparison to 2008 HRSA\textsuperscript{a} Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>2008 HRSA Sample</th>
<th>Certified RNs N = 181</th>
<th>Non-Certified RNs N = 290</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Certification Status</td>
<td>---</td>
<td>181 (100%)</td>
<td>201 (69.3%)</td>
</tr>
<tr>
<td>Yes</td>
<td>---</td>
<td>89 (39.7%)</td>
<td>89 (39.7%)</td>
</tr>
<tr>
<td>No</td>
<td>---</td>
<td>92 (49.9%)</td>
<td>112 (38.4%)</td>
</tr>
<tr>
<td>Planned</td>
<td>---</td>
<td>10 (5.5%)</td>
<td>61 (21%)</td>
</tr>
<tr>
<td>Certification Specialty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Care</td>
<td>4.1%</td>
<td>57 (31.5%)</td>
<td></td>
</tr>
<tr>
<td>Medical-Surgical</td>
<td>0.9%</td>
<td>6 (3.3%)</td>
<td></td>
</tr>
<tr>
<td>Critical Care</td>
<td>1.9%</td>
<td>12 (6.62%)</td>
<td></td>
</tr>
<tr>
<td>Operating Room</td>
<td>0.9%</td>
<td>15 (8.3%)</td>
<td></td>
</tr>
<tr>
<td>Neonatal Care</td>
<td>0.2%</td>
<td>2 (1%)</td>
<td></td>
</tr>
<tr>
<td>Oncology</td>
<td>1.2%</td>
<td>24 (13.3%)</td>
<td></td>
</tr>
<tr>
<td>Women’s Health</td>
<td>0.1%</td>
<td>13 (7.2%)</td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td>0.4%</td>
<td>8 (4.4%)</td>
<td></td>
</tr>
<tr>
<td>Ambulatory Care</td>
<td>0.3%</td>
<td>7 (4%)</td>
<td></td>
</tr>
<tr>
<td>Progressive Care</td>
<td>---</td>
<td>4 (2.2%)</td>
<td></td>
</tr>
<tr>
<td>Labor &amp; Delivery</td>
<td>---</td>
<td>1 (0.3%)</td>
<td></td>
</tr>
<tr>
<td>Orthopedics</td>
<td>0.4%</td>
<td>2 (1%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>---</td>
<td>30 (16.6%)</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{a}Findings from HRSA (2010) 2008 National Sample Survey of Registered Nurses.
Description of Major Study Variables

Descriptive characteristics for the major study variables are reported in Table 4.6. Proactive personality was measured using the six-item Proactive Personality Scale (PPS) developed by Bateman and Crant (1993). The possible range of scores for this scale is 6 to 30, with higher scores indicative of a stronger proactive personality. The mean score on the Proactive Personality Scale for the total sample and for the certified and non-certified subgroups was 23, suggesting that, regardless of certification status, this sample was characterized by a moderately strong proactive personality.

Workplace recognition for certification was measured using an investigator developed list of nine types of recognition that can be given in the workplace for achieving specialty certification. Participants were asked to select the types of recognition that are given in their workplace. Participants also were given the option to identify types of recognition that were not included on the list. Scores were based on summing the types of recognition that were selected by each participant. Scores for workplace recognition ranged from 0 to 9 with a mean of 2.18 for the total sample. Scores for the certified group ranged from 0 to 8 with a mean of 2.19. Scores for the noncertified group ranged from 0 to 9 with a mean of 2.18.

Role breadth self-efficacy (RBSE) was measured using the seven-item Role Breadth Self-Efficacy (RBSE) Scale developed by Parker (1998). The RBSE scale was constructed using a Likert-type format with response options ranging from “not at all confident” (1) to “very confident” (5). Scores on this instrument can range from 7 to 35, with higher scores indicative of greater role breadth self-efficacy. The mean score for role-breadth self-efficacy obtained from the total sample was 26.23, suggesting that these
Table 4.6

*Descriptive Characteristics for Major Study Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Sample</th>
<th>Certified RNs</th>
<th>Non-Certified RNs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Proactive Personality</td>
<td>22.99 (4.2)</td>
<td>23.29 (4.13)</td>
<td>22.72 (4.25)</td>
</tr>
<tr>
<td>Workplace Recognition</td>
<td>2.18 (1.69)</td>
<td>6.38 (7.4)</td>
<td>.77 (4.2)</td>
</tr>
<tr>
<td>Role-breadth Self-efficacy</td>
<td>26.23 (6.0)</td>
<td>27.68 (5.24)</td>
<td>25.28 (6.24)</td>
</tr>
<tr>
<td>Proactive Work Behaviors</td>
<td>69.36 (9.46)</td>
<td>69.70 (9.63)</td>
<td>69.13 (9.40)</td>
</tr>
</tbody>
</table>
participants saw themselves as having moderately strong confidence in their ability to carry out specific activities that enhance work performance. Mean scores for the certified and non-certified subgroups indicated that certified nurses reported slightly higher role-breadth self-efficacy (mean = 27.68) than did non-certified nurses (mean = 25.28).

Finally, proactive work behaviors (PWB) were measured using an 18-items scale developed by Griffin et al. (2007). Items on this scale measure individual and team/organizational effectiveness in terms of proficiency, adaptivity, or proactivity. The response options on this scale range from 1 (very little) to 5 (great deal). Scores for the total scale can range from 18 to 90, with higher scores indicative of more frequent use of proactive work behaviors. Similar to the scores for proactive personality, the mean score on the Proactive Work Behaviors Scale for the total sample and for the certified and non-certified subgroups was 69, suggesting that, regardless of certification status, this sample was characterized by nurses who described themselves as moderately proactive in their work performance.

Distributional characteristics of data obtained using the Proactive Personality Scale, the Workplace Recognition for Certification Scale, the Role-Breadth Self-Efficacy Scale and the Proactive Work Behaviors Scale are presented in Table 4.7. Because measurement of these variables was obtained at the ordinal level, values for each item must be interpreted in light of the values obtained for the other items on the same scale. As such comparison of absolute differences in values when using an ordinal scale is not possible. Therefore, the normal assumptions made about these data in terms of their distributional characteristics do not apply.
Table 4.7

_Distributional Characteristics of Major Study Variables_

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variance</th>
<th>Skewness</th>
<th>Standard Error of Skewness</th>
<th>Kurtosis</th>
<th>Standard Error of Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactive Personality</td>
<td>17.67</td>
<td>-.88</td>
<td>.11</td>
<td>1.57</td>
<td>.23</td>
</tr>
<tr>
<td>Workplace Recognition</td>
<td>2.85</td>
<td>.77</td>
<td>.11</td>
<td>.74</td>
<td>.23</td>
</tr>
<tr>
<td>Role-Breadth Self-Efficacy</td>
<td>35.81</td>
<td>-.68</td>
<td>.11</td>
<td>.19</td>
<td>.23</td>
</tr>
<tr>
<td>Proactive Work Behaviors</td>
<td>80.44</td>
<td>-.68</td>
<td>.11</td>
<td>.84</td>
<td>.23</td>
</tr>
</tbody>
</table>
When the data for these variables were cleaned and prepared for analysis, several steps were taken to identify unusual values, outliers, or data input problems that could influence the study results. Scores obtained for each variable then were summed to create a total scale score and, if needed, subscale scores. Both frequency and descriptive statistics were calculated for subscale and the total scale scores for each variables using the Statistical Package for the Social Sciences (SPSS, v. 19). Following this, statistics to evaluate the distribution of scores for skewness and kurtosis were obtained.

The distribution of scores was negatively skewed for the Proactive Personality, the Workplace Recognition for Certification, and the Proactive Work Behaviors Scales with skewness values ranging from -.66 to -.88. In contrast, the skewness value for the Role-Breadth Self-Efficacy Scale was .77, suggesting a slightly positive skewness in the distribution of scores for this variable. The value for all major variables, however, suggested that skewness was unlikely to be problematic during model testing. With the exception of scores for the Proactive Personality Scale which had a kurtosis index of 1.57, data for all remaining variables produced a positive kurtosis index of less than one, indicating that the amount of kurtosis for scores on the Workplace Recognition for Certification Scale, the Role-Breadth Self-Efficacy Scale and the Proactive Work Behaviors Scale were acceptable and could be considered normal. Although the kurtosis index for the Proactive Personality Scale indicated that the shape of the distribution for this variable was too peaked to be considered normal, Kline (2005, p. 50) suggests that absolute kurtosis values that are less than 10 are unlikely to be problematic during model testing. For this reason, it was determined that analysis of these data using Mplus was acceptable.
for this analysis ranged from 160 to 330, suggesting that the sample size for this study was adequate. Also, Mplus utilizes maximum likelihood estimation. Therefore, the data were examined to insure that the assumption of multivariate normality was met. Based on the evaluation of these data for skewness and kurtosis, data transformations using SPSS (v.19) were performed on scores obtained using the Proactive Personality Scale. Following these transformations, violations to the distributional assumptions of the statistical model were judged to be negligible, thus posing no threat to the integrity of the final analysis (Kline, 2005).

**Assessment of Model Fit**

Fit refers to the ability of the model to reproduce the analyzed observed correlation or covariance matrix. Bowen & Guo (2011) recommend that goodness of fit be evaluated using an absolute fit index, two relative fit indices, and a predictive fit index. The model $\chi^2$ test of significance was used in this study as an absolute fit index. A statistically insignificant $\chi^2$ test is indicative of fit between the model and the observed data (Byrne, 2001). The comparative fit index (CFI) and the root mean square error of approximation (RMSEA) were used as relative fit indices. The CFI provides a measure of covariation between the observed and hypothesized correlation matrices, with a value of 1.0 indicating complete covariation (Bagozzi & Foxall, 1996). According to Hu and Bentler (1999), inferences about adequate model fit should be based on a CFI value that is close to .95. The root mean square error of approximation (RMSEA) also was used as a relative fit index. The RMSEA represents the proportion of variation between the observed and hypothesized correlation matrices that can be attributed to error (Byrne, 2010). A RMSEA value less than 0.05 indicates good fit, a value greater than .05 but less than .08 indicates reasonable fit, and values in excess of .08
Correlations Among Study Variables

Zero-order correlation coefficients among all study variables are reported in Table 4.8 along with the Cronbach’s alpha obtained in this study for the instruments used to measure proactive personality, workplace recognition, role-breadth self-efficacy, and proactive work behaviors. Overall, the instruments used to measure these variables yielded data with Cronbach’s alphas ranging from .86 to .96, suggesting adequate internal consistency reliability. Among the major study variables, moderately strong and statistically significant correlations were documented between role-breadth self-efficacy and both proactive personality (r = .56) and proactive work behaviors (r = .44). A statistically significant but only slightly moderate correlation was found for role-breadth self-efficacy and specialty certification (r = .19). Among the control variables, specialty certification and role-breadth self-efficacy were significantly correlated with age (r = .22 and .12, respectively), years of RN experience (r = .25 and .12, respectively), and current level of education (r = .13 and .20, respectively). A weak but statistically significant correlation was found between proactive personality and current level of education (r = .13). Finally, age and years of experience were strongly and significantly correlated (r = .84).

Model Testing

Path analysis was performed to test the seven hypotheses identified in Chapter 2. The hypothesized paths are illustrated in Figure 4.1. To insure that the final sample size was adequate for model testing, the number of free parameters provided by Mplus (16) was utilized to estimate the ratio of cases to parameters. Using the ratio of 10 to 20:1 suggested by Bowen & Guo (2011) and Kline (2005), the total number of cases needed#
Table 4.8

Correlations Among Study Variables

<table>
<thead>
<tr>
<th>Item</th>
<th>Age</th>
<th>BNE</th>
<th>CRN</th>
<th>CNE</th>
<th>FT</th>
<th>NST</th>
<th>PP</th>
<th>PWB</th>
<th>RBSE</th>
<th>RNE</th>
<th>UT</th>
<th>WR</th>
</tr>
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<tr>
<td>Age</td>
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<td>-.04</td>
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<td>WR</td>
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<td>.09*</td>
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<td>.82**</td>
<td>.58**</td>
<td>-.06</td>
<td>-.01</td>
<td>.04</td>
<td>.51</td>
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<td>7.5</td>
</tr>
</tbody>
</table>

Note. BNE=Basic Nurse Education; CRN=Certified RN; CNE=Current Nurse Education; FT=Facility Tenure; PP=Proactive Personality; PWB=Proactive Work Behaviors; RBSE=Role-Breadth Self-Efficacy; RNE=RN Experience; UT=Unit Tenure; WR=Workplace Recognition.

*Item means and standard deviations are reported in the diagonal cells.
*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).
for this analysis ranged from 160 to 330, suggesting that the sample size for this study was adequate. Also, Mplus utilizes maximum likelihood estimation. Therefore, the data were examined to insure that the assumption of multivariate normality was met. Based on the evaluation of these data for skewness and kurtosis, data transformations using SPSS (v.19) were performed on scores obtained using the Proactive Personality Scale. Following these transformations, violations to the distributional assumptions of the statistical model were judged to be negligible, thus posing no threat to the integrity of the final analysis (Kline, 2005).

**Assessment of Model Fit**

Fit refers to the ability of the model to reproduce the analyzed observed correlation or covariance matrix. Bowen & Guo (2011) recommend that goodness of fit be evaluated using an absolute fit index, two relative fit indices, and a predictive fit index. The model $\chi^2$ test of significance was used in this study as an absolute fit index. A statistically insignificant $\chi^2$ test is indicative of fit between the model and the observed data (Byrne, 2001). The comparative fit index (CFI) and the root mean square error of approximation (RMSEA) were used as relative fit indices. The CFI provides a measure of covariation between the observed and hypothesized correlation matrices, with a value of 1.0 indicating complete covariation (Bagozzi & Foxall, 1996). According to Hu and Bentler (1999), inferences about adequate model fit should be based on a CFI value that is close to .95. The root mean square error of approximation (RMSEA) also was used as a relative fit index. The RMSEA represents the proportion of variation between the observed and hypothesized correlation matrices that can be attributed to error (Byrne, 2010). A RMSEA value less than 0.05 indicates good fit, a value greater than .05 but less than .08 indicates reasonable fit, and values in excess of .08
indicate poor fit (Kline, 2005). Finally, the Akaike’s information criterion (AIC) was used as a predictive fit index. The AIC is used to compare models for parsimony by estimating the accuracy of fit between the model and the observed data (Hooper, Coughlan, & Mullen, 2008). Therefore, models with lower AIC value are indicative of better fit and are preferred because they are more parsimonious (Kline, 2005).

**Model Testing Sequence**

Mplus results for the analysis of the original proposed model (Model 1) are shown in Figure 4.1. The fit indices for Model 1 reveal a significant $\chi^2$ test ($p < .00$), a CFI value of .89, RMSEA of .08, and an AIC value of 9085. The path coefficients for basic nursing education, age, and years of RN experience were not significant ($p > .05$ for these paths). These findings indicated that Model 1 did not provide an adequate fit to the observed data. Because the control variables (basic RN education, age, and RN experience) produced no effects on the model, a second model (labeled Model 2) was tested after removing age and experience. The decision was made to retain basic RN education because education has been identified in previous research as a factor that influences nurses’ work performance and, thus, patient outcomes (Aiken, et al., 2011; Zullowski, et al., 2007). The fit indices for Model 2, indicated a significant $\chi^2$ test ($p < .00$), a CFI value of .85, RMSEA of .09, and an AIC value of 13595, again suggesting that this model did not provide an adequate fit to the observed data. Modification indices and the theoretical conceptualization of the research model were examined in an attempt to specify a better fitting model. For the third model (labeled Model 3), the decision was made to retain RN education but replacing basic nursing education (BED) with current educational level (CED). This decision again was based on previous research suggesting that education is a factor that influences nurses’ work performance and,
thus, patient outcomes (Aiken, et al., 2011; Zullowsk, et al., 2007). Because the path from current education to proactive work behaviors was non-significant (p > .946) when testing Model 1, this path was removed from Model 3. However, a path from current education to role breadth self-efficacy and another path from current education to specialty nurse certification were included in Model 3. These decisions were based on consistent findings in the research literature suggesting that education is positively related to role breadth self-efficacy (Axtell & Parker, 2003; Bandura, 1997; Howell & Boies, 2004; Parker, 1998; Parker & Sprigg, 1999) and specialty certification (Cary, 2001; Coleman et al., 1999; Kendall-Gallagher et al., 2011). Also, a path from proactive personality (PP) to role breadth self-efficacy (RBSE) was added to Model 3 because proactive personality (PP) has been consistently linked to role breadth self-efficacy (RBSE) in numerous studies (Axtell & Parker, 2003; Bateman & Crant, 1999; Crant, 1995; Parker, 1998; 2000). The three paths that were added to Model 3 are diagramed and highlighted in bold in Figure 4.2.

**Full Evaluation of Final Model**

Since Model 3 included two modifications, it was tested in two parts (Model 31 and Model 32). Model 31 tested the paths between education and voluntary specialty certification and education and role-breadth self-efficacy, following the replacement of basic education with current education as a variable in the model. Fit indices for Model 31 indicated a significant \( \chi^2 \) test (p < .04), a CFI value of .98, RMSEA of .06, and an AIC value of 6838. Model 32 tested the addition of a path specifying a direct effect for proactive personality (PP) on role breadth self-efficacy (RBSE), a direct effect for role-breadth self-efficacy on proactive work behaviors, and an indirect effect for proactive personality on proactive work behaviors as mediated by role-breadth self-efficacy. These relationships along with their
path coefficients are diagrammed in Figure 4.3. The test of Model 3 resulted in a non-significant $\chi^2$ test ($\chi^2 = .309, p = .86$, a CFI value of 1, a RMSEA value of .00, and an AIC value of 6831.73. The non-significant $\chi^2$ value as well as the values for the other fit indices which were well within acceptable ranges indicated that Model 3 provided an excellent fit to the observed data (Byrne, 2010). The fit indices obtained for all three models are reported in Table 4.9.

**Hypothesis Testing**

Path analysis was performed to test the seven hypotheses identified in Chapter 2. Final direct coefficients and indirect coefficients for Model 3 are reported in Table 4.10 and Table 4.11, respectively. The contribution to the $R^2$ of independent variables ($R^2$ is 1 minus a variable’s error variance divided by its total variance) in Model 3 are reported in Table 4.12 (Bowen & Guo, p. 198).

**Hypothesis 1.** This hypothesis stated that nurses with a strong proactive personality (PP) are more likely to engage in proactive work behaviors (PWB). As shown in Figure 4.2, the estimate for the path between PP and PWB was .18 and significant ($p = .00$). Therefore, the current analysis supported the hypothesis that nurses with a stronger proactive personality are more likely to engage in proactive work behaviors.

#
Table 4.9

*Fit Indices for Model Testing*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p-value</th>
<th>SRMR</th>
<th>RMSEA</th>
<th>RMSEA CI$_{90}$</th>
<th>CFI</th>
<th>AIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>48.301</td>
<td>12</td>
<td>.00</td>
<td>.061</td>
<td>.081</td>
<td>.058 - .106</td>
<td>.892</td>
<td>9086</td>
</tr>
<tr>
<td>Model 2</td>
<td>63.65</td>
<td>13</td>
<td>.00</td>
<td>.061</td>
<td>.091</td>
<td>.069 - .114</td>
<td>.858</td>
<td>13595</td>
</tr>
<tr>
<td>Model 3$_1$</td>
<td>8.35</td>
<td>3</td>
<td>.04</td>
<td>.022</td>
<td>.062</td>
<td>.012 - .133</td>
<td>.983</td>
<td>6838</td>
</tr>
<tr>
<td>Model 3$_2$</td>
<td>.309</td>
<td>2</td>
<td>.86</td>
<td>.004</td>
<td>.000</td>
<td>.000 - .049</td>
<td>1.0</td>
<td>6831</td>
</tr>
</tbody>
</table>

*Note.* SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation; CI$_{90}$ = Confidence Interval; CFI = comparative fit index; AIC = Akaike’s information criterion.
Table 4.10

*Final Direct Coefficients for Model 3*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Standardized Coefficients</th>
<th>Unstandardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>S.E.</td>
</tr>
<tr>
<td>PWB on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP</td>
<td>0.182</td>
<td>0.048</td>
</tr>
<tr>
<td>RBSE</td>
<td>0.346</td>
<td>0.048</td>
</tr>
<tr>
<td>WR</td>
<td>0.099</td>
<td>0.040</td>
</tr>
<tr>
<td>CRN</td>
<td>-0.052</td>
<td>0.041</td>
</tr>
<tr>
<td>RBSE on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRN</td>
<td>0.135</td>
<td>0.037</td>
</tr>
<tr>
<td>PP</td>
<td>0.534</td>
<td>0.032</td>
</tr>
<tr>
<td>CED2</td>
<td>0.108</td>
<td>0.038</td>
</tr>
<tr>
<td>CRN on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP</td>
<td>0.061</td>
<td>0.046</td>
</tr>
<tr>
<td>CED2</td>
<td>0.121</td>
<td>0.046</td>
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<td>WR</td>
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<td>0.046</td>
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<td>RBSE</td>
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<td>CRN</td>
<td>0.091</td>
<td>0.091</td>
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<td>Residual Variances</td>
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<tr>
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<td>RBSE</td>
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<td>0.035</td>
</tr>
<tr>
<td>CRN</td>
<td>0.98</td>
<td>0.013</td>
</tr>
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</table>

Note. PWB = proactive work behaviors; RBSE = role-breadth self-efficacy; CRN = certified RN; WR= work recognition; PP = proactive personality.

*p* Two-tailed test#
Table 4.11

*Final Indirect Coefficients for Model 3*

<table>
<thead>
<tr>
<th>Indirect Effects</th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./SE</th>
<th>p(^a)</th>
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<td>Effects from CRN to PWB</td>
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<tr>
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<td>0.015</td>
<td>3.205</td>
<td>0.001**</td>
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<td>Specific Indirect</td>
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</tr>
<tr>
<td>PWB</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>RBSE</td>
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<td></td>
</tr>
<tr>
<td>PP</td>
<td>0.047</td>
<td>0.015</td>
<td>3.205</td>
<td>0.001**</td>
</tr>
<tr>
<td>Effects from PP to PWB</td>
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<tr>
<td>Sum of Indirect</td>
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<td>6.498</td>
<td>0.000***</td>
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</tr>
<tr>
<td>PWB</td>
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<tr>
<td>RBSE</td>
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<tr>
<td>PP</td>
<td>0.185</td>
<td>0.028</td>
<td>6.494</td>
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<tr>
<td>Effects from CED to PWB</td>
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<tr>
<td>Sum of Indirect</td>
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<td>0.015</td>
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<td>Specific Indirect</td>
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<tr>
<td>RBSE</td>
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</tbody>
</table>

Note. PWB = proactive work behaviors; RBSE = role-breadth self-efficacy; CRN = certified RN; PP = proactive personality; CEN = current education in nursing.

\(^a\)Two-tailed test

*p < .05; \(p < .01; p < .001\)
Table 4.12

*Contribution to the $R^2$ of Independent Variables in Model 3$_2$*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>S. E.</th>
<th>Estimate/S. E.</th>
<th>p$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactive Work Behavior (PWB)</td>
<td>0.228</td>
<td>0.034</td>
<td>6.705</td>
<td>0.000</td>
</tr>
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<td>Role Breadth Self-Efficacy (RBSE)</td>
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<td>0.035</td>
<td>9.732</td>
<td>0.000</td>
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<td>Certified RN (CRN)</td>
<td>0.020</td>
<td>0.013</td>
<td>1.573</td>
<td>0.116</td>
</tr>
</tbody>
</table>

$^a$Two-tailed test
Hypothesis 2. The second hypothesis stated that nurses with a strong proactive personality (PP) are more likely to hold voluntary specialty certification (CRN). As shown in Figure 4.2, the estimate for the path between PP and CRN was .06 and non-significant (p = .19). Therefore, the current analysis did not support the hypothesis that nurses with a strong proactive personality are more likely to hold voluntary specialty certification.

Hypothesis 3. Hypothesis 3 stated that specialty certified nurses (CRN) will report greater use of proactive work behaviors (PWB) than will non-certified nurses. As shown in Figure 4.2, the estimate for the path between CRN and PWB behaviors was -.05 and non-significant (p = .21). Therefore the current analysis did not support the hypothesis that specialty certification predicts greater use of proactive work behaviors.

Hypothesis 4. Hypothesis 4 stated that nurses who work in a setting where certification is recognized (WR) are more likely to be specialty certification (CRN). As shown in Figure 4.2, the estimate for the path between WR and CRN was .01 and non-significant (p = .88). Therefore the current analysis did not support the hypothesis that employment in a work setting where specialty certification is recognized predicts voluntary specialty certification.

Hypothesis 5. Hypothesis 5 stated that nurses who work in settings where specialty certification is recognized (WR) will be more likely to engage in proactive work behaviors (PWB). As shown in Figure 4.2, the estimate for the path between WR and PWB was .10 and statistically significant (p = .01). Therefore, the current analysis supported the hypothesis that work recognition for specialty certification predicts the use of proactive work behaviors.

Hypothesis 6. Hypothesis 6 stated that nurses who are specialty certified (CRN) will report a stronger sense of role-breadth self-efficacy (RBSE) than will non-certified nurses.
As shown in Figure 4.2, the estimate for the path between CRN and RBSE was .14 and statistically significant (p=.00). Therefore, the current analysis supported the hypothesis that specialty certified nurses report a stronger sense of role breadth self-efficacy.

**Hypothesis 7.** Hypothesis 7 stated that role breadth self-efficacy (RBSE) mediates the relationship between specialty certification (CRN) and the use of proactive work behaviors (PWB). As shown in Figure 4.2, the direct effect for the path between specialty certification and role-breadth self-efficacy was .14 and statistically significant (p = .00); the direct effect for the path between role breadth self-efficacy and proactive work behaviors was .35 and statistically significant (p = .00); and the sum of indirect effects from certification to proactive work behaviors was .05 and statistically significant (p = .001). Therefore, the hypothesis that RBSE mediates the relationship between specialty certification and proactive work behaviors was supported. The path for Hypothesis 7 accounted for 54% of the variance in proactive work behaviors.

**Additional Hypotheses Tested in Model 3**

In addition to the hypotheses proposed in Chapter 2, three additional hypotheses were tested in Model 3.

**Hypothesis 8.** Based on modifications made to Model 3, a positive relationship was hypothesized between nurses’ current educational level and voluntary specialty certification. The test for Model 3 supported this hypothesis with a statistically significant path coefficient of .11 (p < .00).

**Hypothesis 9.** Based on modifications made to Model 3, it was hypothesized that nurses’ current educational level will be associated with greater role-breadth self-efficacy.
The test for Model $3^2$ supported this hypothesis with a statistically significant path coefficient of .14 ($p < .02$).

**Hypothesis 10.** Based on modifications made to Model $3^2$, it was hypothesized that nurses’ role breadth self-efficacy mediates the relationship between proactive personality and the use of proactive work behaviors. As shown in Figure 4.3, the direct effect for the path between proactive personality (PP) and role-breadth self-efficacy (RBSE) was .53 and statistically significant ($p < .01$); the direct effect for the path between role breadth self-efficacy and proactive work behaviors was .35 and statistically significant ($p = .00$); and the sum of indirect effects from certification to proactive work behaviors was .19 and statistically significant ($p = .00$). Therefore, the hypothesis that RBSE mediates the relationship between proactive personality and proactive work behaviors was supported.

**Chapter Summary**

In this chapter, a summary of the survey questionnaire pilot study was reported followed by presentation of the findings from the larger study to test a model developed from Bandura’s social cognitive behavioral theory. The original research model did not provide an adequate fit to the observed data. A revised model based on review of the modification indices as well as the theoretical conceptualization of the original model was found to provide an excellent fit to the observed data. Overall, the findings supported four of the seven hypotheses that were proposed in Chapter 2. Additionally, current education, but not basic education, had a direct effect on voluntary specialty certification and role-breadth self-efficacy, along with an indirect effect, on proactive work behaviors. Similarly, nurses’ role breadth self-efficacy mediated the relationship between proactive personality and the use of proactive work behaviors. In fact, proactive personality had both direct and indirect effects
on all of the major study variables with the exception of certification status. In Chapter 5, the findings from this study will be discussed in terms of their theoretical relevance and contribution to the nursing literature on certification. Limitations of this study along with implications of the findings for practice, policy, education, and research also will be presented.
Figure 4.2: Final Model (Model 3)

Proactive Personality (PP)

Specialty Nurse Certification (CRN)

Role Breadth (RBSE)

Proactive Work Behaviors (PWB)

Workplace Recognition of Certification (WR)

Current Nurse Education (CED)
Figure 4.3. Indirect Effect of Proactive Personality (PP) on Proactive Work Behaviors (PWB) When Mediated by Role-breadth Self-efficacy (RBSE).
CHAPTER 5
DISCUSSION

The purposes of this study were to describe relationships among voluntary specialty certification, proactive personality, workplace recognition for certification, role breadth self-efficacy and proactive work behaviors and investigate role breadth self-efficacy as a possible mediator of the relationships among proactive personality, certification status, and proactive work behaviors. In this chapter, a summary of the findings is presented with a discussion of their implications for practice, policy, education, and research.

Discussion of Study Findings

Proactive Personality

It was hypothesized that individuals with a stronger proactive personality would be more likely to engage in proactive work behaviors (Hypothesis 1). This hypothesis was supported. This finding is consistent with the findings from previous studies in which positive relationships have been documented between proactive personality and individual attributes like creativity (Kim et al., 2009), use of innovative behaviors (Bateman & Crant, 1993; Seibert et al., 2001), adaptability to new work situations (Chan & Schmidt, 2000), and entrepreneurial intentions (Becherer & Mauer, 1999; Crant, 1996).

Similarly, researchers have argued that individuals with a strong proactive personality tend to choose, create, and influence opportunities to enhance career success (Kim et al., 2009; Seibert et al., 2001; Thompson, 2005). In fact, numerous studies have found that people with a strong proactive personality are more likely to be involved in!
improvement groups or extracurricular activities aimed at constructive change (Bateman & Crant, 1993; Major et al., 2006; Parker, 1998), actively pursue opportunities to learn new skills and knowledge that enhance competence (Major et al., 2006; Siebert et al., 2001; VandeWalle & Cummings, 1997), participate in professional development opportunities, and identify and act on opportunities that promote career success (Arthur & Rousseau, 1996; Erdogan & Bauer, 2005; Fuller & Marler, 2009; Hall, 2004; Mihail, 2008; Seibert et al., 1999; Seibert et al., 2001). Based on this literature, it was hypothesized that nurses with a strong proactive personality will be more likely to obtain specialty certification (Hypothesis 2). In this analysis, however, proactive personality was not significantly associated with certification. There are two possible explanations for this finding. First, nurses who practice as frontline providers may not view voluntary specialty certification as a meaningful way to advance in their career. In fact, many of the career advancement opportunities in nursing do not require voluntary specialty certification and, additionally, many nurses do not receive a salary increase or a monetary bonus when they become specialty certified. Second, the mean score on the Proactive Personality Scale was almost identical for the certified and non-certified groups in this sample. It is possible that the Proactive Personality Scale, not previously used with nurses, may have been insufficiently sensitive to detect differences between these groups.

**Certification Status**

Based on the hypotheses that nurses with a strong proactive personality are more likely to engage in proactive work behaviors (Hypothesis 1) and that individuals with a strong proactive personality are more likely to be specialty certified (Hypothesis 2), it also was hypothesized the certified RNs are more likely to engage in proactive work
behaviors (Hypothesis 3). This hypothesis was not supported. Possible explanations discussed for the finding related to Hypothesis 2 also are relevant to the explanation of this finding.

**Workplace Recognition for Certification**

Based on research suggesting that workplace recognition for certification is associated with increased employee self-esteem (Ferguson, 1996), self-confidence (Cary, 2001; Faherty, 1991; Grief, 2007; Piazza et al., 2006), and perceived competence (American Board of Nursing Specialties, 2006), it was hypothesized that nurses who worked in a setting where voluntary specialty certification is recognized would be more likely to be certified (Hypothesis 4). This hypothesis was not supported. Workplace recognition for certification was measured using a list of types of recognition that can be given for achieving specialty certification. The types of recognition included on this list reflected external rewards for becoming certified. Yet, in a review of the certification literature in nursing, Wade (2009) found that nurses identified intrinsic rewards as their primary motivation for obtaining certification. In particular, nurses in previous studies reported intrinsic factors like increased self-confidence and a greater sense of empowerment (Cary, 2001; Coleman, et al., 1999; Gaberson et al., 2003; Grief, 2007; Piazza et al., 2006) as motivating factors for becoming certified. Therefore, it is possible that the approach used to measure workplace recognition in this study may have contributed to the inability to find support for this hypothesis.

Bandura (1986) argues that human behavior is strongly influenced by its consequences in terms of effort and reward (Long & Shields, 2010). Based on this, it was hypothesized that nurses who worked in a setting where specialty certification is
recognized would be more likely to engage in proactive work behaviors (Hypothesis 5). In contrast to the unsupported hypothesis that certified nurses are more likely to engage in proactive work behavior (Hypothesis 3), this hypothesis was supported. It is possible that the inconsistent findings for Hypotheses 2 and 3 may suggest that workplace recognition for certification moderates the relationship between certification and use of proactive work behaviors. Although workplace recognition for certification may not be a factor in the decision of nurses to achieve voluntary specialty certification, it is possible that work setting where certification is recognized, valued, and supported may also recognize, value and support the use of proactive work behaviors by nurses. Therefore, workplace recognition for certification may reflect a contextual attribute of nurses’ work environment that facilitates the use of proactive work behaviors.

**Role-Breadth Self-Efficacy**

**Direct Effect.** Bandura’s (1997) conceptualized self-efficacy as the belief one has about their capabilities to organize and produce the level of action needed to exercise control over life events. These intentional actions, or human agency as described by Bandura (1977), are most strongly influenced by one’s sense of self-efficacy. Successful performance, in fact, strengthens one’s sense of self-efficacy and achieving a desired result reinforces certain behaviors (Bandura, 1997). Bandura further identified enactive mastery as a source of information through which self-efficacy beliefs develop. Role breadth self-efficacy (RBSE), defined as one’s perceived capability to carry out an array of work activities that extend beyond formal job expectations (Parker, 1998), is consistent with Bandura’s (1977) conceptualization of self-efficacy. Based on this premise, it was hypothesized that certified RNs will report a stronger sense of RBSE than will non-
certified RNs (Hypothesis 6). This hypothesis was supported, suggesting that specialty certification may represent a type of role-related enactive mastery that increases one’s sense of role-breadth self-efficacy.

**Mediating Effect.** Role-breadth self-efficacy (RBSE) has been identified in other studies as a mediator of the relationships among antecedent variables and the use of proactive work behaviors (Crant, 2000; Gist & Mitchell, 1992; Griffin et al., 2007; Parker, 1998). Therefore, it was hypothesized that RBSE would mediate the relationship between specialty certification in nursing and the use of proactive work behaviors (Hypothesis 7). This hypothesis was supported, suggesting that certification has an indirect effect on the use of proactive work behaviors through its direct effect on RBSE.

Along with the direct and mediating effects of RBSE identified in this study, the research model was modified to test three additional paths in an exploratory analysis. First, the model was modified to test RBSE as a mediator of the relationship between proactive personality and proactive work behaviors. The mediating effect of RBSE was statistically significant suggesting that proactive personality has both a direct effect on the use of proactive work behaviors and an indirect effect on proactive work behaviors through its effect on RBSE.

The research model was also modified to test RBSE as a mediator of the relationship between current level of education in nursing and the use of proactive work behaviors. The mediating effect of RBSE was statistically significant suggesting the current level of education, unlike basic education, has an indirect effect on the use of proactive work behaviors through its direct effect on RBSE. This finding is consistent with SCTB in suggesting that continued education in nursing beyond entry level may be a
source of enactive mastery that increases RBSE and, in turn, the use of proactive work behaviors.

Finally, the research model was modified to investigate RBSE as a mediator of the relationships among current level of education in nursing, certification status, and proactive work behaviors. Findings resulting from this modification to the model were statistically significant, suggesting that current education and specialty certification have an indirect effect on the use of proactive work behaviors through their direct effect on RBSE. This finding may add to the explanation of recent research findings documenting a relationship between nurses’ education and better patient outcomes (Aiken, Cimiotti, Sloane, Smith, Flynn, & Neff, 2011; Kelly, et al., 2011; Kendall-Gallagher, Aiken, Sloane, & Cimiotti, 2011). However, the findings from this study suggest that current rather than entry-level education may be more relevant in explaining the relationship between nurses’ education and better patient outcomes.

**Study Implications**

Findings from this study have implications for nursing practice, education, policy, and research. These implications are addressed in the sections below.

**Nursing Practice**

In this study, voluntary specialty certification and current level of education were found to be indirectly associated with the use of proactive work behaviors through their direct effect on RBSE. Proactive employees demonstrate the ability to think on their feet, exercise personal initiative, take a self-starting approach to their work, and anticipate and take pre-emptive action to resolve problems without the need for close supervision. These attributes are critical for point-of-care providers in healthcare today and will be
essential for effective health care delivery in the future as the components of the Affordable Care Act are implemented. In a recent report by the Institute of Medicine (2011), full utilization of the nursing workforce was identified as an essential goal. Although this report focused primarily on advanced practice nurses, this goal is also relevant for bedside nurses who participate in career development activities like achieving specialty certification and/or post-entry level education in nursing.

Transforming the delivery of healthcare in the U.S. will depend on the extent to which the practice of all point-of-care providers is commensurate with their level of education, experience, and practice credentials. Additionally, it will depend on maintaining a workforce of nurses who engage in continuing professional development and learning through activities like obtaining specialty certification and formal education beyond entry-level.

Along with macro-level implications for nursing practice, this study has implications at the level of individual practice. The findings from this study indicated that a strong sense of role-breadth self-efficacy was associated with greater use of proactive work behaviors. Consistent with Bandura’s theory, role-breadth self-efficacy can be strengthened through opportunities for enacted mastery. One of the practice implications of this study is the need for continued development of nurses’ work environment through implementation of strategies that promote and strengthen nurses’ role-breadth self-efficacy and sense of psychological ownership of the work. Such strategies may include enhanced participation of bedside nurses in unit governance activities, development and implementation of evidence-based practice protocols, introduction of practice innovations that effectively address quality and safety issues at
the unit level, and formalized mentorship of novice nurses.

**Nursing Education**

The findings from this study suggested that voluntary specialty certification and current educational level in nursing were associated with a stronger sense of role breadth self-efficacy (RBSE) which, in turn, was associated with greater use of proactive work behaviors. This finding has implications for nursing education that are similar to those identified in the report by the Committee of the Robert Wood Johnson Initiative on the Future of Nursing (2010). In particular, this report suggests that need to address barriers that are encountered by many nurses when they pursue professional career development activities. Hospital-based initiatives that reduce the financial barriers that often prevent nurses from seeking voluntary specialty certification can be an important step in increasing the number of nurses who have this credential. Strategies that reduce the financial barriers that often prevent nurses from pursuing formal education beyond entry level also are needed. Consistent with the recommendations made by the Robert Wood Johnson Initiative, one of the implications of this study is the need to develop educational programs that allow seamless progression from the associate to the baccalaureate degree and from the baccalaureate to advanced practice degrees. Additionally, flexible strategies that allow practicing nurses to continue their formal education are needed. Such strategies include, for example, on-line courses, the use of virtual classrooms, and partnerships between community hospitals and schools of nursing. Nursing education programs must offer options for working nurses like part-time study, flexible sequencing of courses, and availability of courses that build on rather than repeat content that has been previously learned. Providing these options will require increased federal and state
funding so nursing education programs can address not only the depth and breadth of education that is required to practice nursing in the current healthcare system but also provide the knowledge that is needed to appropriately engage in work behaviors that may go beyond formal job requirements.

**Nursing Policy**

Nurses who engage in proactive work behaviors often question accepted practices and act in ways that extend beyond the formal job description. However, the use of proactive work behaviors is not always viewed positively in the practice environment of many hospitals (Grant & Ashford, 2008; Parker et al., 2006). Although research on employee proactive work behaviors is growing, this study is one of the first to investigate the use of these behaviors among nurses. More research is needed before implications in terms of the legal regulations and policies that govern nursing practice can be suggested. Examining the effect of these behaviors on patient outcomes will determine whether these behaviors should be encouraged or restricted.

Even though the effect of voluntary specialty certification on patient outcomes is still to be determined, the findings from this study suggest that professional development activities like achieving specialty certification and formal education beyond entry-level do contribute to higher levels of role breadth self-efficacy among nurses. As such, hospitals that provide financial support for these activities make an investment in the professional growth and development of nurses who, as the largest group of front-line providers are critical to the provision of safe and high quality patient care. Ultimately, such an investment can provide the foundation needed to implement policies and procedures at both the hospital and state level. This investment promotes the full
utilization of nurses who have demonstrated their mastery of specialized knowledge by
achieving voluntary specialty certification or post-entry level formal education in
nursing.

**Nursing Research**

Findings from this study have implications for future research. First, a strong
sense of role-breadth self-efficacy was associated in this study with greater use of
proactive work behaviors. Studies are needed to identify strategies that can be effective
in promoting nurses’ role-breadth self-efficacy in the work setting. Second, the use of
proactive work behaviors involves questioning accepted practices, which is not always
viewed positively in the practice environment of many hospitals (Grant & Ashford, 2008;
Parker et al., 2006). Studies are needed to better understand organizational responses to
the use of proactive work behaviors by nurses. Studies also are needed to investigate the
relationships documented in this study using a larger and more diverse sample of nurses,
nursing units, and hospitals. Finally, the SEM model in this study was modified to
include three additional new paths and re-tested using the same sample, making this
portion of the study exploratory in nature. Studies using data from a new sample are
needed to validate the modified model that was tested in this study (Bollen, 1998).

Finally, of most importance, studies are needed to document the relationship between the
use of proactive work behaviors by nurses and patient outcomes. This evidence is needed
to determine if the use of these behaviors is associated with better patient outcomes and
should be supported and protected by regulatory agencies or has no effect or a harmful
effect on patient outcomes and should be prohibited.
Study Limitations

The findings from this study must be interpreted in light of several limitations. First, the variables in this study were measured using self-report data that reflected the participants’ work-related attitudes, values, and behaviors as well as their perceptions about the work environment. The mood of the participants at the time the survey was completed along with factors like having a bad day or fatigue may have affected the responses that were provided. Although self-reports were the most feasible option for measuring the variables in this study, the credibility of these findings could be enhanced by using other data collection approaches like direct observation.

In addition, the use of data obtained from a single source increases the potential for common methods variance which can be a source of systematic bias. In particular, common methods variance increases the potential for extreme response bias (a tendency to respond to all items using only the most positive or negative response option), acquiescence bias (a tendency to agree with or provide a positive connation to all items), or social desirability bias (a tendency to select response options that are thought to be socially accepted) (Podsakoff & Organ, 1986; Spector, 1987). Although common methods variance can be reduced by using multiple data sources like interviews with supervisors and/or colleagues, the feasibility of this strategy is limited especially when the sample is geographically diverse as was the case in this study.

Second, this study was conducted using a sample of RNs who were currently licensed and employed in North Carolina. Although several demographic characteristics of this sample were comparable to those reported in the 2008 National Sample Survey of Registered Nurses (HRSA, 2010), there were some important differences that could
reduce the external validity or generalizability of these findings. In particular, the percentages of nurses who reported their basic and current educational level as the baccalaureate degree were higher in this sample than those reported in the 2008 National Survey Sample. Nurses in this study who reported the baccalaureate degree as their current level of educational preparation in nursing were more likely to be specialty certified and also reported a stronger sense of role-breadth self-efficacy. The extent to which these findings, in particular, can be generalized to the nursing workforce as a whole is unclear. Similarly, characteristics of this sample in terms of employment in academic/teaching and urban/rural community hospitals, in particular, differed markedly from the employment characteristics of nurses reported in the 2008 National Sample Survey. Because of the emphasis that is placed on professional development as part of the mission of academic/teaching hospitals, it is possible that nurses who work in these hospitals may be more likely to pursue specialty certification and post-entry level education than would nurses who work in community hospitals. Therefore, the ability to generalize the findings from this study to nurses employed in settings beyond academic/teaching hospitals may be limited.

Finally, the response rate in this study poses a threat to the external validity of these findings. The response rate for this study was 21% which is substantially lower than the average response rate of 48.4% to 55% reported in published studies in which survey methodology has been used (Spitzmuller, Glenn, Sutton, Barr, & Rogelberg, 2007; Taris & Schreurs, 2007). According to Daly, Jones, Gereau, and Levy (2011), low response rates can be attributed to two possible causes. First, individuals may refuse to complete and return a mailed questionnaire. The major concern with refusal is the
potential for non-response bias if those who participated systematically differ from those who refused to participate. It is possible that non-response bias could have affected the findings from this study since nurses who have a propensity to be proactive may have been more likely to complete and return the questionnaire than would nurses who are less prone to be proactive. The second possible cause of low response rates is failure to receive a questionnaire. Failure to receive the questionnaire was a definite factor in the low response rate for this study. One week after the study questionnaires were mailed, Hurricane Irene hit the coast of North Carolina causing the destruction of two major U.S. distribution and mailing facilities. Although all questionnaires were followed by a mailed postcard with a repeated request for participation, the number of questionnaires returned by nurses living in eastern North Carolina was much lower than for other areas in North Carolina.

Conclusions

Understanding the effect of specialty nurse certification on patient outcomes has become a priority in recent years. The urgent need for research in this area was clearly communicated during the Nursing and Competency Summit held in 2009. With a focus on linking specialty certification in nursing to patient outcomes, an international research agenda was proposed during this summit as a way to unify efforts in this area of research. Drawing from this research agenda, this study was conducted to examine the effect of specialty certification on the use of proactive work behaviors among bedside nurses as they practice as frontline providers. Also, this study investigated role-breadth self-efficacy as a possible mediator of the relationship between specialty certification and the use of proactive work behaviors.
Using Bandura’s Social Cognitive Theory of Behavior (SCTB) and prior research in the business and social psychology literatures, a theoretical model to investigate proactive work behaviors was constructed and tested using structural equation modeling. Specifically, the model examined the relationships among proactive personality, certification status, workplace recognition of certification, role breadth self-efficacy, and proactive work behaviors. Both proactive personality and role-breadth self-efficacy have been identified in the business and social psychology literatures as relevant for understanding the use of proactive work behaviors by employees. However, no studies were found in which these variables were tested in a sample of practicing nurses. Similarly, no studies were found in which a theoretical model that incorporates these variables along with certification status and workplace recognition for certification has been empirically tested. Examining the direction and magnitude of the relationships among these variables is an important first step in understanding the potential effect of nurse specialty certification on patient outcomes.
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