Toward Quality Preceptorship: A Dyad Sudy

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TOWARD QUALITY PRECEPTORSHIP: A DYAD STUDY

by

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ABSTRACT
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Problem: Approximately 70% of newly graduated nurses work in hospital settings, but their turnover rates are high, costly to employers, and due, in part, to lack of satisfaction with job orientation processes. Effective preceptorship is widely regarded as pivotal to newly graduated nurses' successful transition to the professional nurse role; yet, the critical elements of preceptorship have not been empirically determined. Numerous researchers proffer the preceptor - newly graduated nurse interpersonal relationship as key, but preceptorship research has not been focused on this dyadic interaction. Consequently, its true impact remains unknown. Accordingly, this study addressed the following research question, "Are the effects of preceptorship a function of the preceptor – newly graduated nurse interpersonal relationship?"

Methodology: A reciprocal, standard dyadic design was used. Survey participants included 50 preceptor-newly graduated nurse dyads recruited from nine Midwestern U.S. hospitals. The differences between and relationships among dyad-member perceptions of the preceptorship experience, newly graduated nurse competence, and work engagement were explored. Informed by Kashy and Kenny's (2000) Actor –Partner Interdependence Model, *actor* and *partner effects* of the preceptorship experience on work engagement and perceptions of newly graduated nurse competence were explored using Bayesian inference analyses.

Results: Approximately 42% and 52% of the variance in preceptors' and newly graduated nurses' perceptions of newly graduated nurse competence, respectively, were predicted by their collective perceptions of the preceptorship experience. Dyad-member perceptions of the preceptorship experience strongly predicted their own perceptions of newly graduated nurse competence. Preceptor perceptions of the preceptorship experience weakly predicted newly graduated nurse work engagement. Newly graduated nurse perceptions of the preceptorship experience predicted neither their own nor their preceptor's work engagement.

Conclusions: Findings of this study provide initial evidence that preceptor and newly graduated nurse perceptions of the preceptorship experience have direct effects on work engagement and perceptions of newly graduated nurse competence. Therefore, hospital employers should take care to ensure positive preceptorship experiences, including the development of effective preceptor – newly graduated nurse interpersonal relationships, to achieve desired outcomes. Ongoing dyadic preceptorship research is needed to further establish the preceptor-newly graduated nurse relationship as a critical determinant of preceptorship outcomes.

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DISCLAIMER

This dissertation was written based on the option of supplanting Chapter IV: RESULTS and Chapter V: INTERPRETATION OF FINDINGS with two manuscripts, which are found in this document, beginning on page 68 and page 86, respectively. Chapter 3: METHODOLOGY was written prior to the initiation of the study and does not fully represent the actual method of the study conducted. Therefore, the reader is directed to Manuscript II which presents the methodology of the completed study and its results.

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CHAPTER I. INTRODUCTION

The Problem

Preceptorship is a virtual constant in the experience of newly graduated nurses (NGNs) across hospital settings and widely considered an essential element of NGN transition-to-practice success (Rush, Adamack, Gordon, Lilly, & Janke, 2013). Described as a model of clinical teaching, preceptorship involves a "time-limited, one-to-one relationship between a learner and an experienced nurse," who acts as a preceptor (PR), facilitating "intensive and individualized clinical learning opportunities" aimed at increasing the "learner's competence and self-confidence" in clinical nursing practice (Gaberson, Oermann, & Shellenbarger, 2015, p. 273). As a new nurse employee, the NGN constitutes a learner and is commonly referred to as a preceptee or orientee in the context of preceptorship. There is a substantial body of evidence indicating that NGNs need learning guidance as they transition from the role of dependent nursing student to that of independent professional nurse; however, existing evidence regarding the benefits of specific strategies commonly used to support NGNs as they transition-to-practice, including preceptorship, is weak (Edwards, Hawker, Carrier, & Rees, 2015). Despite its widespread use in the acute care environment, there is a paucity of empirical research to substantiate a direct, positive relationship between preceptorship and desired NGN, PR, and organizational outcomes (Edwards et al., 2015). Consequently, justification for the use of preceptorship in the context of NGN job orientation and transition to the professional nurse role has been largely based on tradition, and anecdotal and qualitative evidence.

The lack of a best practice approach to preceptorship is apparent in the high degree of variability among preceptorship models (Kramer, Maguire, Halfer, Brewer, & Schmalenberg, 2013; Lewis & McGowan, 2015). The single PR model, team PR model, and preceptee cohort model are three models that vary in terms of PR to NGN ratio (Ulrich, 2012). Preceptorships also differ in their approaches to PR-NGN scheduling, patient care assignments, and availability of the

PR to the NGN on the patient care unit (Blegen et al., 2015; Lewis & McGowan, 2015). Extant evidence regarding the ideal duration of formal preceptorship is inconclusive. Craig, Muscato, and Moyce (2012) found that most preceptorships last from 11 to 12 weeks, but some extend up to 12 months (Kramer, Maguire, Halfer et al., 2013), depending on practice specialty (Sandeau & Halm, 2010). Nurse-managers have asserted that preceptorships lasting beyond three months are not cost effective, while PRs have identified three to four months as the optimal timeframe (Kramer, Maguire, Halfer et al., 2013). There is some evidence, albeit weak, to suggest that precepted experiences lasting three to six months positively affect NGN retention rates (Salt, Cummings, & Profetto-McGrath, 2008). Current evidence regarding the benefits of assigning a consistent, primary PR versus multiple PRs to support the NGN is also mixed (Kramer, Maguire, Halfer et al., 2013). While NGN success during the transition-to-practice period is often attributed to PR effectiveness, requisites for PR selection and training for the role are inconsistent (Haggerty, Holloway, & Wilson, 2012) and at times, absent (Panzavecchia & Pearce, 2014).

Numerous researchers proffer the PR-NGN relationship as a critical element of the NGN role transition experience (Haggerty, Holloway, & Wilson, 2013; Marks-Maran et al., 2013; Rush et al., 2013); nevertheless, strategies for PR-NGN pairing have not been fully explored through preceptorship research (Poradzisz, Kostovich, O'Connell, & Lafaiver, 2012). There is scant evidence in the literature to suggest that PRs and NGNs are intentionally paired by clinical agencies based on factors such as teaching-learning styles, personality compatibility, and intergenerational harmony, among others, that could support the development of effective PR-NGN relationships to promote preceptorship success. In practice, PR-NGN pairing often transpires at random, based on which nurses are working particular shifts (Baltimore, 2004).

High-quality preceptorship is widely accepted as pivotal to successful NGN job orientation and transition to the professional nurse role. Still, a comprehensive theoretical model of preceptorship explicating the determinants of preceptorship quality has not been published; moreover, there is little evidence to support the inclusion of any particular component in a

preceptorship model (Blegen, et al., 2015). Therefore, there is a need for nursing research aimed at identifying the key variables by which the quality of preceptorship can be measured, in order that high-quality preceptorship can be assured for all NGNs. Accordingly, this study lays the groundwork for future development of a model of preceptorship quality that can be used by

- preceptors to optimize NGN learning in the clinical environment;
- clinical nurse-educators to plan and coordinate the implementation of high-quality, evidence-based, cost-effective preceptorships that will support staff nurse development, work engagement, job satisfaction, and retention;
- nurse administrators to justify financial support for the implementation of preceptorship programs to onboard NGNs; and
- nurse researchers to build the preceptorship evidence base to support NGN transition to the professional nurse role, expand the qualified nurse workforce, and promote high quality patient care.

Significance of the Problem

Significance for the nursing workforce. Nurse demand is outpacing nurse supply (P McMenamin, 2014). The growing population of older adults, escalating burden of chronic disease, and ongoing advances in healthcare technology are contributing to a precipitous rise in the demand for qualified nurses (Institute of Medicine [IOM], 2010). By 2025, new job openings for registered nurses are expected to increase by 21% (U.S. Department of Health and Human Services, Health Resources and Services Administration [HRSA], National Center for Health Workforce Analysis, 2014). Concurrently, the rising rate of nurse retirement is threatening a renewal of the nursing shortage (P McMenamin, 2014). Nearly one-third of the nursing workforce will reach retirement age in the next 15 years; 23% of nurses age 55 or older have intent to retire or change to part-time status in the very near future; and 190,000 nurses are expected to retire or leave nursing as the result of the growing U.S. economic recovery (AMN

Healthcare, 2013). This means that in the very near future, fewer experienced nurses will be available to provide and model expert nursing care, and act as PRs to NGNs.

High-quality patient care is dependent upon the sustainability of sufficient, qualified nurses in the workforce (Aiken et al., 2012; Needleman et al., 2011). As the largest segment of the nursing workforce available for employment (Friedman, Cooper, Click, & Fitzpatrick, 2011), NGNs are a logical and strategic focus for hospital employers. In addition, drawing on the pool of NGNs, typically excited and eager to practice, may serve to rejuvenate extant nurse employees experiencing exhaustion and burnout secondary to increasingly heavy workloads. The current state of affairs in the nursing workforce underscores the need for initiatives aimed at supporting NGN role transition and retention (McCalla-Graham & De Gange, 2015). High-quality preceptorship to expand the NGN workforce is critical because without the addition and retention of sufficient numbers of competent NGNs in the workforce, nurse demand cannot be met, leading to inadequate hospital nurse staving-levels and with that, patient care quality is jeopardized.

Significance for newly graduated nurses. ***Lack of newly graduated nurse readiness.*** Newly graduated nurses are at risk for failure to thrive in clinical practice (Valdez, 2008). The complexity of contemporary healthcare systems, advanced technology, and high-level patient acuity pose formidable challenges to NGNs as they transition to professional practice (Bratt, 2009). By self-account, many NGNs lack confidence in their ability to meet the expectations of professional nursing (Johanson, 2013; McCalla-Graham & De Gagne, 2015; Mellor & Greenhill, 2014). Experienced nurses are concerned about NGNs' overall readiness for practice, specifically, NGNs' competence in technical skills, critical thinking, and interpersonal communication (Missen, McKenna, & Beauchamp, 2016). Likewise, nurse executives question NGNs' ability to deliver effective and safe patient care (Berkow, Virkstis, Stewart, & Conway, 2008).

A solid nursing education is not enough to support successful NGN transition-to-practice (National Academies of Science, Engineering, and Medicine [NASEM], 2015) because a nurse's knowledge about something (knowing *that*) and knowing *how* to practice the profession reflect

different types of expertise (Alspach, 1995, p. 92), and both are necessary conditions for effective nursing care. NGNs need opportunities to learn *how* to apply their professional nursing knowledge and skills in real-world practice environments (NASEM, 2015), and preceptorship is a viable approach to meeting this need. As a guided, situated learning experience (Kramer, Maguire, Schmalenberg et al., 2013), preceptorship promotes NGNs' acquisition of basic and specialty nursing knowledge and skills (Sandeau & Halm, 2010), and supports the development of NGNs' competence (Haggerty et al., 2013) and confidence (Lewis & McGowan, 2015).

Reality shock and nurse becoming. Successful NGN transition-to-practice is not inevitable. The responsibility of being a professional nurse weighs heavily on NGNs (Ostini & Bonner, 2012), and the experience is marked by moral distress (St-Martin, Harripaul, Antonacci, Laframboise, & Purden, 2015) characterized by periods of low self-esteem, increasing self-doubt, and feelings of powerlessness (Badger, 2008; Kelly 1998; Kunkel-Jordan & Green, 2017). Lack of support and difficult work environments contribute to high levels of stress during the NGN transition-to-practice period (Gardiner & Sheen, 2016), and the experience of high-level stress during the first year of practice leads many NGNs to quit their job (Flinkman & Salanterä, 2015).

Newly graduated nurses commonly suffer *reality shock* as they attempt to reconcile self-expectations for practice and the professional ideals taught in nursing school with the ambiguity of real-world nursing practice (Kramer, 1974). Duchscher (2008) described NGNs' transition-to-practice as a 3-stage process of *becoming* that includes *doing, being,* and *knowing,* involving transition shock, transition crisis, and recovery, respectively. Particularly in the second stage of being, NGNs experience feelings of incompetency, inadequacy, exhaustion, disappointment, and frustration (Duchscher, 2008). Newly graduated nurses report difficulties with patient assessment, prioritization, delegation, time management, and critical thinking in the clinical environment (Chandler, 2012; St.-Martin et al., 2015). They worry about missing key patient information and not knowing what to do in a crisis (Craig et al., 2012; St.-Martin et al., 2015). Some NGNs have expressed fear of being revealed as a fraud (Dracup & Bryan-Brown, 2004).

Marginalization. Along with issues surrounding self-efficacy and competence, the marginalization of NGNs in the clinical environment is of paramount concern because it leads NGNs to conclude that they do not belong (Duchscher & Cowin, 2004). Newly graduated nurses have an inherent need to "fit in" because their sense of nurse-*being* is dependent upon the establishment of secure and meaningful social bonds with professional nurse colleagues (Malouf & West, 2011). To the contrary, many NGNs find transition to the professional nurse role a confusing and traumatic experience (Chandler, 2012) that leaves them feeling unwelcomed, disillusioned, overwhelmed, and abandoned (Kunkel-Jordan & Green, 2017; Mellor & Greenhill, 2014).

Nearly 30% of NGNs are bullied on a weekly or daily basis (Laschinger, Wong, & Grau, 2012). A culture of incivility that persists in nurse work environments threatens the security of all nurses, but NGNs are particularly vulnerable to its effects (D'Ambra & Andrews, 2014). Bullying has been correlated with emotional exhaustion, and both bullying and emotional exhaustion have a direct, negative effect on NGN job satisfaction (Laschinger et al., 2012). What is more, NGNs who are dissatisfied with their jobs have a statistically significant lower likelihood of remaining with their employer (Cho, Lee, Mark, & Yun, 2012).

Preceptors assume a great deal of responsibility in socializing and integrating NGNs into the nurse work environment and they take their role seriously (Nelson et al., 2012). Lin, Viscardi, and McHugh (2014) showed that NGN interactions with physicians, patients, and families are significantly and positively associated with job satisfaction (Lin et al., 2014). Interpersonal relationships and effective communication with nurse colleagues and physicians are especially important because they increase NGNs' sense of belonging. Conversely, when communication is poor, NGNs feel disrespected, devalued, and unsupported, leading some to question their ability to "survive" the transition-to-practice period (Phillips, Kenny, Easterman, & Smith, 2014).

Newly graduated nurse turnover and patient care quality. Difficulties inherent to NGN role transition necessitate the support of experienced nurse PRs (Nelson et al., 2012), and the

current lack of an evidence-based model of preceptorship quality has negative implications for NGNs, PRs, patient care units, hospital systems, and above all, patients. Inconsistencies in preceptorship contribute to NGN confusion regarding what can be expected from the preceptorship experience, and mismatched expectations are likely to result in NGN claims of a lack of support (Lewis & McGowan, 2015). This is significant because NGNs who perceive their job orientation to be inadequate experience poor job control, which leads to job dissatisfaction and in turn, intention to leave the job and the profession (Phillips et al., 2014; Unruh, Zhang, & Chisolm, 2016).

Nurse employers and policy makers have long focused on retaining NGNs in their jobs and the profession (Unruh et al., 2016, p. 6). Nevertheless, instability in the NGN workforce continues to be a palpable concern. Cho, et al. (2012) conducted a survival analysis ($N = 351$) of NGNs working in hospitals as full-time employees and estimated the probabilities of NGNs staying in their first nursing job for one, two, and three years to be 82%, 66%, and 54%, respectively. More recently, research has shown that greater than 30% of NGNs frequently have intent to change jobs (Numminen, Leino-Kilpi, Isoaho, & Meretoja, 2016), 15% resign their first job within the first year of nursing (Kovner, Brewer, Fatehi, & Katigbak, 2014), and 14% (Numminen et al., 2016) to 55% have thoughts about quitting the profession (Tastan, Unver, & Hatipglu, 2013). NGN turnover is particularly troubling to hospital employers because 77% of NGNs are employed in hospital settings (Kovner et al., 2014).

The threat of NGN leaving is of foremost concern, in part, because nurse turnover is costly. Colosi (2016) reported that hospital financial expenditures associated with the turnover of one bedside nurse in 2015 ranged from $37,700 to $58,400. Furthermore, when nurse turnover rates are high, nurse staffing levels are insufficient and nurse engagement is low (Collini, Guidroz, & Perez, 2015). Research has shown that low nurse-to-patient staffing ratios are associated with an increased incidence of adverse patient events including medication errors, pressure ulcers, fall injuries (Cho, Chin, Kim, & Hong, 2016), and infections (Nansupawat et al.,

2016). In addition, nurse staffing levels are negatively correlated with failure-to-rescue, readmission rates, and patient mortality (McHugh et al., 2016). Lastly, nurse staffing shortages can lead to absenteeism and workplace injuries (Dawson, Stasa, Roche, Homer, & Duffield, 2014). Since preceptorship is the most common mechanism by which NGNs are supported during the transition-to-practice period (Washington, 2013), research that helps to explicate the critical components of preceptorship effectiveness to improve the NGN role transition experience and retain NGNs in the workforce is a prudent and essential endeavor.

Purpose and Aims of the Study

This study builds upon the researcher's prior scholarship focused on preceptorship in the context of NGN transition to the professional nurse role. A principle-based analysis of the preceptorship concept was conducted by the researcher using Hupcey and Penrod's (2005) method whereby, preceptorship was defined as a multidimensional process involving the PR-NGN interpersonal relationship as outlined int Manuscript I. The researcher also conducted two prior qualitative studies (Kunkel-Jordan & Bratt, 2017; Kunkel-Jordan & Green, 2017) using Husserlian phenomenology that illuminated the NGN and PR *lived experience* of preceptorship. Key findings of these prior studies highlighted the pivotal role of the PR in facilitating NGN competence and work engagement, the importance of effective PR-NGN interpersonal interaction to PR and NGN role satisfaction and commitment, and the interdependent nature of the PR-NGN interpersonal relationship. Consequent to the researcher's prior inquiry, the following research question emerged and was addressed in this study, "In the context of NGN transition to the professional nurse role, are the effects of preceptorship a function of the PR-NGN interpersonal relationship?"

Because nursing is a social practice (Benner, 1984/2001), it is appropriate to examine the preceptorship phenomenon through a social science lens. In 1959, social-psychologists and distinguished human relationship theorists, Thibaut and Kelley, asserted that *interaction* is the

essence of any interpersonal relationship, and that two-persons engaged in a relationship affect one another as the result of their interpersonal interaction. From the standpoint of social-psychology*, interdependence* is one phenomenon that (a) constitutes evidence of mutually influential interpersonal interaction (Levinger, 1994) and (b) characterizes the *dyadic* relationship (Kelley & Thibaut, 1978).

Interdependence is evident within a two-person dyad when the outcomes of each dyad-member are consequent not only to his or her own thoughts, emotions, and behaviors *(actor effect)*, but also to the thoughts, emotions, and behaviors of his or her partner *(partner effect)* (Campbell & Kashy, 2002; Kelley, 1978; Kenny & Cook, 1999). Because mutual influence is probable when two persons are engaged in a relationship (Thibaut & Kelley, 1959), researchers must adopt the dyad, rather than the individual, as the unit of measurement in the study of interpersonal phenomena to avoid the bias of pseudo-unilaterality (Duncan, Kahki, Mokros, & Fiske, 1984; Kenny, Kashy, & Cook, 2006); that is, to prevent mistakenly attributing dyad-member relationship outcomes only to actor effect.

The PR-NGN dyad is foundational to the preceptorship experience. According to Kenny, et al. (2006), dyadic research methods are essential for the true understanding of social phenomena that intrinsically involve two-person interaction such as helping, communication, and conflict, among others. Despite preceptorship inherently involving a two-person dyad and interactive relationship, PRs and NGNs have only occasionally been included, together, in a single study sample population. To date, no published preceptorship study has been guided by dyadic research methodology.

Situating the preceptorship experience within Donbedian's (1968) model of Health Care Quality, the PR-NGN dyadic relationship was viewed as an element of the preceptorship process and determinant of preceptorship quality. Therefore, the overriding purpose of this study was to examine preceptorship, in the context of NGN transition to the professional nurse role, as a quantifiable, dyadic phenomenon and predictor of NGN and PR outcomes. The *Actor-*

Partner Interdependence Model (APIM) (Kashy & Kenny, 2000) provided a conceptual stance and statistical basis for the study of dyadic relationships. Accordingly, the APIM also served to underpin this study, which focused on the perceptions of distinguishable PR-NGN dyads after the completion of preceptorship. Informed by the researcher's prior qualitative research (Kunkel-Jordan & Bratt, 2017; Kunkel-Jordan & Green, 2017), specific aims of this study were to:

1. Explore differences between PR and NGN perceptions of the preceptorship experience.
2. Explore differences between PR and NGN perceptions of NGN competence.
3. Explore differences between PR work engagement and NGN work engagement.
4. Explore relationships among PR perception of the preceptorship experience, NGN perception of the preceptorship experience, PR perception of NGN competence, NGN self-perception of competence, PR work engagement, and NGN work engagement.
5. Explore *actor* and *partner* effects of PR and NGN perceptions of the preceptorship experience on PR perception of NGN competence and NGN self-perception of competence.
6. Explore *actor and partner* effects of PR and NGN perceptions of the preceptorship experience on PR work engagement and NGN work engagement.

Summary

Newly graduated nurses are often described as the future of nursing (Unruh & Zhang, 2014); yet, because multiple intrinsic and extrinsic factors threaten successful NGN transition to the professional nurse role, as well as NGN retention in the workplace and the profession, the importance of high-quality preceptorship should not be underestimated. Despite expectations to the contrary, NGNs do not enter the nursing workforce ready to practice independently. Newly graduated nurses need support in the clinical environment to: practice safely; develop nursing knowledge, skills, and clinical judgment; and be integrated into the patient care unit interprofessional team.

In the hospital setting, preceptorship is the mainstay of NGN transition to the professional nurse role, wherein PRs assume the primary responsibility for onboarding newly employed NGNs and validating their clinical competence. Effective preceptorship is critical because dissatisfaction with the job entry experience increases the likelihood of NGN turnover, which negatively impacts upon patient care quality. Because NGNs are key to the sustainability of a nursing workforce sufficient to meet healthcare demand, this study lays the groundwork for the future development of a model of preceptorship quality that will support NGN role transition and retention; thereby, expanding the qualified nursing workforce. In this study, the researcher's quest toward knowledge of preceptorship quality was founded upon the idea that the PR-NGN interpersonal relationship is bidirectional, inherent to the preceptorship process, and pivotal to preceptorship success. Accordingly, this study used a dyadic research methodology.

CHAPTER II. REVIEW OF THE LITERATURE

In Chapter Two, the study concepts are defined, and the proposed vertical and horizontal conceptual-theoretical linkages between selected concepts of the conceptual models underlying the study and the theoretical PR-NGN study model are presented. The philosophical underpinnings and assumptions of the study, along with the gaps in the preceptorship literature, are addressed. It is important to note that the preceptorship concept is apparent in multiple areas of the nursing literature including academic nursing education, staff nurse development, and NGN transition to practice, as well as in the literature of several additional practice disciplines including medicine, pharmacy, dentistry, social work, and teaching (Billay & Yonge, 2004). For brevity, the term "preceptorship" as it is used by the researcher in this and subsequent chapters should be taken to mean, "preceptorship in the context of NGN transition to the professional nurse role."

Literature Search and Review Protocol

An exhaustive review of the preceptorship literature was undertaken. The search strategy used to identify preceptorship literature particularly relevant to the PR-NGN interpersonal relationship was based upon a systematic review protocol (Lindfors & Juntilla, 2014) published in the *Joanna Briggs Institute of Systematic Reviews & Implementation Reports* that was aimed at identifying "effective orientation programs and their effects on the professional competence and organizational commitment of newly graduated nurses" (p. 2).

The electronic databases, CINAHL, Health Source: Nursing/Academic Search Edition, and Web of Science, were used repeatedly to search the following keywords in various combinations: "PR," "preceptorship," "new graduate nurses," "novice nurse," "transition," "transition program," and "orientation program." The Boolean operators AND, OR, and NOT were variably applied. The literature was searched and examined over a period of more than four years, ending in January 2017. "Nursing student" was the primary exclusion term. Additional

delimiters included: “research,” “peer-reviewed,” “journal article,” and “English” language. No publication year parameters were applied. At completion, the recurrent search yielded more than 270 unique citations.

A systematic approach was used to determine the final sample of preceptorship articles reviewed for this study. First, titles and then abstracts were reviewed for relevance. The principal criterion for inclusion was nursing research that advanced the preceptorship concept. Research studies examining the elements of the preceptorship process, namely, PR activities and the PR-NGN interactive interpersonal relationship, or the outcomes of preceptorship, were of particular interest and included in the review. Dissertations, poster abstracts and editorials were excluded. Studies focusing on midwives or other advanced-practice nurses were also excluded, as were those primarily conducted in long-term care, community health, and public health settings. Full-text articles with potential for inclusion in the review were retrieved and carefully read for relevance.

Forty preceptorship research reports published between 1987 and 2016 in English in peer-reviewed journals were included in the final review of the literature conducted for this study. The sample articles reflect experimental (1), quasi-experimental (4), correlational (4), descriptive (10), mixed methods (9), and qualitative (12) studies that were conducted in the US (62.5%), United Kingdom (17.5%), Taiwan (7.5%), New Zealand (5%), Canada (2.5%), Japan (2.5%), and Lebanon (2.5 %). In these studies, researchers variably focused on PR and NGN characteristics, PR and NGN perceptions of the preceptorship experience, PR preparation for their role, PR activities, a specific preceptorship model, and/or preceptorship outcomes. Evidence pertinent to the current PR-NGN dyad study was abstracted from these preceptorship research reports and several relevant articles aimed at NGN transition-to-practice. Lastly, focused reviews of the work engagement and NGN competence literature were conducted.

Concept of Newly Graduated Nurse

Advanced beginner. Benner's (1984/2001) landmark study, "From Novice to Expert: Excellence and Power in Clinical Nursing Practice," culminated in the delineation of a five-stage novice-to-expert model of nurse development: *novice, advanced beginner, competent, proficient*, and *expert.* According to the model, the NGN constitutes an advanced beginner, who brings limited, but enough, real-world nursing experience to demonstrate "marginally acceptable performance" (Benner 2001, p. 22). Unlike the novice, whose nursing practice is grounded in principles, rules, and reporting structures (Benner, Tanner, & Chelsa, 1992), the NGN has ability to recognize, or be shown by a PR, the recurrent and meaningful aspects of a particular clinical situation (Benner, 1984/2001). Still, the NGN needs support by way of clinical guidelines and help in prioritizing patient care (Benner 1984/2001). According to Benner (1984/2001), patient care provided by NGNs must be overseen by a nurse with demonstrated competence to ensure that the urgency of patient conditions is recognized, and patient needs are met.

Defining characteristics. Various nomenclature is used in the preceptorship literature to describe the NGN. Examples include: "neophyte," "novice," "new nurse," "new nursing graduate," "newly qualified nurse," "newly licensed registered nurse," "preceptee," and "orientee." Historically, the NGN has been referred to as a graduate nurse or "GN" (Alspach, 1995; Morrow, 1984). Gardiner and Sheen (2016) described the "graduate nurse" as a fully qualified nurse who has earned a university degree; however, this definition is problematic because it excludes new nurses who graduated from technical or community colleges. Nurses are currently educated in accredited diploma, associate degree, and baccalaureate nursing programs (National League for Nursing, 2016); therefore, relative to level of education, "NGN" is an inclusive term.

Some researchers apply "licensure" as an inclusion criterion for NGN study participants in preceptorship and transition to practice research. This is problematic in that the time from

graduation to passing the NCLEX-RN and licensure is variable; moreover, licensure is not a consistent requisite for entry to the nursing workforce. From a legal standpoint, "GN" is a designation granted by state boards of nursing, indicating that an NGN-licensure applicant has been authorized to practice temporarily under the direct supervision of a licensed registered nurse (RN) (Wisconsin Department of Safety and Professional Services, 2016; Florida Board of Nursing, 2017; Nevada State Board of Nursing, 2017); post-licensure, the designation "RN" applies to the NGN (National Council of State Boards of Nursing, 2011).

Overall, the use of variable NGN descriptors and definitions across the preceptorship literature frequently centers on the point in time at which the NGN no longer constitutes a *new* nurse. Some researchers have adopted 18-months (Pelico, Brewer, & Kovner, 2009) or 24-months (St. Martin et al., 2015, p. 393) post-graduation as the endpoint. Giallonardo, et al. (2010) used the term "NGN" to describe nurses who had been in practice up to three years after graduation. However, the criterion "12-months or less" is typically applied in preceptorship research.

Theoretical definition. In this PR-NGN dyad study, "NGN" was understood in the broadest sense, conceptualized and theoretically defined as a pre- or post-licensure nurse, who graduated from an accredited diploma, associate degree, or baccalaureate nursing program, and has been engaged in nursing practice $\leq$ 12 months.

Concept of Preceptor

Role qualifications. The PR is an experienced nurse with expertise in clinical knowledge, skills, and judgment (Poradzisz et al., 2012). Prerequisites for the role are varied but commonly include a minimum of 1 year of clinical nursing experience (Beecroft, Hernandez, & Reid, 2008), *and* 6-months (Craven & Goyles, 1996) to 12 months (Whitehead et al., 2013) of experience in the nurse role on the patient care unit where the preceptorship will occur. In some settings, three years in the current staff nurse position is expected (Hu et al., 2015). Training is also essential (Haggerty et al., 2013; Kang, Chiu, Lin, & Chang, 2016) but may occur after a

nurse has been selected for the role (Goss, 2015; Haggerty et al., 2013; Kang et al., 2016). Successful PRs have a clear understanding of their role, and strengths in critical thinking, effective listening, prioritization, teamwork, and accountability (Foy, Carlson, & White, 2013). Preceptors are respected by their peers for being honest and trustworthy, for consistently modeling employer values, and exhibiting commitment to the patient care unit and patient well-being (Beecroft, et al., 2008). The nurse's reasons for accepting the role and responsibilities of the PR are critically important because the lack of a sincere desire to precept can impede the professional development of NGNs (Haggerty et al., 2012).

Role function. Preceptorship is largely described and understood in terms of PR role function (Kunkel-Jordan et al., 2017). Boyer's (2008) model of PR roles and responsibilities provides a basis for understanding PR activities and inferring PR-NGN interpersonal interaction. According to Boyer, as a professional *role model,* the PR leads NGNs by example, modeling professional behavior, reflective practice, conflict resolution, adherence to accepted standards of practice, and evidence-based practice. As an *educator,* the PR teaches NGNs, supporting and encouraging learning at the patient bedside. In the role of *evaluator*, the PR promotes NGNs' delivery of safe patient care and effective practice by ensuring that hospital policies and procedures are followed, nursing care is within the scope of nursing practice, and NGN competence is achieved. Lastly, as a *protector*, the PR safeguards NGNs and patients against errors and the negative consequences of unsafe practice.

Role burden. Preceptors understand their role to be "an altruistic responsibility to the greater good of the profession" (Richards & Bowles, 2012, p. 209). In a qualitative study ($N = 6$) aimed at illuminating the meaning of being a PR, Richard and Bowles (2012) found that PRs are motivated to precept by their love of teaching, appreciation for mutual learning, and the opportunity to make a difference for the profession and influence the professional development of NGNs. Preceptors believe that they are accountable for NGN actions and the outcomes of preceptorship (Richards & Bowles, 2012), and most PRs perceive they fulfill expectations for the

role (Fox et al., 2006). Still, the PR role is demanding and at times, PRs struggle to balance the responsibilities of simultaneously caring for patients and precepting NGNs (Richards & Bowles, 2012), resulting in PR psychological stress and burden (Chen, Duh, Feng, & Huang, 2011). The nursing care of patients is a physical endeavor, time consuming, and requires timely response to patient and family needs (Chen et al., 2011). When workloads are heavy, PRs experience guilt, frustration, and lack of control on account of self-perceived inability to meet NGN learning objectives in addition to satisfying patient care needs (Chen et al., 2011).

Theoretical definition. In this PR-NGN dyad study, the PR was conceptualized as an experienced nurse with demonstrated competence, whose role as a nurse educator extends beyond that of a clinical teacher to include the functions of professional nurse role model, socializer, (Alspach, 1995), safety protector, competency evaluator, team leader/builder (Boyer, 2008), and coach (Nielsen, Lasater, & Stock, 2016).

Concept of Preceptorship

Preceptorship models. In brief, the traditional model of preceptorship uses a two-stage approach that begins with the NGN shadowing a PR; over time, the NGN's patient load and commensurate responsibilities are progressively increased (Almada, Caarfoli, Flattery, French, & McNamara, 2004). In some cases, traditional preceptorship involves a 5-day general orientation to the hospital setting, followed by a unit-specific clinical orientation lasting approximately 3 months (Hu et al., 2015). In the latter stage, the NGN engages with either a self-selected or clinical agency-assigned PR in a preceptorship focused on teaching the NGN unit-specific operational procedures and documentation, medications commonly prescribed to the unit patient population, common unit-specific patient problems and interventions, and essential communication skills (Hu et al., 2015). With PR support, the NGN develops unit-specific skills proficiency and successfully integrates into the patient care unit (Delfino, Williams, Wegener, & Homel, 2014).

Married State Preceptorship Model **(MSPM).** Figueroa, Bulos, Forges, and Judkins-Cohn (2013) asserted that use of the MSPM to support NGN transition-to-practice is a viable approach by which organizations can retain a quality nursing workforce and promote safety in practice. An element of the Versant® RN Residency Program, the MSPM purposes are to welcome NGNs, provide leadership, facilitate the transition of NGNs' "knowledge to knowing," and prepare NGNs to deliver quality patient care (Figueroa et al., 2013, p. 367). A unique aspect of the MSPM is that from the start, the PR and NGN are "viewed as one," taking on a full patient load together (Figueroa et al., 2013, p. 369). Following an 18-week timeline consisting of three, 6-week long phases, the MSPM aims to support NGN transition from "novice nurse to advanced beginner nurse" (p. 369).

In Phase 1 of the MSMP (Figueroa et al., 2013), the PR and NGN work side-by-side in the provision of nursing care and the NGN aims to meet specified goals that are centered on nursing intervention. In Phase 2, the PR steps back yet remains present, allowing the NGN to increasingly take the lead in patient care; the PR assesses NGN competency and provides support as needed. In Phase 3, the NGN assumes the full responsibility of patient care and the assigned patient load; the PR assumes a stand-by position from the nurses' station to promote NGN confidence in the nurse role, while remaining available for continued support.

Figueroa, et al. (2013) used a mixed methods design to evaluate PR and NGN perceptions of the MSPM, and determine effects of the MSPM on NGN self-perceptions of competence and safe practice, and first-year turnover rates. The study was conducted in a 7-hospital system located in the southeastern U.S. and data regarding the MSPM experience were gathered through online surveys completed by PRs (n = 100) and NGNs (n = 108). Additionally, NGN (n = 15) focus group interviews were conducted. PRs and NGNs were not enrolled in the study as dyads. The study found that 89.9% of NGN participants believed that that the MSPM had prepared them to safely assume a full patient load and similarly, 90% of PR participants reported that the MSPM enhanced the competence and safe practice of NGNs. In addition, the turnover rates of two prior

NGN cohorts (12% and 24.7%; *n* = 135) who experienced the traditional preceptorship model were compared and found to be significantly higher than the 2.6 % turnover rate of the MSPM study NGN cohort.

Four themes emerged from the focus group interviews conducted to illuminate the MSPM experience: *partnership, critical thinking, learning*, and *transition* (Figueroa et al., 2013). Partnership was exemplified by the "togetherness" of the PR and NGN throughout the preceptorship process, which resulted in NGNs feeling supported by their PR. Critical thinking was exemplified by PR questioning NGNs as they practiced, not only to facilitate the acquisition necessary knowledge, skills, and behavior, but also to build NGN confidence through improved understanding. NGN learning was also promoted through PR feedback. Lastly, participants perceived the transition from NGN to professional nurse as a process of strengthening confidence. Overall, qualitative findings indicated that the PR-NGN married state helped to facilitate a smooth NGN transition to the professional nurse role.

Figueroa, et al. (2013) provided some evidence of MSPM influence on NGN transition to practice outcomes but the study has some notable methodological limitations. One limitation was the collection of quantitative data using a researcher-developed dichotomous-item survey without preliminary or post hoc evidence of reliability testing. The quality of the study could have been improved with the use of instruments that had pre-established reliability. Another concern is that the survey participant response rate was reported to be 100%, which is unusual. Despite that the PR-NGN dyad is an explicit component of the MSPM, PR-NGN dyads did not constitute the study sample. Consequently, PR-NGN dyadic perspectives of the MSPM experience were overlooked. In view of the model's particular focus on the "married state" of the PR and NGN in preceptorship, the use of dyadic research methods would be a valuable next step in research aimed at determining MSPM effectiveness. Regardless of its limitations, the MSPM study provided a valuable contribution to the preceptorship knowledge base as it brought attention to the importance of conceptualizing preceptorship as paired PR-NGN interaction. Figueroa, et al.

(2013) is one of the few preceptorship studies located in the literature that included both PRs and NGNs in the study sample population.

The 10-Minute Preceptor Model (10MP). The 10MP reflects a unique approach to PR-NGN interaction (Hu et al., 2015). In brief, the 10MPM guides PRs in the dedication of 10-minutes, twice a day, to "structurally communicate, interact, and discuss problems and issues with NGNs" during the first 3-months of orientation. The 10-minute content is divided into three parts. The first, instructs the PR to interact with the NGN after nurse handover from the previous shift. The second, informs the PR by providing teaching points that indicate what should be accomplished in a given day with the NGN; examples include setting learning goals and content, showing concern, and providing support and feedback. The third, instructs PRs to ask specific questions twice per day.

Hu, et al. (2015) used a repeated measures, two-group comparison design to test the 10MPM and traditional preceptorship model in a sample of NGNs ($N = 107$) participating in a mandatory 2-year post-graduate training program in a teaching hospital in Taipei City. The study sample was sufficiently powered (80%) to detect a type I error at the .05 level of significance with an effect size of .50. Instruments used in the study included a demographic questionnaire that used single-item, 10-point measures of work-stress levels and turnover intention. In addition, the Work Experience Scale (overall Cronbach's $\alpha = .75$) and Satisfaction with the PR Questionnaire (Cronbach's $\alpha = .81$) were used to measure NGNs' perceptions of their job during orientation and NGN satisfaction with their PR, respectively. Data were collected at the end of the third month of orientation.

Hu, et al. (2015) showed that use of the 10MPM effectively improved the professional development of NGNs, attributing greater satisfaction with the PR to regularly scheduled, structured, daily PR-NGN interactions. Item analyses indicated that NGNs' PR satisfaction scores were significantly higher in the 10MPM group than in the traditional preceptorship group for the items: "treated me like an individual," "emphasized ideas and general theories," "stressed goal

setting and periodic evaluations," "provided step-by-step, hands-on instructions," "allowed me to respond to situations based on my instincts," "allowed me to work alone, following standardized instructions," and "allowed me to work on several tasks simultaneously" (Hu et al., 2015, p. 267). Like the MSPM, the 10MPM emphasizes the importance of PR-NGN interaction. According to the researchers, use of the 10MPM can improve PR-NGN relationships. Hu, et al. (2015) recognized the need to gather PR data in future 10MPM studies but the use of PR-NGN dyadic measurements was not addressed. Given that PR-NGN interaction is the focus of the 10MPM, dyadic research methods should be considered in future studies to account for the contributions of both PR-NGN dyad-members to preceptorship outcomes.

The Team Preceptorship Model (TPM). Beecroft, et al. (2008) reported the development, implementation, and evaluation of the TPM, an alternative to the single PR-per-NGN approach, and at the time, as a component strategy in a developing nurse residency program. The purpose of the team model was two-fold: to provide NGN residents with "the most appropriate bedside support in the clinical setting" and to address PR burnout consequent to a lengthy residency program (Beecroft et al., 2008, p. 143). The TPM uses *novice PRs* to initiate NGN orientation to a patient care unit and teach basic nursing skills. Simultaneously, expert PRs are charged with overseeing the early stages of the orientation process and acting as a PR to the novice PR. In this way, the team model uniquely recognizes that the novice PR *and* NGN are experiencing a role transition, providing support for the professional development of both nurses. According to the TPM, as the NGN gains proficiency in basic nursing skills, and inpatient assessment and care, the responsibility of ongoing preceptorship is transferred to an expert PR.

Beecroft, et. al. (2008) evaluated the implementation of the TPM as a quality improvement strategy and reported resultant high role satisfaction among PRs in the first two cohorts of NGNs in their nurse residency program (94% [n = 38] and 97% [n = 54]). Qualitative evidence of ongoing PR satisfaction with the model was also reported. From an organizational standpoint, team preceptorship was perceived to effectively build a broad and diverse pool of

PRs. At the same time, based on the work of Benner (1984/2001), the researchers asserted that key benefits of team preceptorship also included greater support and empathy for the NGNs during the orientation process because novice PRs and NGNs have comparable understanding of patient situations. Beecroft, et al. (2008) made an important contribution to the preceptorship knowledge base in recognizing that preceptorship can support the professional development of both PRs and NGNs. However, neither NGN nor PR-NGN dyadic perceptions of the experience or benefits of the TPM were reported. Future efforts aimed at building evidence for use of the TPM should include research designs that require PRs and NGNs in the study sample population; preferably as PR-NGN dyads.

The preceptorship experience. ***Teaching critical thinking and clinical judgment***. Preceptors apply a variety of teaching strategies to meet NGN learning needs in the clinical setting (Haggerty et al., 2013). Examples include the demonstration of nursing skills, discussion of the application of nursing knowledge and skills to patient care, leadership in the analysis, evaluation, and interpretation of patient care, and answering questions in a clear and concise manner (Hsu, Hsieh, Chu, & Chen, 2014). From the PR's standpoint, best practice dictates the use of clinical debriefing as a teaching-learning strategy because it promotes critical thinking and collaborative discussion, encouraging NGNs to reflect on their nursing actions and consider possible changes for performance improvement (Nelson et al., 2012). Critical thinking is especially important because researchers have found critical thinking to be a significant predictor of nurse competence (Chang, Chang, Kuo, Yang, & Chou, 2011).

Kaddoura (2013) used a qualitative exploratory design in two hospitals to identify NGN ($N = 16$) perceptions about the development of critical thinking skills through the PR-NGN interpersonal relationship. NGNs in the study were participants in a 6-month long preceptorship program that took place in intensive care units. The study data were collected through semi-structured interviews that focused on PR-NGN interactions that "did or did not" enhance critical thinking. As a result of the study, Kaddoura (2013) identified several factors perceived to

promote the development of NGNs critical thinking skills including the gradual promotion of autonomy, development of confidence though encouragement, use of case studies to bridge the theory-practice gap, and PR availability to dialogue. Conversely, factors that impeded the development of NGNs' critical thinking skills included feelings of being overwhelmed reinforced by lack of PR encouragement, PRs who assume or dominate control over patient care to the exclusion of NGN decision-making, and inconsistencies in PRs' style and personality types. Most study participants reported that accommodating, communicative, and motivating PR behaviors enhanced the development of critical thinking skills.

Clinical coaching. Clinical judgment in nursing involves interpreting and drawing conclusions about patient needs, concerns, and health problems, and subsequently making decisions about whether or not to take nursing action using standard, modified, or improvised approaches to care, based on patient response (Tanner, 2006). The PR expands NGN learning by teaching and coaching *how* and *when* to apply nursing skills (Ulrich, 2012). The PR acts as a clinical coach by building upon prior learning and providing direction, engaging the NGN in open dialogue by prompting, providing examples, and advising (Nielsen et al., 2016). The PR as coach also promotes NGN competence by explicitly observing, assessing, and providing feedback, facilitating co-reflection and thinking aloud, and encouraging NGN independence (Nielsen et al., 2016). Forneris and Peden-McAlpine (2009) conducted a qualitative instrumental case study (Stake, 1993) ($N = 6$) aimed at determining the impact of PR coaching as an element of a reflective contextual learning intervention on NGN critical thinking skills during their first 6-months of practice. The study found that PR coaching promoted shared dialogue focused on thinking, clinical decision-making, and understanding of rationale, moving NGNs beyond content-focused questions toward greater contextual understanding of clinical situations.

Providing feedback. Because PRs have intent to nurture, PRs report that at times it can be difficult to give NGNs feedback in a specific, timely, and constructive manner (Nelson et al., 2012). Still, PR feedback is a necessary support for NGNs' well-being and self-efficacy as they

transition to practice. Myers, et al. (2010) conducted a focus group study of NGNs (n = 19) and PRs (n = 22) working in two urban hospitals, and found that NGNs believed their stress levels to be heightened when PRs withheld feedback, leading them to refrain from asking questions and reinforcing self-doubts about their ability to adequately care for patients. NGNs asserted that it is important for PRs to realize the "weight" of their criticism *and* their encouragement. Notably, PR participants in the study attributed NGNs' stress to their inability to think critically and holistically, as well as their lack of understanding of patient situations.

Socializing. NGNs want to feel like they are part of the "team" (Feng & Tsai, 2012), and perceive that one important responsibility of the PR is to create a personable, safe relationship, where the social aspects of NGN transition and integration are attended to (Chandler, 2012). PR friendliness and approachability are integral to NGN success (Kelly & McCallister, 2013). In the role of socializer, the PR helps the NGN settle into the nurse role by: providing introductions and promoting collegial support from staff nurses and interdisciplinary team members, facilitating connections with nurse managers and clinical nurse educators, and fostering acculturation (Boyer, 2008). Pfaff, Baxter, Jack, and Ploeg (2014a) used a mixed methods design to explore NGN (N = 514) confidence in inter-professional collaboration and found several precursors to NGN collaboration including NGN experience, confidence, communication, and trust. Preceptorship is one means of supporting NGN engagement in inter-professional collaboration (Pfaff, Baxter, Jack, & Ploeg, 2014b)

Cultural perspectives. Ke and Hsu (2015) explored cultural differences between Eastern (i.e., Chinese) and Western approaches to preceptorship using a qualitative methodology. The sample included NGNs (N = 20) working in two medical centers in southern Taiwan. According to the researchers, preceptorship in Western cultures is based on a "task-and-attitude-oriented work behavior model" (Ke & Hsu, 2015, p. 600) supported by the beliefs that PR skill and competence along with teaching and motivating behaviors are sufficient to promote NGN learning.

Findings of the study (Ke & Hsu, 2015) suggested that preceptorship is a 3-stage process delineated by developing NGN competence and degrees of interpersonal relationships. In the first, "start-up stage," the PR-NGN relationship is established, which is largely focused on NGNs' functional nursing skills and gaining familiarity with nursing routines of the employing agency and patient care unit. Over the first month, NGNs observe and assist PRs in care of the patient, and PRs purposefully monitor the progression of NGN learning. In the second, "growth stage," PRs assign the management of less complex patients to NGNs. Activities of the PR during the growth stage include the facilitation of case study discussions, as well as guidance, assistance in, and observation of NGN technique and performance of psychomotor skills. During the growth stage, NGNs seek to gain skill mastery through imitative learning, and their knowledge and skills develop consequent to the degree of progressive development of the PR-NGN interpersonal relationship. Trust and security are key in stage two: Successful NGN adaptation to the nurse role is affected by growing NGN self-confidence and PR-NGN interaction. In the third, "maturity stage," NGN competence is advanced. NGNs are encouraged to assume greater responsibility for patient care and complete nursing tasks independently. During this final stage of preceptorship, the PR observes for problems in technique and areas where NGNs lack competence and intervenes to promote NGN continued learning.

Ke and Hsu (2015) suggested that there are marked differences in Western and Eastern PR-NGN relationships, attributed to the superior-subordinate relationships of Chinese culture. NGN participants expressed a "great sensitivity to, dependence on, and admiration for authoritarian leadership of PRs" (p. 599). Furthermore, PR work abilities were deemed less important than role modeling positive good moral character, grounded in hidden meanings and traditional conceptions of ethics, disposition, and personality. In contrast to Western practice, preceptorship in the Chinese culture reflects a "hen and chicks" method of teaching NGNs, whereby PRs are not only focused on NGN professional development but also on their "adaptation to work, coping with stress, and needs for living" that lead to the formation of the

"quasi-happy family" (Ke & Hsu, 2015, p. 600). However, Ke & Hsu (2015) are not the first researchers to use the family analogy in describing the PR-NGN relationship of preceptorship. Richards and Bowles (2012) likened precepting to parenting, asserting that the PR is responsible for "raising" young nurses by educating, supporting, and having primary influence on NGNs' development.

The preceptor - newly graduated nurse relationship. Preceptors report that among the most satisfying achievements associated with the PR role is the NGN's expression of appreciation for development of their trusting relationship (Chen et al., 2011). More than 20 years ago, Brasler (1993) conducted a descriptive-correlational, multi-site study of 65 NGNs who participated in PR orientation programs and found that PR-provided emotional support, PR teaching, and PR nursing skills were statistically significant predictors of NGN clinical performance. Moreover, whether or not NGN participants rated PRs high on these measures, a positive PR-NGN relationship was shown to have a greater impact on NGN clinical performance than any other component of PR-provided orientation. Despite the long history of preceptorship in nursing and the PR-NGN dyad inherent to preceptorship, only one preceptorship study was located in the literature that focused specifically aimed at the PR-NGN relationship.

Washington (2013) used a pretest-posttest design with nonprobability sampling to determine the applicability of Pepleau's Theory of Interpersonal Relationship (1952) to the PR-NGN relationship. The study purported to measure the presence, strength, direction, and magnitude of the PR-NGN relationship. Study participants ($N = 31$) included NGNs participating in a 6-month nurse residency programs in various patient care units in a Level 1 trauma center of a 15-facility healthcare organization located in the southeastern U.S. The study instrument was adapted from the "relationship form" (Forchuk, 1994; Forchuk & Brown, 1989), which was originally developed to measure patients' experience of the relationship shared with their nurse. The original instrument used a 7-point Likert scale to capture patient perceptions regarding the orientation, identification, exploitation, and resolution phases of interpersonal relationships in

accordance with Pepleau's theory. Adaptation of the instrument for Washington (2013) primarily involved changing the term "nurse" to PR, and "patient" to "new graduate" (p. 26). NGNs in the study were asked to identify their personal behaviors and the behaviors of their primary PR; subsequently, scores were "assigned" by the researcher.

Washington (2013) reported that there were no significant differences between pre-orientation and post-orientation scores, concluding that at the end of the nurse residency, PR-NGN relationships remained in the identification phase, the period where PRs and NGNs identify learning needs. Because the report does not provide sufficient information regarding scoring of the instrument, interpretation of scores, and statistical testing, it is unclear how the researcher concluded that the study "objectively verified that a relationship is present between new graduates and PRs" (Washington, 2013, p. 28). No correlations between PR and NGN scores were reported and the sample size just met the minimum standard for statistical difference testing. Based on the report, reliability testing of the original instrument appears to have been minimal and reliability of the adapted version used in the study was not addressed. Washington (2013) recognized the importance of and need for empirical evidence of the PR-NGN relationship; however, the study lacked rigor, such that no firm conclusions can be drawn from the findings.

Theoretical definition of preceptorship. Hupcey and Penrod's (2005) principle-based method of concept analysis was selected for the researcher's analysis of the preceptorship concept because of its particular effectiveness in providing evidence to support subsequent research surrounding a concept of interest. As a result, the following integrated theoretical definition of the concept of preceptorship was developed and adopted in this PR-NGN dyad study, and further explicated in Manuscript I (found on page 68 of this document):

> Preceptorship is a multi-dimensional process that occurs in the clinical environment through a one-to-one PR-NGN interpersonal relationship that is prescribed by an employer for a defined amount of time, with the goal of transforming the NGN into a safe, competent, and independent nurse in practice, who is fully engaged in the work of nursing as an integral member of the inter-professional team (Kunkel-Jordan et al., 2019).

In addition, numerous characteristics of the PR and NGN, and various elements of the nurse work environment emerged as contextual boundaries of preceptorship structure and process, having the potential to influence preceptorship process and outcomes. Two key dimensions of preceptorship process were identified: PR activities and PR-NGN interpersonal interaction. Outcomes of preceptorship included but were not limited to NGN competence, job satisfaction, work engagement, and retention. The idea, albeit implicit, that the PR-NGN relationship is a critical element of preceptorship quality abounds in the preceptorship literature yet has not been tested.

Concept of Newly Graduated Nurse Competence

Ambiguity of competence. Competence is at the core of all preceptorship experiences, because the development of competence, the ability to utilize competence by way of critical thinking, clinical reasoning, and clinical judgement, and the confidence to act, are essential for effective nursing practice and safety (Ulrich, 2012, p. 55). Nevertheless, in the nursing literature, there is a great deal of confusion and inconsistency regarding the use and understanding of the term "competence," and its derivatives. Benner (2001) defined competency as, "An interpretively defined area of skilled performance identified by its intent, function, and meanings" (p. 292). Wright (2005) defined competency as "the application of knowledge, skills, and behaviors that are needed to fulfill organizational, departmental, and work setting requirements under the varied circumstances of the real world" (p. 8). Benner (1984/2001) described the competent nurse as having 2 to 3 years of nursing experience; in contrast, Alspach (1995) argued that in the context of orientation, the competent nurse, including the NGN, is "one who is able to demonstrate that he/she can perform assigned functions" (p. 208). Widely recognized and described as a theoretical framework to promote "competence," the Competency Outcomes Performance Assessment (COPA) Model was developed in the early 1990s and implemented in both nursing education and healthcare organizations (Lenburg, Klein, Abdur-Rahman, Spencer, & Boyer, 2009). The COPA delineates eight essential areas of practice "competency" and skills:

assessment and intervention, communication, critical thinking, human caring/relationship, teaching, management, leadership, and knowledge integration (Lenburg et al., 2009).

Using Rodgers' and Knafl's (2000) evolutionary method of concept analysis, Smith (2012) identified and described several attributes of nurse competence that include integrating knowledge into practice, nursing experience, critical thinking in the consistent provision of effective patient care, proficient skills relative to nursing work, caring, interpersonal nurse communication with patients and members of the healthcare team, supportive nurse work environment, the motivation to link nursing theory, clinical practice and safe delivery of nursing care, and professionalism. Consequences of nurse competence identified through the analysis included confidence, safety in practice, and holistic care. In part, Smith (2012) concluded that nurse competence is understood on two levels: NGN competence upon entry to practice, and continuing nurse competence.

Newly graduated nurse and preceptor perceptions of newly graduated nurse competence. Newly graduated nurses perceive that orientation experiences that include a preceptorship, have a strong influence on their professional development (St-Martin et al., 2015). Arrowsmith, Lau-Walker, Norman, and Maben (2016) conducted a systematic review of the transition literature (N =26) concluding that NGNs in transition to the professional nurse role strive for a new professional self and *know how.* NGN know how involves gaining professional competence and confidence in clinical situations that require assessment and intervention, communication, critical thinking, knowledge integration, management, and human caring skills (p. 1745). Boyer (2008) conceptualized basic-level competence associated with the advanced-beginner nurse as *capable:* the NGN is familiar with skills and equipment but may require assistance and seeks help when unfamiliar with particular processes and skills.

Ramritu and Barnard (2001) reported that NGNs consider nursing knowledge essential to effective patient care, and the ability to perform basic clinical skills an *expectation* of their NGN-level nursing practice. More specifically, that NGNs perceive competence to mean safe practice,

limited independence, utilization of resources, management of time and workload, ethical practice, performance of skills, knowledge, and *evolving*. Safe practice is characterized by NGNs as being aware of limitations, following policy and procedures, and asking for assistance. Limited independence means caring for less complex patients and working with experienced nurses in the care of more challenging patients.

Preceptors' understanding and expectations regarding NGN competence are similar to those of NGNs; PRs perceive NGN competence to include *intrapersonal* and *interpersonal* aspects of holistic patient care (McNeish, 2007). Preceptors expect NGNs to be trustworthy, able to recognize the limits of their knowledge, able to recognize when they need to seek help from more experienced nurses, and assertive in taking on the "responsibility and ownership" of patient care situations (McNeish, 2007, p. 74). In addition, PRs expect NGNs to demonstrate the ability to self-reflect, acknowledge, and communicate incomplete understanding of complex clinical situations to more experienced members of the care team and be *with* their patients, demonstrating compassion, guiding, and empowering (McNeish, 2007).

Prion et al., (2015) purported that there are three levels of NGN competency: "beginning," "developing," and "accomplished." Beginning-level NGN competency was described as not yet effective in the assessment, observation, and recognition of patient patterns and variances; unfocused in approaching the nursing process; and hesitant to communicate. Developing-level NGN competency was described as able to recognize obvious patterns, attempting to monitor multiple data but missing some critical patient information, performing basic assessment and clinical skills but needing guidance and direction, and demonstrating a strong foundation in communication abilities but hesitant in some patient situations. Lastly, accomplished-level NGN competency was described as engaged in nursing process, proficient in nursing skills, and exhibiting leadership and communicating effectively, requiring support only for complex situations. Though these ideas hold merit, they have yet to be validated through nursing research.

Capturing nurse competence. The Nurse Competence Scale (NCS) (Meretoja, Isoaho, & Leino-Kilpi, 2004) has been used in numerous nursing studies in various countries for more than ten years, including with NGN sample populations. The instrument denotes seven action areas of nurse competence: helping role, teaching-coaching, diagnostic functions, managing situations, therapeutic interventions, ensuring quality, and work role. Meretoja, Numminen, Isoaho and Leino-Kilpi (2015) (N = 2052) measured competence using the NCS in three generational nurse cohorts (by years of age: cohort 1 = 20-29, cohort 2 = 30-39, and cohort 3 >40) and found that length of work experience had a significant influence on the development of competence: the oldest cohort with the longest work experience reported the highest level of competence, lending support for the idea of beginning, developing, and accomplished-levels of competency among nurses conceptualized by Prion, et al. (2015) Meretoja, et al. (2015) also supports the idea that nurses must routinely *engage* in practice in order to maintain competence.

Wangensteen, Johansson, Björkström, and Nostrom (2012) used a cross-sectional survey design, a sample of Norwegian NGNs (N = 1831), and the NCS to identify NGN self-perceptions and predictors of competence. These researchers found that NGNs self-perception of overall competence level was "good" (62.5/100, where 50-75/100 = *good*). Self-perceived critical thinking was found to be the greatest significant predictor of NGN self-perceived competence in all areas of competence assessed, explaining 20% of the variance in total NCS scores. These findings accentuate the importance of PR activities aimed at promoting the critical thinking ability of NGNs.

Because the NCS has demonstrated good reliability across a variety of sample populations and settings, the NCS was considered for use in this study. However, the potential for respondent burden inherent to the 73-item tool, given that each item has both a competence assessment and frequency-of-use element, posed a concern for the researcher. In addition, the NCS was not developed specifically to measure NGN competence. Because competence is one among three study variables measured in this investigation, along with demographic data

collection, the researcher concluded that use of the NCS posed a significant risk of attrition and therefore, was excluded from use in this study.

The Overall Competence and Specific Competency Tools (OCT and SCT**)** were developed to measure competence in NGN participants of the National Council of State Boards of Nursing (NCSBN) Transition-to-Practice Program (TPP), which includes preceptorship as one of several program component strategies (Spector et al., 2015). Both tools were used in the NCSBN "Transition to Practice Study in Hospital Settings," an experimental, multi-site study aimed at examining quality and safety, stress, competence, job satisfaction, and retention in NGN participants of NCSBN TPP (Spector et al., 2015). The study was also aimed at comparing outcomes in hospitals that implemented the TPP (experimental group), and control group hospitals that maintained pre-existing onboarding programs. The researchers intentionally sought diverse hospital participants, representing rural, suburban, and urban hospitals and ranging in size from small community to large medical centers. Perceptions of NGN competence were collected at baseline, 6, 9, and 12 months from NGN participants; PR participants were surveyed at 6, 9, and 12 months.

Results of the study (Spector et al., 2015) relative to competency indicated that in nearly all areas of competency assessed and time points, PRs rated NGNs slightly higher than NGNs rated themselves. Overall, NGN competence improved significantly over the 12-month transition period but differences were not significant between control and experimental group hospitals. It is also notable that the TPP group NGN participants rated themselves significantly higher in patient-centered care (p = .04), use of technology (p = .04), and communication and teamwork (p = .02) competencies.

Using data collected in the larger NCSBN study (Spector et al., 2015), Blegen, et al. (2015) focused on differences between hospital-level of support for PRs (high PR support [HPS] vs. low PR support [LPS]) and the preceptorship experience, NGN competence, and retention. Preceptorship experience data were collected using the Preceptor Evaluation Tool (Cronbach's α

= .86 to .97) from PRs and NGNs. At 6-months, PRs and NGNs scored the preceptorship experience significantly higher in HPS hospitals than LPS hospitals ($p < .05$). NGNs self-rated overall competence and specific competency higher in HPS hospitals but not significantly. Similarly, PR rating of overall NGN competence was generally higher in HPS hospitals. Lastly, at 12-months, PR rating of NGN competence was significantly higher in HPS compared to LPS hospitals for quality improvement/evidence-based practice, use of technology, and teamwork/communication ($p < .05$).

Overall, the NCSBN studies (Blegen et al., 2015; Spector et al., 2015) add to a growing body of evidence showing that effective support by way of formal, structured transition-to-practice programs, that included preceptorship as a component strategy, promote NGN success. These studies are particularly valuable in that they involve both PRs and NGNs using an experimental design, despite some obvious challenges. The greatest threats to internal validity in these studies are affected by the probable challenges in maintaining the integrity of the TPP intervention across all experimental group hospitals and the use of pre-existing onboarding processes by the control group study hospitals, which likely have inherent differences. An important finding in terms of the current study is that PRs generally perceived NGNs more competent than NGNs see themselves.

Theoretical definition of newly graduated nurse competence. Spector et al. (2015) conceptualized NGN overall competence and specific competency based, in part, on the *Quality and Safety Education for Nurses* (QSEN) initiative (Sullivan, Hurst, & Cronenwett, 2009). Likewise, in this PR-NGN dyad study, NGN competence was conceptualized as the ability to effectively provide patient-centered care, demonstrate communication and teamwork, engage in evidence-based practice and quality improvement, and use technology in the healthcare setting.

Concept of Work Engagement

Engagement at work. The idea of engagement in the context of work has been evident in the literature of organizational psychology and business for nearly 20 years (Simpson, 2009a). Similar terms and conceptualizations of engagement at work include: "employee engagement" (Harter, Schmidt, & Hayes, 2002), "personal engagement" (Kahn, 1990), and "work engagement" (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002).

Employee engagement. Employee engagement refers to a person's "involvement and satisfaction with, as well as enthusiasm for, work" (Harter et al., 2002, p. 269). Harter, et al. (2002) published a meta-analysis to examine the relationship between employee satisfaction, employee engagement, and business outcomes at the business-unit level. The meta-analysis involved 42 studies conducted in 7,939 business units in 36 companies representing financial (n = 5), manufacturing (n = 5), retail (n = 12), services (n = 10), and transportation and public utilities (n = 4) industries. Of this sample, 334 business units were health care units with 13,675 (7%) respondents. This study found employee satisfaction to be highly correlated with employee engagement at the business-unit level (.91). In addition, results of the analysis indicated that overall employee satisfaction and employee engagement respectively were correlated with employee turnover (-.36 and -.30), customer satisfaction-loyalty (.32 and .33), safety outcomes (-.20 and -.32), productivity (.20 and .25), and profitability (.15 and .17). In addition, overall employee satisfaction and employee engagement were correlated with composite business-unit performance (.37 and .38). This study provides evidence to support the idea that both employee satisfaction and employee engagement translate to meaningful business outcomes, further suggesting that both phenomena are valid target outcomes for organizational employee support strategies.

Personal engagement. Personal engagement and the obverse, personal disengagement, were conceptualized by Kahn (1990) and "refer to the behaviors by which people bring in or

leave out their personal selves during work role performances" (p. 694). Persons who are disengaged from their work are "physically uninvolved in tasks, cognitively unvigilant, and emotionally disconnected from others" (Kahn, p. 702). In contrast, persons who are engaged in their work are connected to work and others; physically, cognitively, and emotionally present; and exhibit active full-role performance. Personal engagement at work reveals what persons think, feel, believe, and value, varying in accordance to *psychological meaningfulness, safety,* and *availability.*

Psychological meaningfulness (Kahn, 1990) is associated with work that is challenging, clearly delineated, variable, creative, and at least somewhat autonomous. A person experiences psychological meaningfulness consequent to taking on a work role identity and the influence that role carries within the organization: the more central and essential the role, the more meaningful and greater the engagement. Psychological meaningfulness is also experienced consequent to task roles that include rewarding interpersonal interactions with work colleagues and clients. Both personal and professional positive interactions are important because they allow individuals to feel valuable and valued, involve mutual appreciation and respect, and support positive feedback.

Psychological safety (Kahn, 1990) is promoted through interpersonal relationships that nurture trust and provide support; management that is supportive, resilient, and clarifying; and role performance that corresponds with organizational expectations and norms. Lastly, psychological availability speaks to how ready a person is to engage, despite the distractions in the given social system. Common distractors include a lack of physical and emotional energy, personal insecurity, and demands of outside lives.

Work engagement in nursing. The concept of work engagement stems from the work of Kahn (1990), who showed that persons engaged in their work exhibit cognitive vigilance and empathetic connections to those that they are obligated to serve. Work engagement in nursing is important because nurses perceive that work engagement gives their life meaning (Vinje &

Mittelmak, 2008). Bargliotti (2011) derived the following definition of work engagement using Walker and Avant's (2010) method of concept analysis: "In nursing, work engagement is the dedicated, absorbing, vigorous nursing practice that emerges from settings of autonomy and trust and results in safer, cost effective patient outcomes" (p. 1424). Through Bargliotti's analysis, autonomy and trust were identified as antecedents of work engagement in nursing; empirical referents included the Utrecht Work Engagement Survey (UWES-17) (Schaufeli & Bakker, 2004) and the Q12, also known as the Gallup Workplace Audit (GWA) (Harter et al. 2002).

Jenaro, Flores, Orgaz, and Cruz (2011) conducted a correlational study ($N = 412$) using a survey designed to investigate the relationships among nurses' characteristic psychological adjustment and job features, and work engagement. Study participants included RNs ($n = 256$), nurse managers ($n = 8$), and certified nursing assistants ($n = 148$), who were working in thirty patient care units in a public hospital located in Spain. The study participants self-reported work engagement using the 9-item short version of the Utrecht Work Engagement Survey (UWES-9) (Schaufeli, Bakker, & Salanova, 2006), which indicated good reliability in the study for the subscales of vigor, dedication, and absorption (Cronbach's $\alpha = .80, .85$, and .80, respectively).

In the study by Jenaro, et al. (2011), 33% of participants experienced a high level of dedication, 20.4% experienced a high level of vigor, and 36.7% experienced a high level of absorption. Key findings of the study included that neither professional category nor length of service had an effect the nurses' level of work engagement. Two separate hierarchical regressions were performed to determine the predictors of (a) vigor and (b) dedication. In the final model of vigor, the significant predictors, in order of importance were satisfaction with job position, higher quality of working life, lower stress associated with patient care, and lower social dysfunction; explaining 34.6% of the variance. In the final model of dedication, significant predictors, in order of importance were: satisfaction with job position, higher quality of working life, lower social dysfunction, and lower stress associated with patient care; explaining 41% of the variance in

dedication. These findings suggest that psychological and social-psychological aspects of the preceptorship process may have significant implications for work engagement as an outcome of preceptorship.

Keyko, Cummings, Yonge, & Wong (2016) conducted a systematic review ($N = 18$) of the literature aimed at work engagement in nursing, specifically focusing on its antecedents and outcomes. A total of 77 factors influencing work engagement were codified into six themes: *organizational climate, job resources, professional resources, personal resources, job demands,* and *demographic variables* (Keyko, et al., 2016). *Interpersonal and social relations,* an element of job resources and of interest in this study, were most frequently examined in the reported studies. Several statistically significant predictors of work engagement relative to interpersonal and social relationships were identified in the literature including social identification with the work unit, satisfaction with interaction, relational coordination, and staffing resources. In addition, statistically significant predictors of work engagement relative to professional resources included the practice environment, autonomy, role and identity, and professional practice and development. Overall, Keyko et al. (2016) concluded that work engagement supports more positive outcomes and fewer negative outcomes for nurses and healthcare organizations; moreover, work engagement is essential to nursing.

Three work engagement studies (Giallonardo, et al., 2010; Laschinger, Wong, & Grau, 2012; Simpson, 2009) that were included in the review by Keyko et al. (2016) were further examined by the researcher for their potential utility in supporting this study. Simpson (2009b) studied predictors of work engagement in a sample of RNs ($N = 167$) employed on medical-surgical units across six hospital settings and found that nurse satisfaction with professional status, interaction at work, and thinking of quitting were predictors of work engagement such that, as nurses' satisfaction with their professional status and interaction at work increased, work engagement increased; conversely, work engagement decreased when thinking of quitting

increased. Findings of the study suggest that PR and NGN satisfaction with their roles, as well as PR-NGN interaction, may predict work engagement as an outcome of the preceptorship process.

Laschinger et al. (2012) surveyed 342 NGNs to describe NGN work life experiences during the first two years of professional practice and examined predictors of job satisfaction, turnover intentions, and career satisfaction. The two-group research design allowed for comparative analysis between NGNs in their first (n = 153) and second (n = 189) year of practice in addition to analysis of the combined sample data. Overall, study participants reported a moderate level of work engagement. Significant predictors of intention to leave the profession included but were not limited to low work engagement, job dissatisfaction, and number of PRs. Work engagement, job satisfaction, and turnover intention were among the strongest predictors of career satisfaction.

Giallonardo et al. (2010) has particular relevance for this study because it is the only work engagement study located in the literature that is specifically aimed at preceptorship, albeit, somewhat indirectly. Projecting that the conceptualization of nurse PRs as authentic leaders with influence could lead to greater understanding of the PR-NGN relationship, these researchers posited that PR authentic leadership, characterized by purposefulness, clinical competence, support, and motivation, would lead to an authentic PR-NGN connection fostering work engagement and in turn, job satisfaction. In addition, work engagement was hypothesized to mediate the relationship between NGN perceptions of PR authentic leadership and job satisfaction.

Using a non-experimental, survey design, Giallonardo et al. (2010) sought 500 "NGNs with less than or equal to three years of experience" (p. 996), working in acute care settings using the College of Nurses of Ontario registry list. A mailed survey yielded a final sample of 179 survey packets, reflecting a 39% response rate. Three instruments were used in the study. The first instrument, the Authentic Leadership Questionnaire (Avolio et al., 2007), is a 16-item Likert-type scale with four subscales, including relational transparency, balanced processing, self-

awareness, and internalized moral perspective, all with good established reliability (Cronbach's alphas ranging from .70 to .90) (p. 997). The second instrument, the Utrecht Work Engagement Scale (Shaufeli & Bakker, 2004) is a 17- item, 3-factor (dedication, vigor, and absorption) self-report questionnaire that uses a 7-point Likert scale and has good established reliability consistently reported to be .70 or greater (Schaufeli et al., 2006). Part B of the Index of Work Satisfaction (IWS) scale, the third instrument, is a 44-item instrument with six subscales including pay, autonomy, task requirements, organizational policies, professional status, and interaction that uses a Likert scale; prior established internal consistency ranging from .77 to .91 has been reported (Stamps, 1997).

Findings of the study indicated that NGNs in the sample were moderately engaged in their work, with dedication being the highest engagement factor, and moderately satisfied in their jobs. NGNs perceived their PRs to have a moderate level of authentic leadership. In rank order, professional status was reported as the most satisfying aspect of work, followed by autonomy, nurse-nurse interaction, and nurse-physician interaction. Work engagement and PR authentic leadership were found to be significant predictors of job satisfaction ($p < .01$) (Giallonardo et al., 2010). In addition, NGN work engagement was positively related to NGN perceptions of PR authenticity ($r = .21$, $p < .01$). Perception of authentic leadership of PRs was significantly related to dedication ($r = .29$, $p < .01$) and vigor ($r = .19$, $p < .05$) but not to absorption. According to the researchers, results of the study support the idea that the quality of the preceptorship PR-NGN relationship plays the greatest role, rather than time, in predicting work engagement of NGNs. NGNs are more satisfied and engaged in their work when they are paired with PRs with a high degree of leadership authenticity.

Theoretical definition of work engagement. In this PR-NGN dyad study, the term "work engagement" refers to: "a positive, fulfilling work-related state of mind that is characterized by *vigor, dedication,* and *absorption"* (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002, p. 74). Work engagement is not fleeting, nor is it focused on any particular

situation, person, or behavior; rather, it is a persistent state of emotion and thought (Schaufeli, & Bakker, 2006). Schaufeli, et al. (2002) explain the three core elements of work engagement this way:

- *Vigor* is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties
- *Dedication* refers to being strongly involved in one's work, and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge
- *Absorption* is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work (p. 74).

Philosophical Underpinnings of the Study

Post-positivism. Research paradigms provide a basis for the pursuit of knowledge (Guba, 1990). The paradigm adopted by any given researcher reflects that researcher's philosophy regarding the nature of reality, the nature of the relationship between the inquirer and the knowable, and how the inquirer should go about the pursuit of knowledge (Guba, 1990). Accordingly, the ontology, epistemology, and methodology of scientific inquiry evident in this preceptorship dyad study are grounded in the post-positivist paradigm.

Post-positivism stems from positivism (Guba, 1990). Positivism, sometimes referred to as logical empiricism (George, 1995), is rooted in *realism,* and holds that "the business of science is to discover the 'true' nature of reality and how it 'truly' works" (Guba, 1990, p. 19). In the positivist's view, the whole is equal to the sum of its parts, and the researcher adopts a distant, objectivist epistemology (George, 1995). In contrast, post-positivism is rooted in *critical* realism, which holds that reality exists but can never be fully known; objectivity is the ideal but can only be estimated; and research should be conducted in natural settings because the over emphasis on internal validity in experimental inquiry limits the generalizability of findings (Guba, 1990, pp. 21-23). From the standpoint of the critical realist, absolute truth is unknowable; knowledge is equated with theory; and theory is envisioned as a model involving complex, interactive

relationships among variable constructs (Cook, 1985; Green, 1990; Phillips, 1990). Post-positivist methodology supports knowledge *discovery* (Guba, 1990, p.23) and thus, is appropriate for the exploration of the PR-NGN dyadic relationship as a meaningful element of preceptorship.

For this study, the researcher assumed the probabilistic stance of the post-positivist (Polit & Beck, 2012). That is, the researcher recognized the impossibility of total objectivity, while still striving to know the greatest likely truth about the influence of the preceptorship experience, particularly the PR-NGN interpersonal relationship, on the development of NGN competence, and PR and NGN work engagement. Post-positivist paradigmatic inquiry includes subjective (Shumaker & Gortner, 1992) and multiple perspectives (Letourneau & Allen, 1999), which are evident in the aims of this study and manifest in the study methods.

Symbolic interactionism. Symbolic interactionism (SI) has been regarded as both philosophizing (Carlson, 2013; Munhall, 2012) and sociological theorizing (Stryker, 1980/2002). As a broad perspective in the field of social psychology, SI has utility for exploring human beings in their social worlds (Burbank & Martins, 2009), and nursing constitutes a social world (Benner, 1984/2001). In this study, SI provides further philosophical justification for the researcher's specific focus on the PR-NGN interpersonal relationship to advance the preceptorship knowledge base.

Symbolic interactionism originates from the ideas of George Herbert Mead (1863-1931), a pragmatist and founder of the Chicago School of SI, who held that "social process shapes society, self, and social interaction," each feeding back on the others (Stryker, 2008, p. 18). It accounts for the researcher's overriding belief that preceptorship is a social process, involving reciprocal relationships that transform the nursing workforce, the professional nurse, and interpersonal interactions in the healthcare environment.

The basic premise of SI is reflected in three tenets asserted by Herbert George Blumer, a colleague and follower of Mead:

1. Persons act toward things based on the meanings those things have for them.

2. Meanings of things are generated over time through human interaction.
3. Persons' meanings are modified during interaction through interpretive processes to make sense of and negotiate their social worlds (Pascale, 2011).

In nursing research, SI has most commonly been used to support qualitative research designs, especially ethnography and grounded theory studies based on the ideas of Blumer (Munhall, 2012). However, over time, "SI has thrived in a variety of schools and genres," giving rise to "competing lines of thought" (Pascale, 2011, p. 84) that serve as the basis for quantitative research.

This study is also broadly based on the ideas of Manford Kuhn, pragmatist and founder of the Iowa School of SI, who asserted a version of SI that is focused, in part, on the concept of role-taking (Stryker, 1980/2002). Kuhn emphasized the positivist aspects of SI (Pascale, 2011), seeing no contradiction between the *meanings, subjective,* and *symbolic process* concepts of SI and "meeting conventional scientific criteria for standardized, objective, dependable measures" (Stryker, 2002, p. 104). Kuhn's version of SI supports researchers who "seek general propositions from which more specific hypotheses are deduced and investigated," with the "result being a theory that can predict and explain human behavior and interaction" (Stryker, 2002, p. 104).

This study was further informed by the ideas of Sheldon Stryker, a well-known symbolic interactionist, who most closely aligns with Kuhn. Stryker (2002) asserted that virtually every interaction constitutes a socializing experience, wherein, persons respond to symbolic cues presented in current and past experiences, and familiarity with comparable others (p. 62). According to Stryker, the greater process by which persons' role-taking and learning takes place is termed "socialization," (Stryker, 2002, p. 63). Socialization is the mechanism by which the newcomer or trainee becomes incorporated into organized patterns of behavior (Stryker 2002, p. 63). Professional socialization is one aspect of preceptorship by which NGNs are exposed to essential cues in the nurse work environment, expected NGN behaviors are elicited, and NGN transition to the professional nurse role is promoted.

Lastly, this study is underpinned by the philosophy of Carl Couch, symbolic interactionist and founder of the New Iowa School of SI (Pascale, 2011). Couch continued in Kuhn's approach, incorporating "a positivist approach with a pragmatist philosophical foundation" to focus on the study of dyadic relationships (Katovich, Miller, & Hintz, 2002 as cited in Pascale, 2011, p. 85). Similarly, in this study, the researcher used a binary approach to generate knowledge regarding the PR-NGN dyadic relationship: post-positivism (i.e., critical realism) provides broad philosophical underpinning for the quantification of the PR-NGN relationship as an element of preceptorship process and predictor of preceptorship outcomes; while the quest for conceptual meaning of the PR-NGN relationship, as a theoretical concept, is rooted in SI.

Conceptual - Theoretical Frameworks

Health Care Quality model (HCQM). Over nearly five decades, Donabedian's (1968) HCQM has emerged as a predominant framework in outcomes research (Burns & Grove, 2012). To explore the PR-NGN relationship as a determinate of preceptorship quality, this study situates the concept of preceptorship in the HCQM. The *structure-process-outcome* components of the HCQM are widely perceived as essential elements of quality-of-care assessment and quality improvement programs (Wachter, 2012). However, in the seminal paper, "Evaluating the Quality of Medical Care," Donabedian (1966) suggested that rather than focusing on the identification of quality problems and approaches to quality improvement, researchers should ask, "What goes on here?" (p. 721). The research question addressed in this study reflects this query.

Over time, Donabedian expanded upon, clarified, and exemplified the original HCQM (1968) in multiple publications, while maintaining the original structure-process-outcome elements and the relationships among them. Numerous nursing studies have been grounded in the fundamental concepts of the HCQM but have not always been aimed specifically at "healthcare" quality. As an example, the HCQM provided the conceptual foundation for a study by Kramer,

Maguire, Schmalenberg et al. (2013), that delineated nurse residency programs and healthy work environments as structures that enable the professional socialization of NGNs, and lead to the desired outcomes of decreased NGN reality shock, increased NGN retention, and higher nurse-perceived quality of patient care.

Broadly defined as "quality of life," *health* has three major components: physical-physiological function, social function, and psychological function (Donabedian, 1980); the first is not addressed in this study. According to the HCQM, health *care* is a process involving the activities that go on within and between a *health care provider* and a *patient* (Donabedian, 1980), thereby the health care provider-patient relationship. *Quality* is a variable property of health care (Donabedian, 1980), and the assessment of health care quality reflects a judgment about the process of care, "based on the extent to which that care contributes to valued outcomes" (Donabedian, 1982, p. 3). In this study, the concepts of preceptorship, PR, NGN, and PR-NGN dyadic relationship respectively mirror the concepts of health care, health care provider, patient, and health care provider-patient relationship in the HCQM (Donabedian, 1968).

Major concepts of the HCQM include *structure, process* and *outcomes,* such that structure of care influences process of care, and process of care influences outcomes of care (Donabedian, 1968). Structure of care refers to the "conditions under which care is provided" (Donabedian, 2003, p. 46). Three dimensions of care structure are evident in the HCQM including, *material resources, human resources,* and *organizational characteristics* (Donabedian, 2003). Human resources include: the number of hospital staff in relation to workload; the diversity and qualifications of staff professionals such as formal degree, certification, and experience; and the types and number of support personnel. Organizational characteristics include: the organization of medical and nursing staff; the presence of teaching and research; the types of supervision; and the policies that govern staff activities aimed at educational functions to promote and maintain staff competence, and performance review programs (Donabedian, 2003, p. 46). According to Donabedian (1980), despite that the structure of care is salient to the planning,

designing, and implementing of care delivery systems, the assessment of care structure is far less important than the assessment of care process and outcomes (p, 82). Therefore, as a first step in testing preceptorship as a quantifiable dyadic phenomenon, the PR-NGN study model does not include elemental structures of preceptorship focusing rather, on the effect of preceptorship process on preceptorship outcomes.

In the HCQM, process of care refers to the activities of care carried out by the provider in conjunction with contributions of the patient (Donabedian, 1980). Two dimensions of care process, *technical care* and *interpersonal care,* are evident in the HCQM and interrelated such that it can be difficult to distinguish one from the other (Donabedian, 1980). Technical care is described as the application of science and technology in the management of a personal health problem. Aspects of technical care include assessment, diagnosis, treatment, and prevention of health problems, and patient education (Donabedian, 2003). Technical care is largely dependent upon the knowledge and skill of the provider; the provider shares medical expertise to promote the patient's welfare (Donabedian, 1980, 1982). Interpersonal care involves the provider-patient relationship, characterized by social-psychological interactions that are governed by the values, norms, and ethical dicta of the health profession, and individual patient expectations and aspirations (Donabedian, 1980, pp. 4-5). In this study, the HCQM provided substructure for the conceptualization of preceptorship quality (Table 1).

Table 1. Vertical Conceptual - Theoretical - Empirical Linkages between Selected Concepts of the Health Care Quality Model, Actor – Partner Interdependence Model, Proposed Theoretical Preceptor – Newly Graduated Nurse Dyad Study Model, and Empirical Referents of Preceptorship

<table>
<tr><th>Guiding Frameworks</th><th colspan="5">Selected Concepts</th></tr>
<tr><td rowspan="3">Conceptual Model 1:

Health Care Quality (Donabedian, 1968, 1980, 1984, 2003)</td><td colspan="5">Health Care Quality</td></tr>
<tr><td colspan="3">Process of Care</td><td colspan="2">Outcomes of Care</td></tr>
<tr><td>Health Care Provider</td><td>Health Care Provider-Patient Relationship</td><td>Patient</td><td>Psychological (emotional/ cognitive) Outcomes</td><td>Social-Psychological (behavior/role performance)</td></tr>
<tr><td>Conceptual Model 2:

Actor-Partner Interdependence (Kashy & Kenny, 2000)</td><td colspan="5">Partner Interdependence</td></tr>
<tr><td>Individual 1</td><td>Two-Person Dyad</td><td>Individual 2</td><td colspan="2" rowspan="2">Actor-Effect
Partner Effect
(Y)</td></tr>
<tr><td colspan="3">Dyad-Member Interaction
Non-independent Predictor Variables (X)</td></tr>
<tr><td rowspan="4">Theoretical Framework:
The PR-NGN Dyad Study Model</td><td colspan="5">Preceptorship Quality</td></tr>
<tr><td colspan="3">Process of Preceptorship</td><td colspan="2">Outcomes of Preceptorship</td></tr>
<tr><td>PR</td><td>PR-NGN Dyadic Relationship</td><td>NGN</td><td>PR Perception of NGN Competence

NGN Self-Perception of Competence</td><td>PR Work Engagement and

NGN Work Engagement</td></tr>
<tr><td colspan="2">PR Activities</td><td>PR-NGN Dyadic Interaction</td></tr>
<tr><td>Empirical Referents</td><td colspan="3">The Preceptorship Experience: The Preceptor Evaluation Tool (Blegen et al., 2015)</td><td>Specific Competency Tool (Spector et al., 2015)</td><td>Utrecht Work Engagement Scale-9 (UWES-9) (Schaufeli et al., 2006)</td></tr>
</table>

Note: Abbreviations: PR = preceptor, NGN = newly graduated nurse

The conceptualization of preceptorship and constituents was based on the results of the researcher's principle-based analysis of the preceptorship concept, findings from the review of the preceptorship literature conducted for this study (Manuscript II, page 86; Kunkel-Jordan et al., 2019) , and the researcher's personal experience as a PR to NGNs in acute patient care units in hospitals. Broadly, this study was aimed at two major concepts of preceptorship, *process of*

preceptorship and *outcomes of preceptorship*, which mirror process and outcomes of care in the HCQM. Dimensions of the process of preceptorship addressed in this study include *PR activities* and *PR-NGN interpersonal interaction,* which mirror technical care and interpersonal interaction in the HCQM and similarly can be difficult to distinguish.

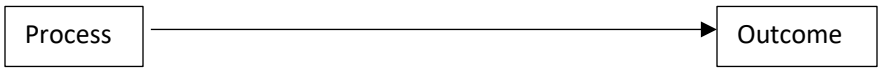
Preceptor activities evident in the literature and identified in the researcher's prior scholarship include but are not limited to: the application of nursing knowledge, skills, and technology in assessing and diagnosing NGN learning needs; teaching NGNs how to think and act like a nurse; evaluating NGN competency; providing feedback to NGNs in the clinical setting; and preventing errors and unsafe practice to protect NGNs, individual patients and patient populations, the patient care unit, the hospital, and healthcare organization (Kunkel-Jordan & Bratt, 2017; Kunkel-Jordan & Green, 2017; Kunkel-Jordan et al., 2019). These aspects of preceptorship process are largely dependent upon the knowledge and skill of the PR, yet inherently involve the PR-NGN interpersonal relationship. The PR-NGN interpersonal interaction dimension of preceptorship process also involves the PR-NGN interpersonal relationship. Like the provider-patient relationship in the HCQM, the PR-NGN interpersonal relationship involves social-psychological interactions that are governed by the values, norms, and ethical dicta of the nursing profession, and by the expectations and professional aspirations of the NGN.

Lastly, in the HCQM, outcomes of care refer to changes in patient knowledge, attitudes, and behaviors that are attributable to healthcare, and contribute to patient quality-of-life and future health (Donabedian, 1982, 2003). Two dimensions, *psychological outcomes* (emotion/cognition) and *social-psychological outcomes* (behavior/performance) of healthcare outcomes are of interest in this study. Psychological outcomes include but are not limited to feelings of satisfaction, and knowledge and mental functions that occur under the circumstances of daily living and conditions involving stress (Donabedian, 2003). Social-psychological outcomes include but are not limited to occupational role performance and behaviors related to personal well-being (Donabedian, 2003). In this study, preceptorship outcomes of interest include

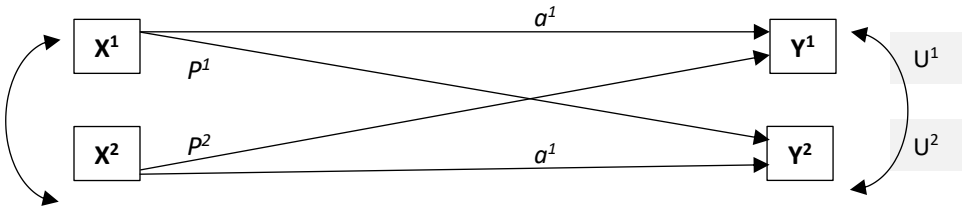
NGN competence (expected behavior/role performance) and work engagement (work-related well-being) and reflect the psychological and social-psychological outcomes of the HCQ. Lastly, the proposed relationship between the process and outcomes of preceptorship in the PR-NGN study model (Figure 1) mirrors the relationship between the process of care and outcomes of care in the HCQM, whereby the prior influences the latter.

Figure 1. Horizontal Linkages between the Health Care Quality Model, Actor – Partner Interdependence Model, and the Theoretical Preceptor – Newly Graduated Nurse Dyad Study Model

Health Care Quality Model (HCQM):



Actor – Partner Interdependence Modell (APIM):



Theoretical Preceptor – Newly Graduated Nurses Dyad Study Model

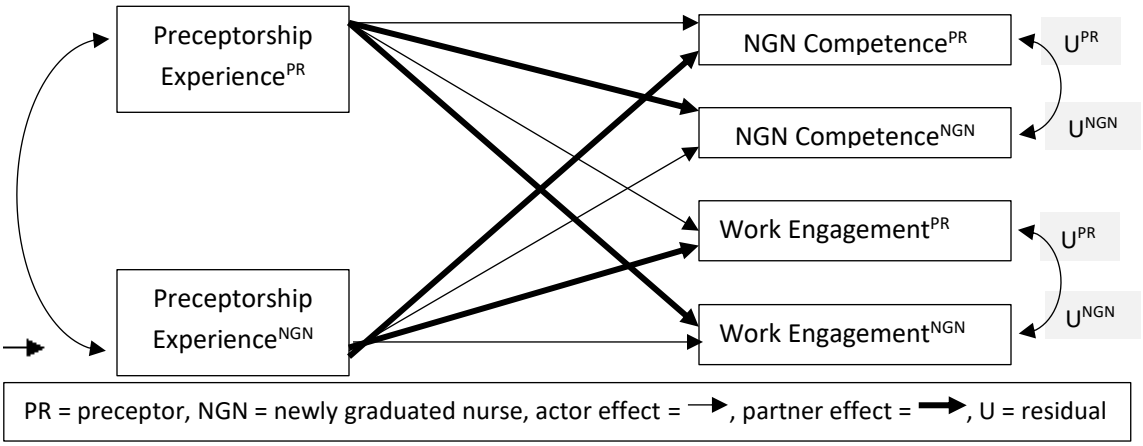


Figure 1. The theoretical PR-NGN dyad study model mirrors the HCQM, in that the relationship between the preceptorship experience and NGN competence, and between the preceptorship experience and work engagement mirror the relationship between the process and outcomes of care. In the APIM, X^1 and X^2, Y^1 and Y^2, and U^1 and U^2, represent the first and second dyad-member's score on a given predictor variable, outcome variable, and unexplained residual outcome variable, respectively. The theoretical PR-NGN dyad study model also mirrors the APIM, where PR = preceptor perception, NGN = newly graduated nurse perception. PR and NGN perceptions of the preceptorship experience are the predictor variables; PR perception of NGN competence and NGN self-perception of competence, and PR and NGN work engagement are the outcome variables. Actor effects represent PR and NGN perceptions of the preceptorship experience on PR perception of NGN competence and NGN self-perception of competence, respectively, and likewise on PR and NGN work engagement. Partner effects represent PR and NGN perceptions of the preceptorship experience on NGN self-perception of competence and PR perception of NGN competence, respectively, and similarly on NGN and PR self-perceptions of work engagement. U = residual effect and the relationship between U^{PR} and U^{NGN} reflects the nonindependence unexplained by actor effects of the PR and NGN perceptions of the preceptorship experience. In the APIM and the PR-NGN dyad study model, the curved line between the predictor variables indicates correlation (i.e., nonindependence) between those variables.

Actor - Partner Interdependence Model (APIM). Persons engaged in an interdependent relationship markedly influence each other's experiences (Levinger & Snoek, 1972). The APIM (Kashy & Kenny, 2000) is a framework for dyadic relationship research that was generated in the social sciences, where researchers are interested in theoretical concepts that intrinsically involve two-person interaction. Historically, in the social sciences, the study of interpersonal phenomena has been largely based on methods intended to study individuals; despite the obvious contradiction between "society" and "individual" (Kenny et al., 2006). For example, standard statistical methods, including analysis of variance and multiple regression, make the assumption of independence, meaning that in a study dataset, each observation or measurement of a given study variable must not be influenced by any other observation or measurement of that variable (Field, 2013): Dyadic variables violate this assumption (Kenny et al., 2006). Central to the APIM is the idea of *nonindependence.* That is, the notion that two persons engaged in a relationship, even briefly, are more than two individual persons, together they are conceptualized as a dyad (Kashy & Kenny, 2000).

Dyadic research is based on the following ideas (Kenny et al., 2006):

- When a dyad-member's perception of a given predictor variable affects his or her own perception of a given outcome variable, actor effect is present.
- When a dyad-member's perception of a given predictor variable affects his or her partner-member's perception of a given outcome variable, partner effect is present
- A within-dyads effect is present when differences in dyad-members' perceptions of a given outcome variable are predicted by differences in dyad-members' perceptions of a given predictor variable.
- A between-dyads effect is present when the averaged dyad-members' perceptions of a given outcome variable are predicted by the averaged dyad-members' perceptions of the predictor variable.

Partner effect, within-dyads effect, and between-dyads effect are all examples of dyadic measures. Dyadic effects indicate the presence of *nonindependence* in a two-person relationship, which can also be conceived as *dependence*. Notably, social-psychologist researchers typically avoid the term "dependence" because of its negative connotation and instead the term "interdependence" is adopted (Kashy, personal communication, July 25, 2016). To reiterate, interdependence is present within a dyad when one person's emotions, cognitions, or behaviors are affected by the emotions, cognitions, or behaviors of the other (Kelley & Thibaut, 1978), in other words, partner affects are a measure of interdependence and "consequently, they cannot be measured within individuals" (Cook & Kenny, 2005, p. 103).

The APIM (Figure 1) integrates the concept of nonindependence in dyadic relationships with statistical techniques that support measuring and testing it (Cook & Kenny, 2005, pp. 101-103). In addition to actor (a^1, a^2) and partner effects (p^1, p^2), the APIM accounts for correlations between the predictor variables (X^1, X^2) ensuring that actor effects are estimated while controlling for partner effects and vice versa. Because it is not likely that the predictor variables account for all the variance in the outcome variables (Y^1, Y^2), the degree to which the outcome variables are not explained by either of the predictor variables is represented in the model by the unexplained (U^1, U^2), residual or error terms for their respective outcome variables. If actor and partner effects fully explain the nonindependence between the outcome variables, then their correlation will no longer be evident when partner effects are removed.

It is important to recognize that in addition to partner effects, there are some other possible sources of nonindependence in the outcome variables in the APIM, including compositional effect, common fate, and mutual effect (Kenny et al, 2006). Compositional effect can occur if individual dyad-members share similarities prior to being paired together (Kenny et al., 2006). This idea is supported by Anderson (1998), who found when the random assignment of PR and preceptees resulted in a "matched" pair based on the introversion/extroversion personality preference of the Myers-Briggs Type Indicator (MBTI), NGNs reported greater satisfaction with

their job orientation. According to Kenny, et al. (2006), the likelihood of compositional effect developing over time is greater with dyad members who are paired in a non-random manner (Kenny et al., 2006). Common fate effects can occur when dyad-members "are exposed to the same causal factors" (Kenny et al., 2006, p. 5). The length of relationship and household income are examples of possible common fate influences in dyadic relationships (Lederman & Kenny, 2012, p. 140). Organizational structure of preceptorship variables such as nurse staffing levels, workload, or hospital support for the PR are some possible sources of common fate effects. Lastly, mutual influence involves a process of feedback and is present when dyad-members' outcomes directly affect one another (Kenny et al., 2006).

In 2012, Lederman and Kenny reported an "explosion of interest in dyadic data analysis" over the prior ten years including over 130 publications regarding the APIM between 2008 and 2011 (p. 140). A similar response cannot be appreciated from the nursing literature. The overall lack of dyadic research in nursing is somewhat surprising, given the salience of two-person relationships to the profession: nurse-patient, mother-infant, nurse educator-nursing student, nurse-nurse, nurse-physician, and PR-NGN are just some examples. While some nursing research has focused on dyads, few seek to quantify the two-person relationship and test its effects; no preceptorship studies have been-published that employed dyadic research methods and data analysis.

Dyadic relationships have been studied in sociology, psychology, education, and athletics. Although not specific to preceptorship, some examples that have relevance for considering actor and partner effects in the PR-NGN dyad area addressed in brief. Delgado-Márquez, Hurtado-Torres, & Aragón-Correa (2013) investigated the measurement of *trust transfer* in interpersonal contexts and demonstrated that the transference of trust is bidirectional in the dyad. In a study of 61 consultant-consultee dyads in education, Erchul, Hughes, Meyers, Hickman, and Braden (1992) found that the greater the correlation among dyad-members' understanding of their respective roles, consultation processes, and goals for consultation, the

better the consultees' perceptions of both consultant effectiveness and consultation outcomes. When consultant and consultee perceive that they make a good team, the consultee is likely to perceive that the consultation as beneficial and the consultant as effective. Jackson, Beauchamp and Knapp (2007) examined relational efficacy beliefs in 60 junior tennis doubles teams and found that *self-efficacy* and *other-efficacy* (partner) predicted athletes' commitment to and satisfaction with the partnership. Furthermore, a person's belief in their partner's ability to perform effectively can elevate one's self-efficacy. A person's perception of one's partner's confidence in his or her ability to perform can positively impact self-efficacy of the perceiver, whether or not the perception is true.

In comparison to the social sciences, the use of dyadic measures in nursing research has been limited in quantity and scope. Recent examples include: perceptions about family planning and contraceptive practice in the marital dyad (Lee, Lee, Ahn, Jang, Shin, & Kim, 2014); romantic partners' influence on each other's heavy episodic drinking (Bartel et al., 2017); engagement in health-promoting behaviors in patient caregiver dyads facing advanced cancer (Elis et al., 2017); guilt, shame, and fear of death effects on neonatal intensive care unit-related parental distress (Barr, 2015); parental protectiveness and friend influence (Laursen, Žukauskienė, Raižiene, Hiatt, & Dickson, 2015); influence of the best friend dyad on physical activity in adolescents (Lopes, Baggard, & Rodrigues, 2013); and lastly, emotional distress and perceived health in persons with atrial fibrillation and their partners (Dalteg, Benzein, Sandgren, Malm, & Årestedt, 2016).

To date, the APIM has not been used as the basis for nursing research focused on NGNs. Still, the PR-NGN dyad and PR-NGN interpersonal interaction are inherent to the preceptorship experience, and current evidence supports the idea that the PR-NGN relationship is critical to NGN competence and PR and NGN job satisfaction and professional commitment. Therefore, in this study, PR and NGN perceptions of the preceptorship experience are conceptualized as

predictor variables that have a dyadic effect on selected preceptorship outcome variables, namely, PR and NGN perceptions of NGN competence, and PR and NGN work engagement.

Summary of the Gaps in the Literature

Preceptorship has been the primary mechanism of NGN entry to the nurse workplace for more than four decades. Despite its longevity, very little is known about the critical elements of preceptorship and no model of preceptorship quality has been published. The PR and NGN interact in a collaborative, goal-oriented partnership, whereby both persons contribute to the outcomes of preceptorship. The notion that the PR-NGN interactive interpersonal relationship is critical to NGN competence and PR and NGN engagement in the work of nursing pervades the preceptorship literature. Nevertheless, to date, influence of the PR-NGN relationship on the outcomes of preceptorship has not been sufficiently addressed through nursing research. This study aims to address this gap in the literature as a first step toward delineating the critical elements of preceptorship quality.

Hypotheses

The following hypotheses were addressed in this study:

1. Within dyads, there is a mean and variance difference between average preceptor and NGN perceptions of the preceptorship experience.
2. Within dyads, there is a mean and variance difference between the average preceptor perception of NGN competence and NGN self-perception of competence.
3. Within dyads, there is a mean and variance difference between average preceptor work engagement and NGN work engagement.
4. Within dyads, there are relationships among preceptor perception of the preceptorship experience, NGN perception of the preceptorship experience, preceptor perception of NGN competence, NGN self-perception of competence, PR work engagement, and NGN work engagement.

5. Within dyads, there are actor and partner effects of preceptor and NGN perceptions of the preceptorship experience on preceptor perception of NGN competence and NGN self-perception of competence. *Effects of preceptor perception of the preceptorship experience on preceptor perception of NGN competence.*
6. Within dyads, there are actor and partner effects of preceptor and NGN perceptions of the preceptorship experience on preceptor work engagement and NGN work engagement. *Effects of preceptor perception of the preceptorship experience on preceptor work engagement.*

Assumptions of the Study

1. The PR-NGN relationship is a viable dyadic relationship; meaning that the relationship benefits/costs are comparable to the benefits/costs of competing human relationships.
2. The benefits/costs associated with PR and NGN activities of preceptorship are comparable to the benefits/costs of competing activities, exogenous and endogenous.

CHAPTER III. METHODOLOGY

Disclaimer: Chapter 3 was written prior to the initiation of the study and does not fully represent the study as it was conducted, which implemented Bayesian inference rather than frequentist analyses. The reader is directed to Manuscript II (found on page 86 of this document), which presents the methodology with justification and the results of the completed study.

Research Design

A quantitative, reciprocal, standard dyadic research design will be used in this multi-site preceptorship study. In dyadic research, the term "reciprocal" means that both members of the dyad are measured; "standard" means that each participant is a member of only one dyad, and all participants are measured on some, but not necessarily all, of the study variables (Kenny et al., 2006). A dyadic research design was selected for this study because dyadic research methods support the identification, quantification, and statistical analysis of dyadic relationships, wherein individual dyad-member responses are dependent upon some property of the partner-member (Kenny et al., 2006; Kenny & Cook, 1999).

Study Sample

The study sample population will include a minimum of 101 distinct PR-NGN dyads, who engaged in preceptorship, in acute patient care units or procedural laboratories, in hospital settings. The study sample size was determined through a power analysis that was conducted by the researcher using an online application (Ackerman, Lederman, & Kenny, 2015) that was created for conducting a power analysis for the APIM. The power analysis was based on the achievement of a power of 80% at the .05 level of significance with an effect size of .40 for both actor and partner effects. An effect size of .40 was selected because it is consistent with Spector, et al. (2015), who aimed at a moderate effect (.40).

A convenience sampling strategy that includes snowball sampling (Polit & Beck, 2012) will be used to generate the study sample population because of the obvious advantages in cost effectiveness and logistics associated with convenience sampling methods (Hulley, Cummings, Browner, Grady, & Newman, 2013). Because study participants will be enrolled as PR-NGN dyads only, both members of the dyad must express willingness to participate in the study. Like Spector et al. (2015), additional participant inclusion criteria are: individual NGN dyad-members must be employed by the study hospital, in their first nursing job, after graduating from a pre-licensure diploma, associate-degree, baccalaureate, or master's direct entry program; and both members of the participant PR-NGN dyad must be employed by the study hospital in at least a 0.5 full-time equivalent (FTE) staff nurse position. Lastly, individual PR dyad-members must be assigned by the study hospital as the primary, although not necessarily the only, PR to the NGN dyad-member.

The requirement that NGNs be employed in their first nursing job is an attempt to control for the possibility of multiple treatment effect due to NGN prior preceptorship experience as a new nurse employee. This is important because multiple treatment effect threatens external validity and thereby, the generalizability of research study findings (Tappen, 2011). The 0.5 FTE requirement will ensure that all PR-NGN dyads have at least the possibility of engaging in preceptorship for 20 hours per week. Lastly, the clinical agency assignment of a primary PR to an NGN establishes a formal PR-NGN relationship, constituting the PR-NGN dyad, a primary focus of this study.

Study Setting

The study setting will include various acute patient care units and procedural laboratories in multiple urban and community hospitals of three major healthcare systems. The study hospitals are in and around a major metropolitan area of the Midwestern U.S. Selection of the study hospitals was based upon accessibility to the target population that was granted to the researcher

by nursing leadership within those hospitals. In addition, administrative support for conduct of the study in each study hospital has been obtained.

Instrumentation

In empirical research, operational definitions indicate how theoretical study concepts are to be measured and the propositional relationships among them are to be tested (Fawcett, 2011). The independent variable in this study is the preceptorship experience, which will be operationalized by measuring PR and NGN perceptions of preceptorship process using the Preceptor Evaluation Tool (PET) (Blegen et al., 2015). There are two dependent variables in this study: NGN competence and work engagement. NGN competence will be operationalized by measuring PR perception of NGN competence and NGN self-perception of competence using the Specific Competency Tool (SCT) (Spector, et al., 2015); Work engagement will be operationalized by measuring PR and NGN self-reported work engagement using the Utrecht Work Engagement Scale, 9-item short version (UWES-9) (Schaufeli, Bakker, & Salanova, 2006). In addition, several participant demographic and other potential confounding variables will be measured using PR and NGN questionnaires developed specifically for this study.

Preceptor evaluation tool (PET). The PET is a 23-item instrument that uses a 5-point Likert-type scale (1 = *disagree* to 5 = *agree*) (Blegen et al., 2015). A total PET score will be summated for each study participant; the range of possible scores is 23-115. According to Blegen et al. (2015), the PET encompasses 16 items from the *Preceptor Evaluation Survey* (Moore, 2009; Omer, 2013), five items from the *Preceptor Self-Evaluation* tool (Roth & Johnson, 2011), and two items developed to align with the goals of the National Council of State Boards of Nursing (NCSBN) Hospital Nurse Transition to Practice Program. Exploratory factor analysis established two subscales of the PET: *preceptor activities* (18 items) and *preceptor context* (5 items). Cronbach's alphas of .97 and .86 for the subscales respectively and .97 for the total instrument were reported by Spector et al. (2015) indicating favorable reliability of the

instrument. The PET was selected for use in this study because of its good reliability and prior use as an instrument for gathering both PR and NGN perceptions of the preceptorship experience in U.S. hospital settings in the NCSBN investigation, "Transition to Practice Study in Hospital Settings" (Spector et al., 2015).

Specific Competency Tool (SCT). The SCT is a 33-item instrument that uses a 5-point Likert-type scale (1 = *disagree* to 5 = *agree*) (Spector et al., 2015). A total SCT score will be summated for each study participant; the range of possible total scores is 33 to 165. The SCT originated from the Critical Thinking Diagnostic Instrument (CTDI) (Cronbach's $\alpha = .98$) (Berkow et al., 2011). Developed by the Nursing Executive Center and informed by more than 100 "industry leaders" including hospital executives, directors, managers, nursing school deans, faculty members, and nursing education association representatives, the CDTI addresses 25 core critical thinking competencies codified as five broad skills categories including problem recognition, clinical decision making, prioritization, clinical implementation, and reflection. Spector, et al. (2015) modified the CDTI, in collaboration with experts from the Quality and Safety Education for Nurses (QSEN) initiative (Sullivan, et al., 2009).

The SCT was pilot tested in three Chicago hospitals, and resultant reliability of the instrument was acceptable with Cronbach's alphas ranging from .74 to .83 in a sample of NGNs and .82 to .89 in a sample of PRs (Spector et al., 2015). Exploratory factor analysis established four subscales of the SCT: *patient-centered care*, *evidence-based practice/quality improvement, teamwork/communication,* and *use of technology.* Subsequent use of the SCT in the NCSBN investigation, "Transition to Practice Study in Hospital Settings" (Spector et al., 2015) further established the reliability of the instrument: Cronbach's alphas ranging from .88 to .93 across the four factors provided evidence of internal consistency for each of the subscales. The SCT was selected for use in this study because of its good reliability and prior use as a tool for gathering both PR and NGN perceptions of NGN competencies in U.S. hospital settings.

Utrecht Work Engagement Scale (UWES-9). The UWES-9 (9-item short version) (Schaufeli, Bakker, & Salanova, 2006) is a 3-factor, 9-item self-report instrument that uses a 7-point frequency scale (0 = *never* to 6 =*always*) to measure work-related self-perceived state of emotion and thought. Subscales of the UWES-9 measure *vigor, dedication,* and *absorption*. A total work engagement score will be summated for each study participant; the range of possible total scores is 0 to 54. Psychometric testing of the UWES-9 has been extensively reported by multiple researchers including, but not limited to Schaufeli, et al. (2006) and Seppälä et al. (2009). The UWES-9 has established, good internal consistency (Cronbach's α = .85 to .92 [Schaufeli et al., 2006]; Cronbach's α = .82 to .86 [Seppälä et al., 2009]). As suggested by Schaufeli and Bakker (2004), "the more neutral term *Work & Well-being Survey"* will be used instead of "work engagement" in the title of the survey instrument to avoid participant response bias that could "result from specific connotations" related to the term work engagement (p.33).

Preceptor and newly graduated nurse questionnaires. The researcher-developed 17-item NGN questionnaire (NGN-Q) (Appendix A) and 10-item PR questionnaire (PR-Q) (Appendix B) and will be used to capture demographic data to describe the study sample. In addition, the questionnaires will be used to measure selected structure and process variables of preceptorship that were identified as contextual boundaries of preceptorship through the researcher's prior principle-based analysis of the preceptorship concept (Kunkel-Jordan, et al, 2017): These variables have the potential to confound the study results. Each questionnaire also includes one question specifically aimed at obtaining participant permission for post-survey contact by the researcher.

Procedures

Participant recruitment. The researcher has established a relationship with a nurse researcher in each of the three health care systems that umbrella the study hospitals. These nurse researchers will identify study-setting gatekeepers (e.g., patient care unit nurse educators,

clinical nurse specialists, or nurse managers). In accordance with study-setting research protocols, these gatekeepers will identify potential participant PR-NGN dyads, providing each dyad-member with a researcher-developed paper invitation to participate in this study. Interested nurses will then contact the researcher via email. All participant candidates will be screened based on the study eligibility criteria. Because qualified candidates will be enrolled in the study as PR-NGN dyads only, those who are successfully screened will be asked to enlist their PR or NGN dyad-member partner to contact the researcher for screening. Additionally, potential and actual study participants will be encouraged to refer interested nurse colleagues to the researcher for study information and eligibility screening.

Data collection. All data collection instruments will be converted to TeleForms and assembled into a PR-survey packet or an NGN- survey packet. All survey packets will be designated by individual participant and dyad identification numbers that have no meaning external to the study. An envelope containing the following documents will be delivered to study participants via the United States Postal Service (USPS): an introductory letter; a study information sheet that includes researcher contact information; the survey packet; and a pre-addressed, stamped envelope for return of the survey packet. The study envelopes will be mailed to participants based on anticipated or actual preceptorship completion dates identified by the NGN member of the study dyad at the time of enrollment. Study participants will be asked to independently complete and return all survey packet documents within six weeks of preceptorship completion and NGN transition to independent practice, transfer to another patient care unit, or termination of employment for any reason. Anticipated completion time for the survey packet is $\leq$ 15 minutes, based on a priori testing by the researcher with three PR-preceptee dyads who were engaged in preceptorship in an intensive care unit setting.
In order to maximize survey return rates, a 1-week reminder and thank you message will be sent to non-respondents as allowed by study-setting research protocols and according to participant contact preference identified at the time of enrollment: Reminders may be sent as

post-cards that include a reminder and thank you message hand-signed by the researcher (Hoddinott & Bass, 1986), via email, telephone, or text. After three weeks, a third and final attempt will be made: Non-responders will be sent a second survey envelope containing the same documents as the first (Hoddinott & Bass, 1986), except for the introductory letter, which will be replaced by a reminder letter and thank you, hand-signed by the researcher. To mitigate the potential for individual participant attrition and thereby, the loss of dyads to the study, a $15 gift card honorarium will be provided to each study participant who completes and returns the study packet as requested. The gift cards will be delivered to participants via USPS certified mail with return receipt electronic signature within 30 days of the researcher's receipt of the completed study survey packet.

Plan for data management. A confidential participant roster will be created by the researcher using Microsoft Office Excel and maintained on a password protected electronic storage device. Dyad and participant ID numbers along with participants' name, postal address, employer, anticipated and/or actual date of preceptorship completion, and preferred method of post-survey contact will be recorded in the participant roster. Prior to data entry in the study database, a code book will be created to record the label and definition of each of the study variables (Pallant, 2010). A data file will be created using the Statistical Package for the Social Sciences (IBM-SPSS, Version 23.0); participant TeleForms will be processed electronically and downloaded into the SPSS study data file.

The study database (*N* dyads) will be organized using a pairwise structure that is sometimes described as a double-entry structure (Kenny et al., 2006). Accordingly, there will be one record in the file for each individual PR or NGN dyad-member and each record will contain that person's scores for all study variables as well as his or her respective PR or NGN partner-member's scores for each of the study variables. Fidelity of the data management system will be ensured through pre-study testing using dummy data.

Plans for organizing the study database and conducting data analysis were informed by the researcher's participation in a week-long dyadic data analysis workshop held at Michigan State University (MSU) in July 2016. The workshop was facilitated by leading experts in dyadic data analysis, Dr. Deborah Kashy, Department of Psychology, MSU and Dr. Robert Ackerman, Department of Psychological Sciences, University of Texas at Dallas. Dr. Kashy and Dr. Ackerman, are available to the researcher for consultative support as an ongoing benefit of participation in the workshop. The authoritative text, *Dyadic Data Analysis* (Kenny et al., 2006) was referenced frequently throughout the planning process.

Analysis

Data verification and cleaning. Prior to data analysis, the database will be checked for errors that could impede or distort statistical analyses (Pallant, 2010). To begin, a frequency distribution will be run in SPSS for the independent and dependent variables, and selected confounding variables; the results will be inspected for errors such as missing data, outliers and wild codes (Polit & Beck, 2014). In the event of missing data, errors in filling in TeleForm bubbles, or inconsistency in a participant's responses, and only with permission, the researcher will contact the participant for clarification to facilitate the completion of the survey packet.

After all potential opportunities to complete the data file have been exhausted, the extent of any remaining missing data will be considered. The researcher will look for missing value patterns, including data missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR) (Polit & Beck, 2014). Subsequent decisions regarding what to do about missing data will be made in consultation with the study statistician. Anticipated possible solutions include pairwise deletion or imputation (Field, 2013; Pallant, 2010; Polit & Beck, 2014). Throughout the study, care will be taken to maintain a historical record of all changes made to the study data file. Corrections to the data file will be based upon researcher review of the original participant survey response forms whenever possible.

Preliminary analysis. Preliminary data analysis will include descriptive statistics for all variables measured in the study to describe the study sample (Field, 2013; Pallant, 2010). Descriptive statistics including mean, median, and standard deviations will be obtained for all continuous variables (Pallant, 2010). Frequencies will be obtained for categorical variables, and normality of distribution will be assessed. Representativeness of the sample (Gillis & Jackson, 2002) will be considered by comparing PR and NGN demographics and selected professional attributes with available nursing workforce data.

Preliminary analysis will also include checking for violation of the assumptions that underlie the statistical analyses used to address the study hypotheses (Field, 2013; Pallant, 2010). As previously stated in Chapter Two, it is important to note that dyadic data typically violate the assumption of independence (Kenny et al., 2006) because dyadic phenomena are inherently non-independent. Lastly, reliability testing of the PET, SCT, and UWES-9 with the study sample population will be conducted.

Hypothesis testing. PR-NGN dyad-members are distinguishable by role. Because PR and NGN perceptions can (a) differ within the dyad and (b) vary on average between dyads, the independent and dependent variables in this study constitute *mixed predictor* and *mixed outcome* variables, as described by Kenny et al. (2006). In this section of Chapter Three, the anticipated statistical analysis for each of the study hypotheses is addressed.

H1: Paired-samples t-tests will be conducted to determine if there are statistically significant differences between PR and NGN perceptions of the preceptorship experience. If the normal distribution cannot be assumed, then Wilcoxon Rank-Sum tests or Mann-Whitney U tests will be used. The Wilcoxon Rank-Sum test is a non-parametric statistic that can be used as an alternative to the t-test for matched pairs.

H2: Paired-samples t-tests will be conducted to determine if there are statistically significant differences between PR and NGN perceptions of NGN competence. If the normal distribution cannot be assumed, then Wilcoxon Rank-Sum tests or Mann-Whitney U tests will be

used. The Wilcoxon Rank-Sum test is a non-parametric statistic that can be used as an alternative to the t-test for matched pairs.

H3: Paired-samples t-tests will be conducted to determine if there are statistically significant differences between PR work engagement and NGN work engagement. If the normal distribution cannot be assumed, then Wilcoxon Rank-Sum tests or Mann-Whitney U tests will be used. The Wilcoxon Rank-Sum test is a non-parametric statistic that can be used as an alternative to the t-test for matched pairs.

H4: The Pearson product-moment correlation coefficient (*r*) will be used to identify and describe the strength and direction of the relationships (Pallant, 2010) among PR perception of the preceptorship experience, NGN perception of the preceptorship experience, PR perception of NGN competence, NGN self-perception of competence, PR work engagement, and NGN work engagement. The strength of correlation will be considered according to the Cohen (1988): r = .50 to 1.0, large; r = .30 to 49, medium; and r = .10 to .29, small. Multiplicity effect will be controlled by Bonferroni correction. Partial correlations will be conducted to statistically examine the influence of selected confounding variables (Kenny et al., 2006; Pallant, 2012).

H5: In consultation with the statistician, an online program developed specifically to examine actor-partner interdependence (Kenny, 2015) will be used to estimate the actor and partner effects of PR and NGN perceptions of the preceptorship experience on PR perception of NGN competence and NGN self-perception of competence.

H6: In consultation with the statistician for the study, an online program developed specifically for actor-partner interdependence (Kenny, 2015) will be used to estimate the actor and partner effects of PR and NGN perceptions of the preceptorship experience on PR work engagement and NGN work engagement.

Protection of Human Rights

Institutional Review Board (IRB) approval will be obtained from Marquette University and all relevant clinical settings prior to initiation of the study. As previously stated, the study information sheet will be mailed to individual PR and NGN study participants along with the study survey packets. The information sheet describes the study and associated risk, and provisions by the researcher to ensure the protection of human rights including: freedom from harm or discomfort, protection from exploitation, full-disclosure, privacy, fair treatment, and self-determination. The researcher's contact information is also provided and participants are encouraged to contact the researcher with concerns or questions. Informed consent will be evidenced by participant completion and return of the study survey packets as instructed.

Participant confidentiality will be strictly protected throughout the study. The participant roster will be maintained in a locked file drawer in the researcher's office. De-identified study data will be maintained in an SPSS data file on a second password protected portable electronic storage device that will also be secured in the researcher's office. At no time will participant personal identifiers be joined with participant responses in a single document or file. Participant data will be kept for a period not to exceed seven years, at which time, paper copies will be shredded, and electronically stored data will be deleted. The study findings will be disseminated in an aggregate form only.

Limitations

The use of a convenience sampling strategy is an obvious limitation of this study because convenience samples can be atypical of the population relative to the phenomena under study (Gillis & Jackson, 2002). Attrition is a potential limitation given that if one dyad-member leaves the study or fails to complete and return the survey packet, there will be a loss of the PR-NGN dyad to the study. One strategy aimed at mitigating these challenges is flexible dyad participation: PR-NGN dyads will be recruited from various types of acute patient care units and not excluded

based on PR or NGN level of nursing education, PR years of nursing experience, or PR prior experience with NGNs. In addition, the gift card honorarium is intended to encourage participant completion and return of the study packet. Lastly, over recruiting is planned to ensure an adequate sample size for analysis: Up to 200 PR-NGN dyads will be enrolled in the study.

The greatest limitation and threat to internal validity in this study is the variable amount of time that study participant PR-NGN dyad-members may spend together in preceptorship. Therefore, the researcher will work closely with the study hospital gatekeepers to ensure that the responsible patient care unit level decision-makers are encouraged to synchronize study participant PR-NGN dyad-member schedules and keep study participant PR-NGN dyad-members together as they make patient care shift assignments. The researcher will also encourage all study participant PR-NGN dyad-members to self-advocate for consistent assignment to each other. Finally, participant completion of the study surveys without researcher supervision is a limitation of this study because absolute assurance that PR-NGN study dyad-members will independently complete the study packets is precluded.

MANUSCRIPT I

ABSTRACT
PRECEPTORSHIP OF NEWLY GRADUATED NURSES: A PRINCIPLE-BASED CONCEPT ANALYSIS

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Preceptorship is widely used in hospital settings and consistently regarded as pivotal to the successful development of newly graduated nurses (NGNs) self-confidence and competence, job satisfaction, and intent-to-stay in the job and the profession. Yet, there is a lack of empirical evidence substantiating direct relationships between preceptorship and desired outcomes, and the critical elements of preceptorship have not been rigorously established. Penrod and Hupcey's (2005) method of principle-based concept analysis was undertaken to reveal the state of the science as a first step toward advancing preceptorship theory and practice. Thirty original preceptorship research study and quality improvement project reports published between January 2016 and June 2019 were reviewed. Subsequently, the concept of preceptorship in the context of NGN transition to practice was theoretically defined as a multi-dimensional process, prescribed by an employer for a defined amount of time, with the goal of transforming the NGN into a safe, competent, and independent nurse in practice, fully engaged in the work of nursing as an integral member of the interprofessional team. In addition, explicit conceptual preconditions, attributes and consequences, and implicit meanings of the preceptorship concept were identified, including the preceptor-NGN interpersonal relationship and activities of preceptorship. Findings of the review can be used to optimize NGN learning in the clinical environment, justify financial support for the implementation of preceptorship programs, and support further research to develop an evidence-based model of high-quality preceptorship.

Introduction

High quality patient care depends upon the preservation of a sufficient and qualified nursing workforce; therefore, the importance of evidence-based strategies enabling newly graduated nurses (NGNs) to thrive in clinical practice should not be underestimated (Lalonde & Hall, 2017). High-quality preceptorship is one approach consistently regarded as pivotal to the successful development of NGN's self-confidence and competence, job satisfaction, and intent-to-stay in the job and the profession; yet, there is little direct evidence to support these suppositions (Edwards, Hawker, Carrier, & Rees, 2015; Nielsen et al., 2017). Empirical studies are needed to understand the impact of preceptorship on NGN, preceptor, hospital-employer and above all, patient outcomes. Because scientific research is dependent upon precisely defined concepts (Penrod & Hupcey, 2005), a principle-based concept analysis of *preceptorship in the context of NGN transition to practice* was undertaken to reveal the state of the science as a first step toward advancing preceptorship theory and practice.

Background

Increasing life expectancy, the growing population of older adults, escalating burden of chronic disease, and commencing baby boomer nurse retirements are contributing to a significant rise in nurse demand. Overall nurse job growth is expected to rise by 15% between 2016 and 2026, meaning, nearly 440,000 new nurses will be needed in the U.S. workforce (Bureau of Labor and Statistics, U.S. Department of Labor, 2018). The need for acute care nursing is also increasing in complexity and intensity (Kentischer, Kleinknech-Dolf, Spirig, Frei, & Huber, 2018). For hospital systems, the gap between nurse supply and demand is a current and pressing reality. In a 2017 survey of chief nursing officers ($N = 11639$), 70% reported a moderate to severe nurse shortage in their organization; 28%, 43%, and 61% believed it would get worse in one, two,

and five years, respectively (AMN Healthcare, 2018). Consequently, the successful orientation, integration, and organizational retention of NGNs in acute care settings is paramount.

A sound academic education, alone, does not sufficiently prepare NGNs for clinical practice in hospital settings (Hopkins & Bromley, 2016). High demands are placed on acute care nurses, which necessitate a working knowledge of ever-advancing diagnostic technologies, the ability to make rapid-fire, evidence-based, clinical decisions in life-threatening situations as well as a solid understanding of the policies and politics inherent to complex health care systems (Tyo et al., 2018). Experienced nurses are concerned about NGNs' overall readiness for practice, specifically their competence in technical skills, critical thinking, and interpersonal communication (Missen, McKenna, & Beauchamp, 2016).

By self-account, many NGNs lack confidence in their ability to meet the expectations of professional nursing (McCalla-Graham & De Gagne, 2015; Mellor & Greenhill, 2014). The responsibility of being a nurse weighs heavily (Ostini & Bonner, 2012). The NGNs' transition to the professional nurse role is marked by moral distress (St-Martin, Harripaul, Antonacci, Laframboise, & Purden, 2015) characterized by periods of low self-esteem, increasing self-doubt, and feelings of powerlessness (Badger, 2009; Kelly 1998). Additionally, lack of support and difficult work environments contribute to high levels of stress (Gardiner & Sheen, 2016) during the first year of practice, leading many NGNs to quit their job (Flinkman & Salanterä, 2015).

Successful NGN transition to practice is not inevitable. The importance of easing stressors inherent to NGNs' role transition is recognized globally (Lindfors, Meretoja, Kaunonen, & Paavillainen, 2018). Hospital-employed NGNs need guidance and support (Della Ratta, 2018) as they begin to develop a sense of responsibility for independent practice and exercise nurse agency to benefit patients and populations. Effective preceptorship is crucial for NGNs' successful transition to the professional nurse role with concurrent delivery of safe and effective, high-quality patient care (Figueroa, Gardiner, Irizarr, & Cohn, 2016; Whitehead, Owen, Henshaw, Beddingham, & Simmons, 2016).

Historical Preceptorship

Neither new, nor limited to the nursing profession, preceptorship is well established, used extensively, and regarded as a highly valued method of teaching students of multiple disciplines in their respective practice environments (Billay & Myrick, 2008). Evident in non-nursing literature since at least 1951 (Parker, 2009), the use of preceptorship was primarily concentrated in the study of medicine and dentistry until the 1970s, but also adopted in pharmacy (Hartzler, Ballentine, & Kauflin, 2015), education, and law (Davis, 2011; Gill, 1985).

A plethora of preceptorship research has been published in nursing education, where the phenomenon is described as a method or model of clinical teaching, used to enhance student learning with an overall goal of promoting safety, competence in practice, and work readiness (Edward, Ousey, Playle, & Giandinoto, 2017; Neilsen et al., 2017). In this context, preceptorship usually occurs in students' undergraduate senior year and involves pairing with an expert staff nurse employed by a health care agency, where the two work together in the clinical setting (Gaberson, Oermann, and Shellenbarger, 2015).

The one-to-one interpersonal relationship experienced by preceptor and student differentiates preceptorship from other models of clinical teaching (Lahuanga, Billay, Grundy, Myrick, & Yonge, 2010). According to Lahuanga et al. (2010), several aspects of the preceptor component of the model markedly influence students' learning experience: the number and consistency of preceptors, preceptors' preparation for their role, availability to the student, and delivery of tailored learning and feedback. The importance of these elements resounds across the preceptorship literature, irrespective of context.

The idea of a preceptor program (i.e., preceptorship) serving to "bridge the gap" between the roles of nursing student and professional nurse employed in a hospital setting was first implemented and explored through qualitative research conducted in the mid-1970s by McGrath

& Princeton (1987). Results of the study echoed the earlier findings of Kramer (1974): NGNs experienced feelings of apprehension, terror, nervousness and worry, sensory overload, lack of self-esteem, and were unable to apply knowledge acquired as students in their role of NGN.

Structured preceptorship programs burgeoned throughout the 1980s (Alspach, 1995; Morrow, 1984) and have persisted. Today, precepted experiences are commonly situated within complete programs of professional socialization (Kramer, Maguire, Halfer, Brewer, & Schmalenberg, 2013), variably known as internships, fellowships, transition to practice programs, and nurse residencies. The constancy of preceptorship in the NGN experience across hospital settings and time assumes its relevance to nursing practice outcomes, but cause-and-effect has not been empirically demonstrated.

Importance of Concept Analysis

Referred to as the building blocks of theory (Fawcett, 1978) and the knots of a tapestry (Penrod & Hupcey, 2005), concepts are *words* or *phrases* that capture the essential characteristics of a phenomenon (Fawcett, 1999). The use of concepts in nursing enables the communication, measurement, manipulation, and eventual application of complex behaviors; determination of concept maturity necessarily precedes formal research (Morse, Mitcham, Hupcey, & Taśon, 1996). Rodgers, Jacelon, and Knafl (2018) recently argued that concept analysis should be tied to an established problem and undertaken with intention to further scientific progress in the discipline. Accordingly, this paper presents an analysis of the concept of preceptorship involving NGNs focused on determining its conceptual clarity (preconditions, attributes, and consequences) and theoretical definition to inform future research aimed at addressing the gap between what is empirically known about preceptorship and its tradition in onboarding NGNs in hospital settings. For brevity, henceforth in this paper, the term, “preceptorship” should be taken to mean preceptorship in the context of NGNs’ transition to practice in acute care settings.

Methods

A principle-based method of concept analysis (Morse et al., 1996; Penrod & Hupcey, 2005) guided this inquiry. Principle-based concept analysis is distinguished from other methods of concept analysis in that it involves the integration of what is known about a concept of interest; it does not construct what *could* be or *should* be (Penrod & Hupcey, 2005). Four philosophical principles- *epistemological, linguistic, pragmatic,* and *logical*- guided the analysis. As prescribed, the preceptorship literature was assessed in accordance with criteria upheld by each principle. Conceptual components, including preconditions, attributes, and consequences were identified (Fenstermacher & Hupcey, 2014). Lastly the resultant principle-based estimates of probable truth were then integrated into a unified perspective on the current state of the science surrounding the concept of preceptorship.

Data Sources

Multiple preliminary searches were conducted by the primary author over an expanse of more than five years, beginning in 2012. The CINAHL, Web of Science, Medline, PscyhINFO, and ERIC databases were explored based on Penrod and Hupcey's (2005) idea that multidisciplinary perspectives contribute to conceptual understanding. Over time, a sample of hundreds of titles, abstracts, and full-text preceptorship studies, not limited by contextual disciplinary constraints, was read and contemplated until clarity was achieved. The final dataset was purposefully and conceptually derived from, and limited to, scientific literature.

The final search was conducted in January 2019 using CINAHL, Medline, and Web of Science and the key terms, "preceptorship," and "preceptorship AND acute care." Delimiters applied included *peer-reviewed, research,* and *English language.* In addition, a publication date range restriction of 2016 - 2019 was imposed on the data set, based on the revelation of existing theoretical knowledge through preliminary inquiry.

The final iteration of the search yielded 622 hits. Duplicates were removed and article titles were reviewed for relevance. Next, abstracts and then, full-text articles were read for relevance. Studies specifically focused on preceptorship in acute care settings were included in the analysis. Those not explicitly focused on "preceptorship," but with potential to inform the analysis (e.g., preceptor or NGN perceptions of the preceptor role) were considered for inclusion on a case-by-case basis. Preceptorship studies with mixed study sample populations (e.g., NGN and experienced nurse preceptees) were included if NGNs accounted for at least 50% of the sample. Investigations involving prelicensure or advanced practice nursing students enrolled in a master's education program, or disciplines other than nursing were not included in the analysis; abstracts, editorials, and dissertations were also excluded. Figure 1 illustrates the flow of information as it occurred in determining the final dataset (see Appendix A). A total of 30 single research study and quality improvement project reports, published between January 2016 and June 2019, were included in the final analysis.

Results

Epistemological Principle

Epistemology is concerned with the nature of knowledge (Huemer, 2002). An epistemologically mature concept is clearly defined and well differentiated from other concepts by way of that definition (Penrod & Hupcey, 2005). Therefore, an assessment of the concept of preceptorship was focused on determining its level of distinction within the nursing knowledge base.

The concept of preceptorship is mature because it is clearly, and for the most part, consistently defined or implied in the literature (Chen et al., 2017; Figueroa et al., 2016; Lalonde & Hall, 2017; Nielsen et al., 2017; Shinners, Africa, Deasy, & Franqueiro; Valizadeh, Borimnejad, Rahmani, Gholiza-deh, & Shahbazi, 2016). Numerous researchers cited definitions

of preceptorship stemming from various sources to set theoretical foundation for scientific inquiry.

Preconditions of preceptorship included a hospital patient care unit setting with a focus of care (i.e., patients); an NGN transitioning from the nursing student role to that of professional nurse in practice; and an experienced nurse preceptor, typically trained for the role. Key attributes consistently evident across definitions of preceptorship included: a 1:1 preceptor-NGN interpersonal relationship imposed by the nurses' employer for a prescribed amount of time; interactive processes involving interpersonal communication, teaching-learning, evaluation and feedback; and stages allowing for the progressive assumption of increasing responsibility for patient care by the NGN. Lastly, the overriding consequence of preceptorship included the NGN's transition to competent nurse in practice and integration into the nurse work environment.

Preceptorship was differentiated from similar concepts. Like preceptorship, the concepts of mentorship, clinical supervision, and apprenticeship reflect strategies aimed at developing competence in NGNs (Figueroa et al., 2016). All these concepts, preceptorship included, particularly reflect the promotion of nursing knowledge, practical skills, confidence, clinical judgement, professional socialization, and NGNs' smooth transition to independent practice (Shinners, 2015; Valizadeh et al., 2016; Nielsen et al., 2017). The concept of preceptorship is different from those of mentorship and clinical supervision in terms of its level of commitment and limited timeframe: preceptorship is relevant to particular clinical learning situations and not intended to involve a prolonged interpersonal relationship.

Traditional mentorships are intense, exclusive, unstructured relationships between an expert-mentor and a novice-mentee, characterized by an agreement between the parties. The relationship may be formal or informal and extend over years. Mentorship is aimed at promoting the mentee's socialization, role success, and realization of career goals (Vatan & Temel, 2016). Clinical supervision involves an extended timeframe and assists the NGN-supervisee in developing awareness of personal responsibility for practice and reflecting on decision-making

skills away from the patient; it is less focused on providing the supervisee with knowledge (Nielsen et al., 2017).

Linguistic Principle

Linguistic philosophy is concerned with human speech and language (Penrod & Hupcey, 2005). A linguistically mature concept is used consistently and appropriately within context. Accordingly, the concept of preceptorship was analyzed in terms of its use and meaning across contexts.

The concept of preceptorship is moderately mature as evidenced by its use in numerous practice specialties, and types of patient care units in hospital settings in the U. S. and globally. While the exact terminology may vary from "preceptorship" to "precepted experience," to "preceptor experience," a singular meaning is clear. Some linguistic problems are evident in that researchers have used "preceptorship" to describe a process (Kang et al., 2016), an "interpersonal relationship" (Nielsen et al., 2017), a "reality-based clinical practice experience" (Lee et al. 2017), and a "transition period" (Aboshaiqah & Qasim, 2018).

The term has also frequently been used as an adjective, as in "preceptorship program." Lalonde and Hall (2017) described preceptorship programs as the process by which organizations provide the social knowledge and skills necessary for NGNs to take on their new roles. The interpersonal nature of the preceptorship phenomenon is evident in researchers' use of the concept to reflect a "cohesive relationship" (Chen et al., 2017), preceptor-NGN relationship (Kang et al. 2016), and *married* state (Figueroa, et al., 2016).

Pragmatic Principle

Pragmatism is concerned with usefulness (Munhall, 2012) and holds that knowledge is dynamic, emerging through both inductive and deductive processes (Polit & Beck, 2017). Pragmatically mature concepts "ring true" to members of the relative discipline (Penrod & Hupcey, 2005). Appropriately, the concept of preceptorship was analyzed in terms of its utility.

The concept of preceptorship is pragmatically mature. It reflects the mechanism by which health care organizations assist NGNs in acclimating to their role as a staff nurse and member of the interprofessional team (Tyo et al., 2018). Some preceptorships are described as structured models, while others are less formal. Overall preceptorship is believed to instill NGNs with confidence and competence in practice (Allan et al., 2018; Figueroa et al., 2016; Key & Wright, 2017). NGNs have reported increased competency in priority setting with acutely ill patients, multi-tasking, and complex nursing skills (Aboshaiqah & Qaim, 2018).

The benefits of preceptorship for individuals and organizations have often been captured indirectly by studying its inherent elements. For example, Kang et al. (2016) implemented a situational training program for PRs and showed subsequent improvement in PR-NGN interpersonal relationships and low NGN intention to leave their jobs. Tyo et al. (2018) updated an existing nurse residency program in part, by standardizing preceptors' role training and subsequently reported a 12-month NGN turnover decrease from 43% to 9% in one hospital and 50% to 9% in a second. Lastly, Lindfors et al. (2017) explored the elements of successful and unsuccessful NGN orientation periods on the job and cited PRs' competence and positive attitudes among the most important factors influencing NGN success. Direct measures of preceptorship were not evident in the sample of literature examined in this analysis. Preceptorship research is mostly dependent upon surrogate measures; the Clinical Teaching Behavior Inventory (Lee-Hsiah et al., 2016) is one example. From the stance of the pragmatist, the concept of preceptorship will have more value to researchers as instruments that measure the phenomenon explicitly and holistically are put forth.

Logical Principle

Classic philosophy of logic is concerned with truth-conditions and reasoning. A logically mature concept holds its boundaries when integrated with related concepts; it does not blur

(Penrod & Hupcey, 2005). Thus, the concept of preceptorship was analyzed in terms of its stability and robustness.

The concept of preceptorship is logically mature. The best example of this is the use of the concept of preceptorship in the context of structured transition to practice program research (Ziebert, et al., 2016), including that focused on NGN orientation (Lindfors et al., 2017) and nurse residency (Shaw, Abbott, & King, 2018; Slate, Stavarski, Romig, & Thacker, 2018; Brown Tyo et al., 2018). Preceptorship and its elements are consistently cited as unique, critical components of transition to practice program effectiveness.

Theoretical Definition

A theoretical definition of preceptorship was synthesized from explicit conceptual insights (antecedents, attributes, and outcomes) and implicit meanings abstracted from a systematically and purposefully determined sample of the scientific literature. The following definition is presented as the best probable estimate of the state of the science and product of this principle-based concept analysis: Preceptorship is a multi-dimensional process, occurring in the clinical environment through a one-to-one PR-NGN interpersonal relationship that is prescribed by an employer for a defined amount of time, with the goal of transforming the NGN into a safe, competent, and independent nurse in clinical practice, fully engaged in the work of nursing as an integral member of the interprofessional team. Figure 2 (see Appendix B) illustrates the conceptual components of preceptorship.

Conclusions

This analysis confirmed that preceptorship is a valuable concept in nursing. Numerous preconditions, attributes, and consequences were evident in the literature, indicating that in practice, the meaning of preceptorship is understood. However, direct measures of the preceptorship phenomenon were not apparent in the literature. Therefore, the utility of the concept of preceptorship for scientific research has not been sufficiently established. For these

reasons, the concept of preceptorship is deemed not fully mature. There is a need for nursing research aimed at determining the key variables by which the quality of preceptorship can be measured. The conceptual components of preceptorship identified in this paper, along with the theoretical definition of preceptorship resulting from this principle-based analysis can serve to guide future research and development of an evidenced-based theory of preceptorship quality that can be used by:

- preceptors to optimize NGN learning in the clinical environment;
- clinical nurse-educators to plan and coordinate the implementation of high-quality, evidence-based, cost-effective preceptorships that will support staff nurse development, work engagement, job satisfaction, and retention;
- nurse administrators to justify financial support for the implementation of preceptorship programs to onboard NGNs; and
- nurse researchers to build preceptorship evidence as a means to expand the qualified nurse workforce and promote high quality patient care.

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Appendix A

Figure 1. PRISMA Flow Diagram: The Concept of Preceptorship in the Context of Newly Graduated Nurse Transition to Practice in Acute Care Hospital Settings

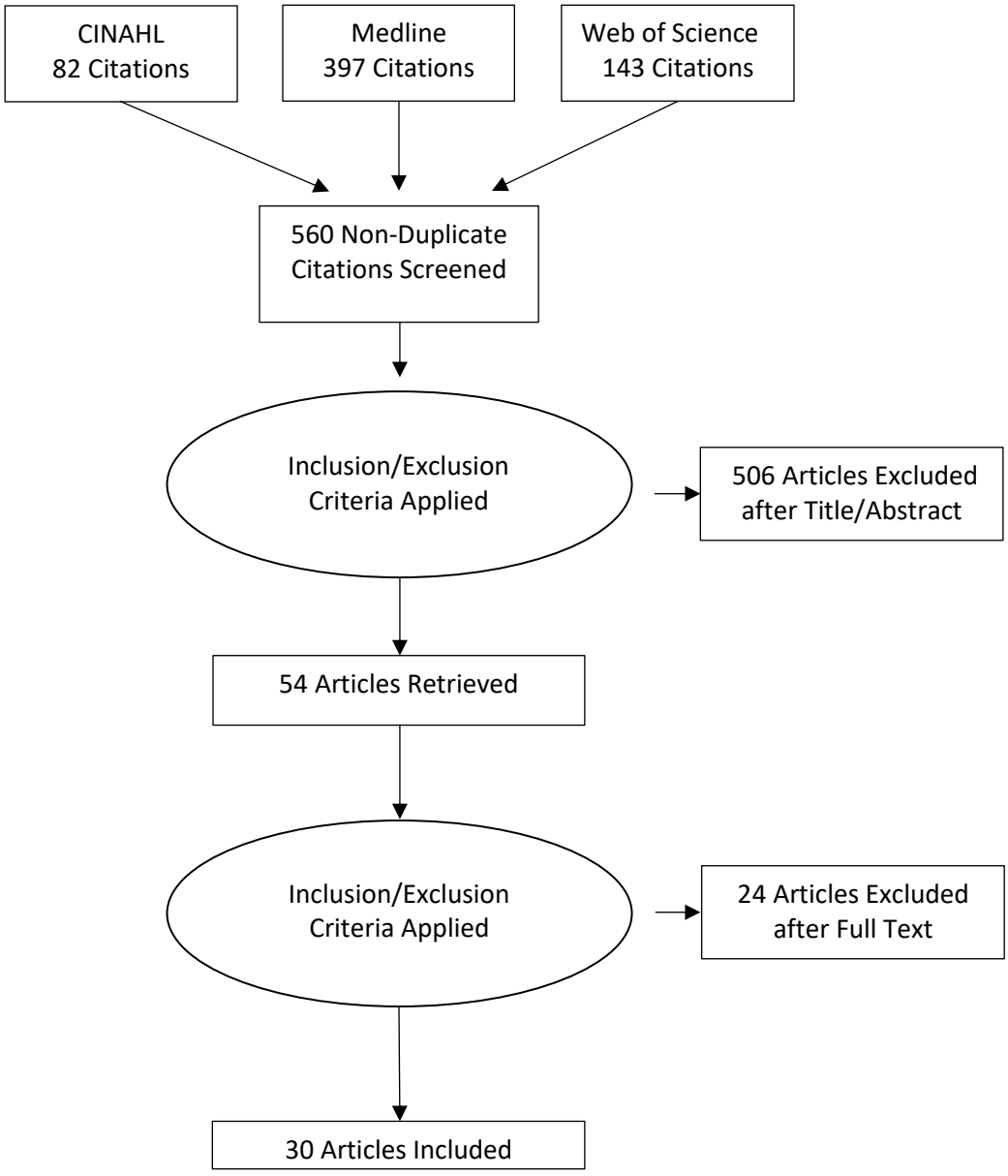

Figure 1. Flow of information as sample of literature was determined for review.

Appendix B

Figure 2. The Conceptual Components of Preceptorship in the Context of Newly Graduated Nurse Transition to Practice in Acute Care Hospital Settings.

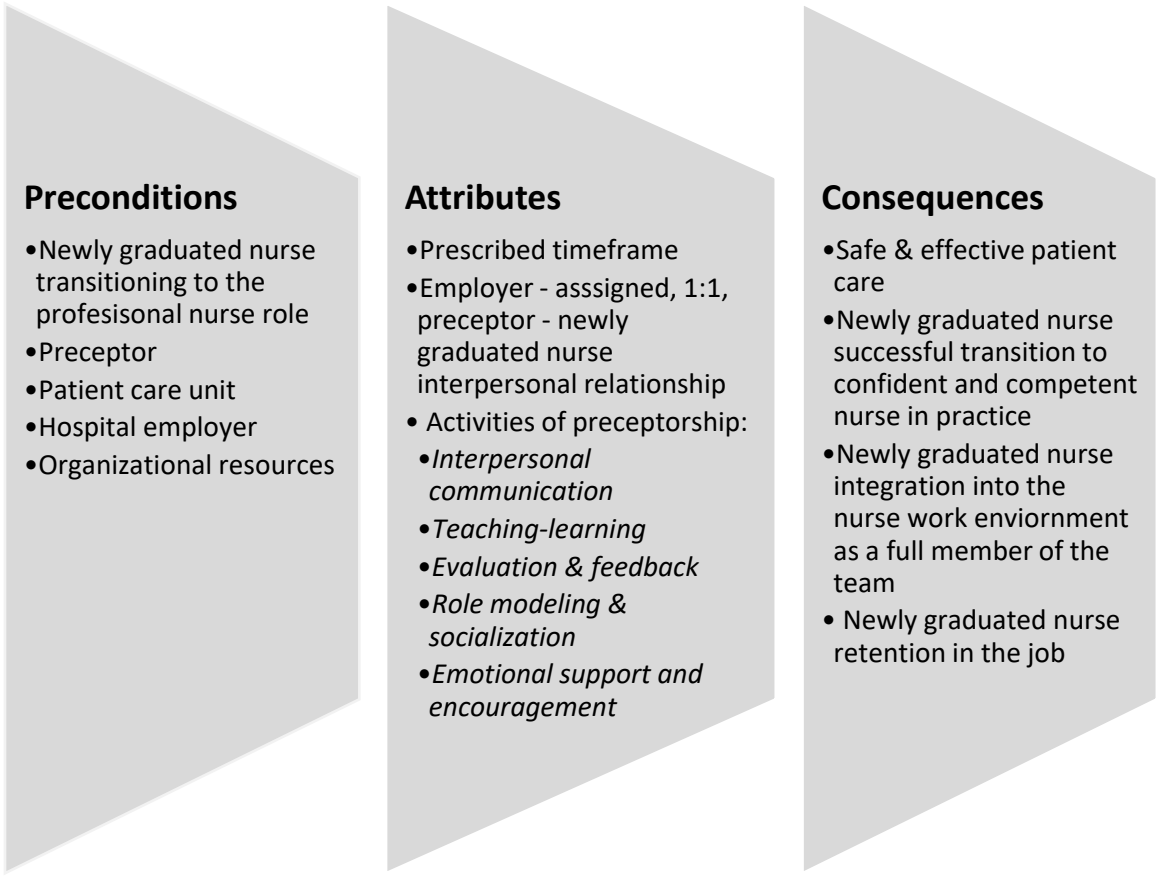

Figure 2. Preconditions, attributes, and consequences reflect explicit conceptual insights gained through a principle-based analysis of the concept of preceptorship in the context of newly graduated nurse transition to practice.

MANUSCRIPT II

ABSTRACT
PRECEPTORS' AND NEWLY GRADUATED NURSES' PERCEPTIONS OF PRECEPTORSHIP, WORK ENGAGEMENT, AND NEWLY GRADUATED NURSES' COMPETENCE

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Problem: High turnover rates in newly graduated nurse (NGN) are costly to employers. Lack of satisfaction with the orientation processes can motivate NGNs to leave their job. Numerous researchers identify that the preceptor - NGN interpersonal relationship is pivotal to NGNs' successful transition to the professional nurse role, but preceptorship research has not been focused on this dyadic preceptor-preceptee interaction. **Method:** A reciprocal, standard dyadic design was used to address the following research question, "Are the effects of preceptorship a function of the preceptor – NGN interpersonal relationship?" Survey participants included 50 preceptor-newly graduated nurse dyads recruited from nine Midwestern U.S. hospitals. Differences between and relationships among dyad-member perceptions of the preceptorship experience, NGN competence, and work engagement were explored. *Actor* and *partner effects* of the preceptorship experience on work engagement and perceptions of NGN competence were explored using Bayesian inference analyses. **Results:** Approximately 42% and 52% of the variance in preceptors' and NGNs' perceptions of NGN competence, respectively, were predicted by their collective perceptions of the preceptorship experience. Dyad-member perceptions of the preceptorship experience strongly predicted their own perceptions of NGN competence. Preceptor perceptions of the preceptorship experience weakly predicted NGN work engagement. **Conclusions:** Findings of this study provide initial evidence that preceptor and NGN perceptions of the preceptorship experience have direct effects on work engagement and perceptions of NGN competence. Therefore, strategies that promote positive preceptorship experiences should be deployed, including the development of effective preceptor – NGN interpersonal relationships, to achieve desired outcomes.

Introduction

Nurse demand is outpacing nurse supply (AMN Healthcare, 2018). The growing population of older adults, escalating burden of chronic disease, and ongoing advances in health care technology are contributing to a precipitous rise in the demand for qualified nurses (Institute of Medicine [IOM], 2010). Between 2016 and 2016, overall nurse job growth is expected to rise by 15%, meaning that nearly 440,000 new nurses will be needed in the U.S. nurse workforce (Bureau of Labor and Statistics, U.S. Department of Labor, 2018). Concurrently, the rising rate of nurse retirement is threatening a renewal of the nursing shortage (AMN, 2018).). Nearly one-third of the nursing workforce will reach retirement age in the next 15 years; 23% of nurses age 55 or older have intent to retire or change to part-time status in the very near future; and 190,000 nurses are expected to retire or leave nursing as the result of the growing U.S. economic recovery (AMN Healthcare, 2013).

High-quality patient care is dependent upon the sustainability of sufficient, qualified nurses in the workforce (Aiken et al., 2012; Needleman et al., 2011). As the largest segment of the nursing workforce available for employment (Friedman, Cooper, Click, & Fitzpatrick, 2011), newly graduated nurses (NGNs) are a logical and strategic focus for hospital employers. In addition, drawing on the pool of NGNs, typically excited and eager to practice, may serve to rejuvenate extant nurse employees experiencing exhaustion and burnout secondary to increasingly heavy workloads. The current state of affairs in the nursing workforce underscores the need for initiatives aimed at supporting NGN role transition and retention (McCalla-Graham & De Gange, 2015). High-quality preceptorship to expand the NGN workforce is critical because without the recruitment and retention of sufficient numbers of competent NGNs in the workforce, nurse demand cannot be met, leading to inadequate hospital nurse staffing-levels and with that, patient care quality can be jeopardized.

Newly graduated nurses are at risk for failure to thrive in clinical practice (Valdez, 2008). The complexity of contemporary health care systems, advanced technology, and high-level patient acuity pose formidable challenges to NGNs as they transition to professional practice (Bratt, 2009). By self-account, many NGNs lack confidence in their ability to meet the expectations of professional nursing (Johanson, 2013; McCalla-Graham & De Gagne, 2015; Mellor & Greenhill, 2014). Experienced nurses are concerned about NGNs' overall readiness for practice, specifically, NGNs' competence in technical skills, critical thinking, and interpersonal communication (Missen, McKenna, & Beauchamp, 2016). Likewise, nurse executives question NGNs' ability to deliver effective and safe patient care (Berkow, Virkstis, Stewart, & Conway, 2008).

A nurse's knowledge about something (knowing *that*) and knowing *how* to practice the profession reflect different types of expertise (Alspach, 1995), and both are necessary conditions for effective nursing care. NGNs need opportunities to learn *how* to apply their professional nursing knowledge and skills in real-world practice environments (National Academies of Science, Engineering, & Medicine, 2015); preceptorship is a viable approach to meeting this need. As a guided, situated learning experience (Kramer, Maguire, Schmalenberg et al., 2013), preceptorship promotes NGNs' acquisition of basic and specialty nursing knowledge and skills (Sandeau & Halm, 2010), and supports the development of NGNs' competence (Haggerty, Holloway, & Wilson,, 2013) and confidence (Lewis & McGowan, 2015).

Nurse employers and policymakers have long focused on retaining NGNs in their jobs and the profession (Unruh, Zhang, & Chisolm,, 2016). Nevertheless, instability in the NGN workforce continues to be a palpable concern. Cho, Lee, Mark, and Yun (2012) conducted a survival analysis ($N = 351$) of NGNs working in hospitals as full-time employees and estimated the probabilities of NGNs staying in their first nursing job for one, two, and three years to be 82%, 66%, and 54%, respectively. More recently, research has shown that greater than 30% of NGNs frequently have intent to change jobs (Numminen, Leino-Kilpi, Isoaho, & Meretoja,

2016), 15% resign their first job within the first year of nursing (Kovner, Brewer, Fatehi, & Katigbak, 2014), and 14% (Numminen et al., 2016) to 55% have thoughts about quitting the profession (Tastan, Unver, & Hatipglu, 2013). NGN turnover is particularly troubling to hospital employers because 77% of NGNs are employed in hospital settings (Kovner et al., 2014).

The threat of NGNs leaving is of foremost concern, in part, because nurse turnover is costly. Colosi (2016) reported that hospital financial expenditures associated with the turnover of one bedside nurse in 2015 ranged from $37,700 to $58,400. Furthermore, when nurse turnover rates are high, nurse staffing levels are insufficient and nurse engagement is low (Collini, Guidroz, & Perez, 2015). Research has shown that low nurse-to-patient staffing ratios are associated with an increased incidence of adverse patient events including medication errors, pressure ulcers, fall injuries (Cho, Chin, Kim, & Hong, 2016), and infections (Nansupawat et al., 2016). In addition, nurse staffing levels are negatively correlated with failure-to-rescue, readmission rates, and patient mortality (McHugh et al., 2016). Lastly, nurse staffing shortages can lead to absenteeism and workplace injuries (Dawson, Stasa, Roche, Homer, & Duffield, 2014). Since preceptorship is the most common mechanism by which NGNs are supported during the transition-to-practice period (Washington, 2013), research that helps to explicate the critical components of preceptorship effectiveness to improve the NGN role transition experience and retain NGNs in the workforce is a prudent and essential endeavor.

There is a substantial body of evidence indicating that NGNs need learning guidance as they transition from the role of dependent nursing student to that of independent professional nurse; however, existing evidence regarding the benefits of specific strategies commonly used to support NGNs as they transition-to-practice, including preceptorship, is weak (Edwards, Hawker, Carrier, & Rees, 2015). Despite the long term and widespread use of preceptors in acute care environments, there is a paucity of empirical research to substantiate a direct, positive relationship between preceptorship and desired NGN, preceptor, and organizational outcomes (Edwards et al., 2015). Consequently, justification for the use of preceptorship in the context of

NGN job orientation and transition to the professional nurse role has been largely based on tradition and anecdotal and qualitative evidence.

Numerous researchers proffer the interpersonal relationship between preceptor and NGN as a critical element of the NGN experience (Haggerty et al., 2013; Marks-Maran et al., 2013; Rush, Adamack, Gordon, Lilly, & Janke, 2013). Therefore, the overriding purpose of this study was to examine preceptorship, in the context of NGN transition to the professional nurse role, as a quantifiable, dyadic phenomenon and predictor of NGN and preceptor perceptions of the preceptorship experience and preceptor outcomes. Specific aims of this study were to:

1. Explore differences between preceptor and NGN perceptions of the preceptorship experience.
2. Explore differences between preceptor and NGN perceptions of NGN competence.
3. Explore differences between preceptor work engagement and NGN work engagement.
4. Explore relationships among preceptor perception of the preceptorship experience, NGN perception of the preceptorship experience, preceptor perception of NGN competence, NGN self-perception of competence, preceptor work engagement, and NGN work engagement.
5. Explore *actor* and *partner* effects of preceptor and NGN perceptions of the preceptorship experience on preceptor perception of NGN competence and NGN self-perception of competence.
6. Explore *actor and partner* effects of preceptor and NGN perceptions of the preceptorship experience on preceptor work engagement and NGN work engagement.

Methods

Design

A cross-sectional, reciprocal, standard dyadic design was used in this study. The term "reciprocal" indicates that both members of the preceptor-NGN dyad were measured; "standard" means that each study participant was a member of only one dyad included the study sample and all participants were measured on some, but not necessarily all, of the study variables. A dyadic

design was selected for this study because dyadic research methods support the identification, quantification, and statistical analysis of dyadic relationships, wherein individual dyad-member responses are dependent upon some property of the partner-member (Kenny, Kashy, & Cook, 2006).

Sample and Setting

A convenience sampling strategy was used to recruit preceptor-NGN dyads within six weeks of the completion of their preceptorship. The study setting included nine urban, suburban, and community acute care hospitals, representing three health care systems, located in a major metropolitan area of the Midwestern U.S. Eligibility criteria specified that: both members of the preceptor-NGN dyad be employed by a study hospital in at least a 0.5 full-time equivalent staff nurse position; the NGN member of the dyad be working in her or his first nursing job after graduating from a pre-licensure diploma, associate degree, baccalaureate, or master's direct entry program; and the preceptor member of the dyad be designated as the primary, although not necessarily the only, preceptor to the NGN.

Instrumentation

Preceptor Evaluation Tool (Blegen et al., 2015). Preceptor and NGN perceptions of the preceptorship experience were measured using the Preceptor Evaluation Tool, a 23-item instrument that uses a 5-point Likert-type scale (1 = *disagree* to 5 = *agree*). Exploratory factor analysis previously established two subscales of the instrument: *preceptor activities* and *preceptor context* with Cronbach's alphas of .97 and .86, respectively and .97 for the total instrument (Spector et al., 2015).

Specific Competency Tool (Spector et al., 2015). Preceptor perceptions of NGN competence and NGN self-perception of competence were measured using the Specific Competency Tool, which is a 33-item instrument that uses a 5-point Likert-type scale (1 = *disagree* to 5 = *agree*). Good reliability of the instrument was previously established in a pilot

study conducted in three Midwestern hospitals (Cronbach's α = .737 to .832 for NGNs, and .819 to .894 for PRs). Subsequent exploratory factor analysis established four subscales of the instrument: *patient-centered care*, *evidence-based practice/quality improvement, teamwork/communication,* and *use of technology* with Cronbach's alphas ranging from .88 to .93 across the four factors.

Utrecht Work Engagement Scale-9 (Schaufeli, Bakker, & Salanova, 2006)**.** The Utrecht Work Engagement Scale-9 is a 9-item self-report instrument that uses a 7-point frequency scale (0 = *never* to 6 = *always*) to measure work-related self-perceived states of emotion and thought. Psychometric testing of the instrument has been extensively reported in the literature and factor analyses have repeatedly validated its three subscales of *vigor, dedication,* and *absorption* as well as internal consistency with Cronbach's α = .85 to .92 (Schaufeli et al., 2006) and α = .82 to .86 (Seppälä et al., 2009)).

Preceptor and NGN dyad questionnaires. A 17-item NGN questionnaire and 10-item preceptor questionnaire developed by the primary investigator were used to collect demographic data describing the study sample. In addition, the questionnaires measured selected preconditions and attributes of preceptorship involving NGNs (Kunkel-Jordan et al., 2019) that have the potential to influence preceptor and NGN outcomes.

Procedures

Recruitment. A study gatekeeper was identified in each of the three health care systems, who announced the potential opportunity to participate in this preceptorship study via electronic all-nursing staff newsletters and/or NGN group emails. The gatekeepers or their designees identified potential preceptor-NGN participants, providing the dyad-member names and patient care units to the primary investigator, who created a confidential study roster.

Data collection procedures. Personal and confidential invitations were then prepared, sealed in an envelope, and subsequently delivered to individual nurses through hospital

interoffice mail systems or by the gatekeepers or their designees. Survey packets were prepared with identification codes having no meaning external to the study and sealed in study envelopes along with return envelopes that were stamped and pre-addressed with the primary investigator's personal address. The confidential study envelopes were delivered simultaneously with but in separate envelopes from the study invitations. Completed surveys were returned to the primary investigator via the U.S. Postal Service. A $25 gift card was mailed to all study respondents, who completed and returned the study survey and self-addressed gift card envelope as requested. Preceptors who completed multiple surveys were sent a gift card for each survey they returned. Participation in the study was completely voluntary, independently self-determined, and kept strictly confidential. Neither the study gatekeepers nor preceptor-NGN dyad member partners, or any other hospital affiliates were informed of a nurse's participation in the study or lack thereof. Institutional Review Board approval was obtained from the relative academic and health care agencies prior to initiation of the study.

Data Analysis

Bayesian inference data analysis was implemented in this study. From an epistemological standpoint, Bayesian statistical methods allow for the integration of findings from previous studies, termed "priors," with current data to advance the knowledge of a discipline (van de Schoot, et al. 2014). From a practical standpoint, Bayesian methods are appropriate for the analysis of data stemming from small sample sizes (Sahu & Smith, 2006). Bayesian analyses work for all models, regardless of the complexity of a study model or assumptions about the distribution of study data (Kruschke et al. 2012).

In the Bayesian paradigm, parameters that characterize probability models are perceived as unknown random variables with probability distributions that reflect the uncertainty of their true value (Kaplan, 2014). This stance contrasts with the frequentist tradition, which is based on long-run frequency and holds that parameters of interest are unknown but *fixed.* Numerous

authors (Bijak & Bryant, 2016; Han, Park, & Thoma, 2018; O'Connor, 2017; Staggs & Gajewski, 2017; van de Schoot et al., 2014) have argued the utility of Bayesian methods, which are increasingly being used in the social sciences (Kruscke, Aguinis, & Joo, 2011) due, in large part, to the rediscovery of numerical algorithms and advances in statistical software (Kaplan, 2014).

Bayesian statistical inference is based on the joint probability (p) of unknown random parameters (θ) and observed data (y), as a function of the conditional distribution of the data, given the parameters, and the prior distribution of parameters as illustrated by $p(\theta, y) = p(\theta|y)p(\theta)$, where $p(\theta|y)$ and $p(\theta)$ reflect the posterior and prior distributions of the parameters, respectively (Kaplan & Depaoli, 2012). The Bayesian framework requires the specification of the prior and posterior distributions of all parameters in the study model (Kaplan, 2014).

In this study, knowledge of the priors was limited; therefore, weakly informed priors were specified in accordance with Kaplan (2014) who asserted that it is "as important to quantify ignorance as it is to quantify our cumulative understanding of a problem at hand" (Kaplan, 2014, p. 18). In this study, the means/intercepts have a prior of $\mu \sim N(0,10)$, standard deviations have a prior of $\delta \sim$ half-cauchy$(0, 2.5)$, correlations have a prior of $\rho \sim U(1,1)$, and regressions have a prior of $\beta \sim N(0, 10)$.

Posterior distributions were determined using the Markov Chain Monte Carlo (MCMC) method, whereby MCMC means were taken as the Bayesian estimates of the posterior distribution of the parameters and the 95% credible intervals (CI) were used to describe the uncertainty and inference from each parameter. Bayesian difference in means and variance ratio testing, correlations, and linear regressions were performed to address the study hypotheses. Lastly, alpha and omega coefficients were calculated to determine the reliability of the Preceptor Evaluation Tool, the Specific Competency Tool, and Utrecht Work Engagement Scale-9.

All data analyses were conducted in R (Core Team, 2018). Path analysis was performed with R package *blavaan* (Merkle & Rosseel, 2015), estimating the study model with the general Bayesian software Stan (Carpenter et al., 2017). Because missing values in the data set were

minimal, survey items for the Preceptor Evaluation Tool, Specific Competency Tool, and Utrecht Work Engagement Scale-9 were averaged to create composite variables, which then represented preceptor perception of the preceptorship experience (PEX_PR), NGN perception of the preceptorship experience (PEX_NGN), preceptor perception of NGN competence (NGNCOMP_PR), NGN self-perception of competence (NGNCOMP_NGN), preceptor work engagement (WORK_PR), and NGN work engagement (WORK_NGN) in all subsequent analyses. Mean, standard deviation, minimum, maximum, and range were calculated to describe the composite variables. Lastly, frequency tables were created to describe the demographic and unique characteristics of the study sample and the preceptorship phenomenon.

Results

Two hundred and four preceptor-NGN dyads (204 preceptors; 204 NGNs) were recruited for this study over a period of approximately 18 months, beginning in September 2017. A total of 86 preceptors and 81 NGNs completed and returned the survey, making the overall response rate 44.38%. However, three preceptors returned more than one completed survey because they had precepted more than one NGN during the study data collection period. Given the standard dyadic study design of our study, in the case of multiple responses, only the first preceptor response that could be paired with the respective NGN dyad-member response was included in the study sample. Seven duplicate preceptor responses were excluded in this manner. One additional preceptor response was excluded because only 50% of the survey items had been answered. For these reasons, the study sample consisted of 50 preceptor-NGN dyads (n = 50 preceptors, n = 50 NGNs), reflecting a functional response rate of 24.5%.

Characteristics of the Study Sample

The majority of preceptor (88.9%) and NGN (92%) participants in this study identified as female and white. Preceptor mean age was 42.38 (SD =13.33); NGN mean age was 28.08 (SD = 6.895). The highest level of nursing education reported by most preceptors (53.7%) and NGNs

(80%) was the baccalaureate degree. Extent of the preceptors' nursing experience ranged from 1.25 to 40 years (M = 13.89, SD = 12.80). Nursing was a second degree for 28% of the NGNs, and just over half (56%) were previously employed as a nursing assistant or licensed practical nurse. Demographic characteristics and descriptions of the sample are presented in Table 1 (Appendix A) and Table 2 (Appendix B), respectively.

Characteristics of Preceptorship

Most preceptorships took place in adult medical-surgical inpatient care units (38%), adult intensive care units (22%) and emergency rooms (12%). Eighty percent of the paricipants were part of a formal transition-to-practice or nurse residency program provided by the employer. The characteristics of preceptorship as a percentage of the sample are presented in Table 3 (Appendix C); descriptions of preceptorship are presented in Table 2 (Appendix B).

The duration of preceptorship ranged from 3 to 34 weeks (M = 11.8, SD = 6.562). The number of preceptors per NGN ranged from 1 to 13 over the course of the preceptorship (M = 4.3, SD = 2.36). Sixty-four percent of NGNs indicated their preceptor assignment varied day-to-day. Almost 62% of preceptors were formally trained for their role. On average, preceptors had precepted 5-6 (M = 5.640, SD = 4.85) NGNs in the two years preceding participation in the study. Approximately 30% of preceptors reported having a reduced patient load for the majority of the preceptorship. Preceptors "desire to precept NGNs" (0 = *no desire,* 6 = *extreme desire*) scores ranged from 1 to 6 with a mean score of 4.74 (SD = 1.139). On average, NGNs' "overall satisfaction" with their preceptorship (0 = *not satisfied at all,* 6 = *completely satisfied*) was 4.9 (SD = 0.839). Descriptions of the composite study variables are presented in Table 4 (Appendix D).

Hypotheses Testing

Based on the study aims the following hypotheses were tested:

H1: Within dyads, there is a mean and variance difference between average preceptor and NGN perceptions of the preceptorship experience. The estimated mean of the posterior distribution score for PEX_PR was 4.553 with a 95% credible interval of [4.451, 4.656]. Given our data, we are 95% confident that the true value of the mean of the posterior distribution score for PEX_PR is between 4.451 and 4.656. The estimated mean of the posterior distribution score for PEX_NGN was 4.339 with a 95% credible interval of [4.165, 4.513]. Given our data, we are 95% confident that the true value of the mean of the posterior distribution score for PEX_NGN is between 4.165 and 4.513. In this study, preceptors rated the preceptorship experience more positively than NGNs.

The estimated PEX_PR - PEX_NGN mean of the posterior distribution difference score was 0.213 with a 95% credible interval of [0.013, 0.414] and standardized effect score (Cohen's *d*) of 5.443 (Table 5, Appendix E). Given our data, we are 95% confident that the true value of the PEX_PR - PEX_NGN mean of the posterior of the distribution difference score lies between 0.013 and 0.414, with large effects. In this study, the difference between preceptor and NGN perceptions of the preceptorship experience was large and functionally relevant (Figure 1, Appendix I).

The estimated PEX_PR/PEX_NGN mean of the posterior distribution variance ratio was 0.362 with a 95% credible interval of [0.152, 0.571] (Table 5, Appendix E). Given our data, we are 95% confident that the true value of the PEX_PR/PEX_NGN mean of the posterior distribution variance ratio lies between 0.152 and 0.571. In this study, the variance in NGNs' perceptions of the preceptorship experience was 2.76 times larger than the variance in preceptors'perceptions of the preceptorship experience.

H2: Within dyads, there is a mean and variance difference between the average preceptor perception of NGN competence and NGN self-perception of competence. The

estimated mean of the posterior distribution score NGNCOMP_PR was 4.550 with a 95% credible interval of [4.436, 4.666]. Given our data, we are 95% confident that the true value of the mean of the posterior distribution score for NGNCOMP_PR is between 4.436 and 4.666. The estimated mean of the posterior distribution score for NGNCOMP_NGN was 4.362 with a 95% credible interval of [4.223, 4.503]. Given our data, we are 95% confident that the true value of the mean of the posterior distribution score for NGNCOMP_NGN is between 4.223 and 4.503. In this study, preceptors rated NGN competence more positively than NGNs rated their own competence.

The estimated NGNCOMP_PR - NGNCOMP_NGN mean of the posterior distribution difference score was 0.188 with a 95% credible interval of [0.006, 0.370] and standardized effect score (Cohen's *d*) of 2.239 (Table 5, Appendix E). Given our data, we are 95% confident that the true value of the NGNCOMP_PR - NGNCOMP_NGN mean of the posterior distribution difference score lies between 0.006 and 0.370, with large effects. In this study, the difference between preceptor perceptions of NGN competence and NGN self-perceptions of competence was large and functionally relevant (Figure 2, Appendix J).

The estimated NGNCOMP_PR/NGNCOMP_NGN mean of the posterior distribution variance ratio was 0.717 with a 95% credible interval of [0.302, 1.132] (Table 5, Appendix E). Given our data, we are 95% confident that the true value of the NGNCOMP_PR/NGNCOMP_NGN mean of the posterior distribution variance ratio lies between 0.302 and 1.132. In this study, the variance in NGNs' self-perception of competence was 1.39 times larger than the variance in preceptors' perceptions of competence.

H3: Within dyads, there is a mean and variance difference between average preceptor work engagement and NGN work engagement. The estimated mean of the posterior distribution score for WORK_PR was 4.346 with a 95% credible interval of [4.104, 4.585]. Given our data, we are 95% confident that the true value of the mean of the posterior distribution score for WORK_PR is between 4.104 and 4.585. The estimated mean of the posterior distribution

score for WORK_NGN was 4.400 with a 95% credible interval of [4.192, 4.608]. Given our data, we are 95% confident that the true value of the mean of the posterior distribution score for WORK_NGN is between 4.192 and 4.608. In this study, NGNs rated their work engagement more positively than preceptors.

The estimated WORK_PR - WORK_NGN mean of the posterior distribution difference score was -0.055 with a 95% credible interval of [-0.371, 0.262] and standardized effect score (Cohen's *d*) of -0.785 (Table 5, Appendix E). Given our data, we are 95% confident that the true value of the WORK_PR - WORK_NGN mean of the posterior of the distribution difference score lies between -0.371 and 0.262, with medium to large effects. In this study, the difference between preceptor work engagement and NGN work engagement was moderate to large and functionally significant (Figure 3, Appendix K).

The estimated WORK_PR/WORK_NGN mean of the posterior distribution variance ratio was 1.359 with a 95% credible interval of [0.557, 2.161] (Table 5, Appendix E). Given the observed data, we are 95% confident that the true value of the WORK_PR/WORK_NGN mean of the posterior distribution variance ratio lies between 0.557 and 2.161. In this study, the variance in preceptors' work engagement was 1.35 times larger than the variance in NGNs' work engagement.

H4: Within dyads, there are relationships among preceptor perception of the preceptorship experience, NGN perception of the preceptorship experience, preceptor perception of NGN competence, NGN self-perception of competence, PR work engagement, and NGN work engagement. The strength and direction of relationship among PEX_PR, PEX_NGN, NGNCOMP_PR, NGNCOMP_NGN, WORK_PR and WORK_NGN were assessed using Pearson product-moment correlation coefficient (small, r = .10 to .29; medium, r = .30 to .50; large, r = .50 to 1.0) (Fields, 2013). Correlation coefficients are presented in Table 6 (Appendix F). There was a small positive relationship between PEX_PR and PEX_NGN (r = 0.222), PEX_PR and WORK_NGN (r = 0.289), PEX_NGN and WORK_NGN (r = 0.112), and

NGNCOMP_NGN and WORK_NGN (r = 0.101). These results suggest that preceptor and NGN perceptions of the preceptorship are at least somewhat positively correlated. Likewise, the perceptions of preceptors and NGNs regarding the preceptorship experience are correlated with NGNs' work engagement. There was a large positive relationship between PEX_PR and NGNCOMP_PR (r = 0.628), and PEX_NGN and NGNCOMP_NGN (r = 0.697), indicating strong positive correlations between NGNs' perception of the preceptorship experience and their self-perception of competence. Lastly, a negative small relationship was found between NGNCOMP_PR and NGNCOMP_NGN (r = -0.187), indicating a weak, inverse relationship. This finding suggests that there is a weak negative correlation between preceptors' perception of NGN competence and NGNs' self-perception of competence. This suggests that at least to some extent, as one dyad member's perception of NGN competence increases, the partner-member's perception decreases and vice versa.

H5: Within dyads, there are actor and partner effects of preceptor and NGN perceptions of the preceptorship experience on preceptor perception of NGN competence and NGN self-perception of competence. ***Effects of preceptor perception of the preceptorship experience on preceptor perception of NGN competence.*** The estimated mean of the posterior distribution regression coefficient for PEX_PR on NGNCOMP_PR was 0.731 with a 95% credible interval of [0.468, 0.991] (Table 7, Appendix G). Given our data, we are 95% confident that the true value of this regression is between 0.468 and 0.991. This means that as PEX_PR increases by 1 unit, NGNCOMP_PR increase by 0.731 units, controlling for PEX_NGN. With a standardized regression of 0.628, as PEX_PR increases by 1 standard deviation, NGNCOMP_PR increase by 0.628 standard deviation, controlling for PEX_NGN. Both regressions indicate there is a positive relationship between PEX_PR and NGNCOMP_PR. This means that as PEX_PR increases, NGNCOMP_PR increases and as PEX_PR decreases, NGNCOMP_PR decreases. The standardized estimate indicates large effects; therefore, PEX_PR is a strong predictor of NGNCOMP_PR. This means that preceptor actor effect is strong and functionally relevant.

Effects of NGN perception of the preceptorship experience on NGN self-perception of competence. The estimated mean of the posterior distribution regression coefficient for PEX_NGN on NGNCOMP_NGN was 0.572 with a 95% credible interval of [0.404, 0.739] (Table 7, Appendix G). Given on our data, we are 95% confident that the true value of this regression is between 0.404 and 0.739. This means that as PEX_NGN increases by 1 unit, NGNCOMP_NGN increase by 0.572 units, controlling for PEX_PR. With a standardized regression of 0.697, as PEX_NGN increases by 1 standard deviation, NGNCOMP_NGN increase by 0.697 standard deviation, controlling for PEX_PR. Both regressions indicate there is a positive relationship between PEX_NGN and NGNCOMP_NGN. This means that as PEX_NGN increases, NGNCOMP_NGN increases and as PEX_NGN decreases, NGNCOMP_NGN decreases. The standardized estimate indicates large effects; therefore, PEX_NGN is a strong predictor of NGNCOMP_NGN. This means that, NGN actor effect is strong and functionally relevant.

Effects of preceptor perception of the preceptorship experience on NGN self-perception of competence. The estimated mean of the posterior distribution regression coefficient for PEX_PR on NGNCOMP_NGN was 0.117 with a 95% credible interval of [-0.173, 0.411] (Table 7, Appendix G). Because the credible interval includes the *0* value there is a lot of uncertainty about the relationship between PEX_PR and NGNCOMP_NGN. Meaning, preceptor partner effect is small and functionally negligible.

Effects of NGN perception of the preceptorship experience on preceptor perception of NGN competence. The estimated mean of the posterior distribution regression coefficient for PEX_NGN on NGNCOMP_PR was 0.058 with a 95% credible interval of [-0.098, 0.215]. Because the credible interval includes the *0* value, there is a lot of uncertainty about the relationship between PEX_NGN and NGNCOMP_PR. Meaning, NGN partner effect is small and functionally negligible.

H6: Within dyads, there are actor and partner effects of preceptor and NGN perceptions of the preceptorship experience on preceptor work engagement and NGN work engagement. ***Effects of preceptor perception of the preceptorship experience on preceptor work engagement.*** The estimated mean of the posterior distribution regression coefficient for PEX_PR on WORK_PR was 0.919 with a 95% credible interval of [0.247, 1.605] (Table 7, Appendix G). Given our data, we are 95% confident that the true value of this regression is between 0.247 and 1.605. This means that as PEX_PR increases by 1 unit, WORK_PR increase by 0.919 units, controlling for PEX_NGN. With a standardized regression of 0.378, as PEX_PR increases by 1 standard deviation, WORK_PR increase by 0.378 standard deviation, controlling for PEX_NGN. Both regressions indicate there is a positive relationship between PEX_PR and WORK_PR. This means that as PEX_PR increases, WORK_PR increases and as PEX_PR decreases, WORK_PR decreases. The standardized estimate indicates medium effects. PEX_PR is a moderate predictor of WORK_PR. This means that preceptor actor effect on preceptor work engagement is moderate and functionally relevant.

Effects of NGN perception of the preceptorship experience on NGN work engagement. The estimated mean of the posterior distribution regression coefficient for PEX_NGN on WORK_NGN was 0.141 with a 95% credible interval of [-0.218, 0.502] (Table 7, Appendix G). Because the credible interval includes the *0* value there is a lot of uncertainty about the relationship between PEX_NGN and WORK_NGN. Meaning, NGN actor effect on NGN work engagement is small and functionally negligible.

Effects of preceptor perception of the preceptorship experience on NGN work engagement. The estimated mean of the posterior distribution regression coefficient for PEX_PR on WORK_NGN was 0.618 with a 95% credible interval of [0.025, 1.222]). Given on our data, we are 95% confident that the true value of this regression is between 0.025 and 1.222. This means that as PEX_PR increases by 1 unit, WORK_NGN increase by 0.618 units, controlling for PEX_NGN. With a standardized regression of 0.289, as PEX_PR increases by 1 standard

deviation, WORK_NGN increase by 0.289 standard deviation, controlling for PEX_NGN. Both regressions indicate there is a positive relationship between PEX_PR and WORK_NGN. This means that as PEX_PR increases, WORK_NGN increases and as PEX_PR decreases, WORK_NGN decreases. The standardized estimate indicates small effects. PEX_PR is a weak predictor of WORK_NGN. This means that preceptor partner effect on NGN work engagement is small and functionally relevant.

Effects of NGN perception of preceptorship on preceptor work engagement. The estimated mean of the posterior distribution regression coefficient for PEX_NGN on WORK_PR was -0.053 with a 95% credible interval of [-0.455, 0.356]. Because the credible interval includes the *0* value there is a lot of uncertainty about the relationship between PEX_NGN and WORK_PR. Meaning, NGN partner effect on preceptor work engagement is small and functionally negligible.

Reliability of Instruments

Alpha and omega reliability coefficients are presented in Table 8 (Appendix H). The Preceptor Evaluation Tool, Specific Competency Tool, and Utrecht Work Engagement Scalle-9 demonstrated high reliability in our study for preceptors (Cronbach's α = .86, .94, and .89, respectively) and NGNs (Cronbach's α = .93, .94, and .85 respectively). In both cases, reliability of the Preceptor Evaluation Tool and Specific Competency Tools higher than previously reported by Spector et al. (2015) and Blegen et al. (2015). Giallonardo, Wong, and Iwasiw (2010) used the longer 17-iem Utrecht Work Engagement Scale with a sample of NGNs and reported that "the alphas were acceptable, except for the absorption subscale which was .60" (p. 998). To our knowledge, the Utrecht Work Engagement Scale -9 used in this study has not been used previously to measure work engagement in nurse preceptors.

Omega reliability coefficients were also obtained for the Preceptor Evaluation Tool, SCT Specific Competency Tool, and Utrecht Work Engagement Scale-9 for preceptors (.82, .95, and .90, respectively) and NGNs (.93, .92, and 86, respectively).

The Model

The study model (Figure 4) is illustrated in Appendix L. The contributions of preceptor and NGN perceptions of the preceptorship experience (Appendix G) on NGNCOMP_PR (R^2 = *0*.425) and NGNCOMP_NGN (R^2 = 0.518) indicate that 42.5% of the variance in NGNCOMP_PR and 51.8% of the variance in NGNCOMP_NGN were predicted by preceptor and NGN perceptions of the preceptorship experience. Preceptor and NGN perceptions of the preceptorship experience also predicted 13.8% of the variance in WORK_PR and 11.1% of the variance in WORK_NGN.

Discussion

Numerous researchers have asserted the preceptor-NGN interpersonal relationship as a critical determinant of NGNs' successful transition to the professional nurse role (Aboshaiqah & Qasim, 2018; Ke & Hsu, 2015; Ziebert et al., 2016); however, to date, empirical evidence to support this assertion is lacking. The overriding aim of this study was to quantitatively reveal the preceptor-NGN interpersonal relationship in the context of preceptorship. Our collective prior beliefs about the importance of effective preceptorship in supporting NGNs transitioning to professional practice and the preceptor-interpersonal relationship as a critical element of that process were rooted in our past experiences as NGNs, preceptors, and nurse educators. Adopting a Bayesian stance, we sought to reduce *uncertainty* about the preceptor-NGN interpersonal relationship as a determinant of preceptorship outcomes. Our study differed from previous research in that we explored the preceptorship experience as a predictor of work engagement and NGN competence from the perspective of preceptor-NGN *dyad*, rather than preceptor and NGN as *individuals*.

Similar to the NGN transition to practice study by Spector et al. (2015), we measured preceptor and NGN perceptions of the preceptorship experience and NGN competence using the Preceptor Evaluation Tool and Specific Competency Tool, which were developed and used in their study. Our findings were consistent with results of that study; preceptors perceived the preceptorship experience more positively than NGNs and NGNs as more competent than NGNs perceived themselves.

The magnitude of difference between preceptor and NGN perceptions of the preceptorship experience, and preceptor and NGN perceptions of NGN competence, are clinically relevant. Given that the tool is primarily comprised of preceptor activities (18 out of 24 items) the broader, flatter dispersion of NGN scores suggest that NGNs are less certain about what preceptors are actually doing within the preceptorship. It is imperative that hospital nurse educators and patient care unit managers assist NGNs in understanding the role of their preceptors because NGN confusion regarding what can be expected from the preceptorship experience may result in perceived lack of support (Lewis & McGowan, 2015). Furthermore, NGNs who perceive their job orientation to be inadequate experience poor job control, which leads to job dissatisfaction and in turn, intention to leave the job and the profession (Phillips, Kenny, Esterman, & Smith, et al., 2014; Unruh et al., 2016).

In some ways, it not surprising that the preceptors perceived the preceptorship experience more positively than NGNs. Richards and Bowles (2012) found that preceptors are motivated to precept by their love of teaching, appreciation for mutual learning, and the opportunity to make a difference for the profession and influence the professional development of NGNs. Preceptors believe that they are accountable for NGN actions and the outcomes of preceptorship (Richards & Bowles, 2012), and most preceptors perceive they fulfill expectations for the role (Fox, Henddrson, & Malko-Nyhan, 2006).

The difference in preceptor and NGN perceptions of NGN competence was smaller than that regarding the preceptorship experience, but still relevant. The somewhat broader dispersion

of Specific Competency Tool scores among NGNs suggest that preceptors are more confident about the NGN's professional knowledge and abilities than the NGNs. One possible explanation for NGN self-perceptions of competence as less favorable than the PRs could be that PRs in our study were not communicating effectively or providing NGNs with sufficient feedback. A second is that NGNs in our study experienced numerous preceptors. The use of primary preceptors who are able to facilitate reflective practice strategies is a key factor in promoting NGN confidence (Slate, Stavarksi, Romig, & Thacker, 2018; Whitehead, Owen, Henshaw, Beddingham, & Simmons, 2016). It has been reported that NGN confidence and competence are related (Kaddoura, 2013; Figueroa, Bulos, Forges, & Judkins-Cohn, 2013).

Newly graduated nurses transitioning to practice in hospital settings face enormous challenges and need the support of PRs to foster the development of their clinical decision-making and technical skills, especially in the face of deteriorating patients (Della Ratta, 2018). NGNs perceived nurse workloads and work environments as demanding and overwhelming (Flinkman & Salenterä, 2015) and prior research has shown that NGNs struggle to apply their nursing knowledge in the nurse work environment and self-confidence is one key factor influencing success (Doughty, McKillop, Dixon, & Sinnema, 2018).

Described as a "bridge between book and bedside" (Shaw, Abbot, & King, 2018), effective preceptors serve as clinical coaches, role modeling the planning and delivery of patient care, and promoting NGN confidence and competence (Shinners, Africa, Deasy, & Franqueiro, 2018). This is important because self-perceived competence is critical indicator of overall occupational commitment among NGNs (Numminen et al., 2016).

Work engagement is, by definition, a self-perception. NGNs in our study reported greater work engagement than their preceptors. Again, the magnitude of difference in preceptor and NGN perceptions indicate clinical relevance. Possible explanations include the sheer excitement NGNs have about beginning their new lives as practicing nurses. NGNs are idealistic; lacking experience, they are not yet affected by the persistent physical, mental, emotional, and spiritual

challenges inherent to professional nursing that have been endured by their more experienced preceptors. Preceptor and NGN perceptions of the preceptorship experience are important because psychological and social-psychological aspects of preceptorship have significant implications for work engagement as an outcome of preceptorship (Jenero et al., 2011). Furthermore, employee satisfaction and employee engagement translate to meaningful business outcomes, suggesting that both phenomena are valid desired outcomes for organizational employee support strategies (Harter, Schmidt, & Hayes, 2002).

Our findings empirically support the notion that the quality of preceptorship influences preceptorship outcomes. Within dyads, we found preceptor and NGN perceptions of the preceptorship experience to be strong positive predictors of their own perceptions of the NGN's competence (i.e., actor effects) and therefore, clinically relevant. We also found the preceptor's perception of the preceptorship experience to be a moderately strong positive predictor of her or his own perception of NGN work engagement (actor effect); however, actor effect of the NGN's perception of the preceptorship experience on her or his own work engagement was small and clinically negligible.

Taken together, our findings provide evidence of the dyadic nature of the preceptor-NGN interpersonal relationship. We showed that within the preceptor-NGN dyad, NGN work engagement upon the completion of preceptorship is consequent to the preceptor's perception of the preceptorship experience (partner effect). Partner effects occur in dyads when one person's thoughts, emotions, and behaviors affect the thoughts, emotions, and behaviors of her or his partner. According to Kenny et al. (2006), partner effects provide evidence that two persons are part of an interdependent system.

We tested perceptions of NGN competence and nurse work engagement consequent to preceptorship, in part, due to its relationship to retention of NGNs, which is a global concern. Prior research has empirically shown these phenomena to have marked influence on nurses' job satisfaction and intent to stay on the job an in the profession. Nummminen et al. (2016) reported

significant relationships among NGN competence, turnover intentions, and job satisfaction. In addition, job satisfaction is positively correlated with retention (Yarbrough, Martin, & Alfred, & McNeill, 2017).

Limitations

The use of a convenience sampling strategy and small size of our sample are obvious limitations of our study. Survey envelopes were organized in batches and delivered based on actual or anticipated preceptorship completion dates. Participants completed and returned the surveys independently, so we cannot be absolutely assured that they were completed within six weeks of the completion of the preceptorship as requested. In addition, this was a cross-sectional survey that did not follow dyads over time. Lastly, a significant challenge in this study was recruiting preceptor-NGN dyads. Participation was independent and voluntary and numerous completed surveys were received from only one member of the dyad. Because we used a standard dyadic design in this study, completed surveys that could not be matched as the preceptor-NGN dyad were not used in the data analysis.

Conclusions and Recommendations

Through this study, preceptor-NGN dyad differences, relationships, and actor and partner effects inherent to the preceptorship phenomenon were quantified. As a result, the achievement of NGN competence and nurse work engagement by way of effective preceptorship was validated. Future research should be aimed at testing specific desired outcomes of preceptorship as the product of both dyad-members which is a function of the preceptor-NGN dyadic relationship.

The consistent use of valid measures is one means by which the preceptorship evidence base can be advanced. The ongoing use of the Preceptor Evaluation Tool, Specific Competency Scale, and Utrecht Work Engagement Scale-9 in preceptorship research is encouraged because of their good reliability, as established in previous research and the current study. With each iteration of data generated using these instruments, new “priors” can be established to inform

Bayesian analyses and reduce uncertainty about the relationships between preceptorship processes and outcomes, thereby ensuring that knowledge surrounding the concept of preceptorship is progressively building upon itself.

Given the known linkages between effective NGN transition to practice, NGN self-perceived competence, nurse work engagement, nurse job satisfaction, and nurse intention to stay in the job and the profession, acute care nurse educators, patient care unit managers, and hospital administrators should seek, adopt, and invest in strategies aimed at optimizing the preceptorship experience for NGNs *and* preceptors. Newly graduated nurses are an invaluable resource for resolving the nursing shortage in hospital settings. Because effective preceptorship is a critical element of NGNs' successful transition to the professional nurse role, integration into the nurse work environment, and retention in the job and the profession, hospital nurse educators and administrators should embrace strategies that ensure successful development of the preceptor-NGN dyadic relationship.

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Appendix A

Table 1
Demographic Characteristics of Sample (N = 50 dyads)

Characteristic	PR		NGN	
	n	%	*n*	%
Gender				
Female	(48)	96	(46)	92
Male	(2)	4	(4)	8
Race				
Asian	(2)	4		
Black	(1)	2	(4)	8
Hispanic	(1)	2	(6)	12
White	(46)	92	(37)	74
other			(3)	6
Highest Level of Nursing Education				
Diploma	(1)	2		
Associate degree	(16)	32	(9)	18
Baccalaureate degree	(29)	58	(40)	80
Graduate (master's, DNP, PhD)	(4)	8	(1)	2
NGN: nursing as 2nd degree?				
Yes			(14)	28
No			(34)	68
NGN previously employed as a nursing assistant or licensed practical nurse?				
Yes			(22)	44
No			(28)	56
PR formally trained for the role?				
Yes	(31)	62		
No	(19)	38		

Note: Abbreviations: PR = preceptor, NGN = newly graduated nurse

Appendix B

Table 2
Descriptive Characteristics of Preceptors, Newly Graduated Nurses, and Preceptorship

	n	Min	Max	Range	*M*	*SD*
PR: Approximated age based on year of birth	50	25	66	41	42.380	13.33
NGN: Approximated age based on year of birth	50	21	55	34	28.080	6.895
PR: Total years of nursing experience	50	1.25	40	38.75	13.893	12.809
PR: Total number of NGNs precepted in the last two years	50	1	30	29	5.640	4.851
PR: Desire to precept NGNs *(range 0-6; 0 = no desire, 6 = extreme desire)*	50	1	6	5	4.740	1.139
Duration of Preceptorship (weeks)	50	3	34	31	11.800	6.562
Total number of PRs per NGN	50	1	13	12	4.300	2.367
Percentage of preceptorship NGN worked same schedule as primary PR	50	10	100	90	69.560	23.666
Total number of shifts NGN worked with primary PR	49	7	108	101	29.652	26.120
NGN: Level of satisfaction with the preceptorship *(range 0-6; 0 = not satisfied at all, 6 = completely satisfied)*	50	3	6	3	4.900	0.839

Note: Abbreviations: PR = preceptor, NGN = newly graduated nurse

Appendix C

Table 3
Characteristics of Preceptorship

	n	%
Hospital		
1	(10)	20
2	(10)	20
3	(1)	2
4	(5)	10
5	(5)	10
6	(5)	10
7	(2)	4
8	(8)	16
9	(4)	8
Patient Care Unit Type		
Emergency room	(6)	12
Adult intensive care unit, any type	(11)	22
Adult progressive care, intermediate care, or ICU stepdown unit, any type	(4)	8
Adult medical-surgical unit, any type	(19)	38
Adult operating room, or post-anesthesia care unit	(3)	6
Women's health, obstetrics, labor and delivery, or mom-baby unit	(4)	8
Inpatient rehabilitation unit	(1)	2
Other	(2)	4
PR's patient load reduced for majority of the preceptorship		
Yes	(16)	32
No	(34)	68
Preceptorship was part of a formal transition-to-practice program provided by employer (e.g., nurse residency or internship)		
Yes	(40)	80
No	(9)	18
NGN's assigned PR varied day-to-day		
Yes	(18)	36
No	(32)	64
Primary PR and NGN	(49)	98
mostly shared a patient assignment	(1)	2
mostly had their own patient assignment		

Note: Abbreviations: PR = preceptor, NGN = newly graduated nurse.

Appendix D

Table 4
Descriptions of the Composite Study Variables

	n	Min	Max	*M*	*SD*	Prior
PEX_PR	50	3.48	5.00	4.55	0.36	N(0, 10)
PEX_NGN	50	2.57	5.00	4.34	0.60	N(0, 10)
NGNCOMP_PR	50	3.36	5.00	4.55	0.40	N(0, 10)
NGNCOMP_NGN	50	2.97	5.00	4.36	0.49	N(0, 10)
WORK_PR	50	2.67	6.00	4.35	0.84	N(0, 10)
WORK_NGN	50	2.44	5.75	4.40	0.73	N(0, 10)

Note: Abbreviations: PEX = PR perception of the preceptorship experience, PEX_NGN = NGN perception of the preceptorship experience, NGNCOMP_PR = PR perception of NGN competence, NGNCOMP_NGN = NGN self-perception of competence, WORK_PR = PR work engagement, and WORK_NGN = NGN work engagement.

Appendix E

Table 5
Preceptor and NGN Bayesian Means in Differences and Variance Ratio Scores

Defined Parameters	*n*	Estimate	95% CI	Standardized Estimate
Difference_PEX	50	0.213	0.013, 0.414	-0.785
Diffference_NGNCOMP	50	0.188	0.006, 0.370	2.239
Difference_WORK	50	-0.055	-0.371, 0.262	5.443
Variance_PEX_ratio	50	0.362	0.152, 0.571	1.00
Variance_NGNCOMP_ratio	50	1.359	0.302, 1.132	1.00
Variance_WORK_ratio	50	0.717	0.557, 2.161	1.00

Note: Abbreviatons: PEX = perception of preceptorship, NGNCOMP = perception of NGN competence, WORK = work engagement

Appendix F

Table 6
Pearson's *r* Correlations between Predictor and Outcome Variables (*N* = 50)

	PEX_PR	PEX_NGN	NGN COMP_PR	NGN COMP_NGN	WORK_PR	WORK_NGN	Prior
PEX_PR	1						ρ(1,1)
PEX_NGN	**0.222**	1					ρ(1,1)
NGNCOMP_PR	**0.628**	0.085	1				ρ(1,1)
NGNCOMP_NGN	0.084	**0.697**	**-0.187**	1			ρ(1,1)
WORK_PR	**0.378**	-.0.037	**-0.203**	0.007	1		ρ(1,1)
WORK_NGN	**0.289**	**0.112**	-0.027	**0.101**	0.070	1	ρ(1,1)

Note: Abbreviations: PEX = PR perception of preceptorship, PEX_NGN = NGN perception of preceptorship, NGNCOMP_PR = PR perception of NGN competence, NGNCOMP_NGN = NGN self-perception of competence, WORK_PR = PR work engagement, and WORK_NGN = NGN work engagement.

Appendix G

Table 7
Bayesian Path Analysis: Regressions (N = 50 dyads)

Outcome Predictor	β	95% CI	Standardized Estimate	Prior
NGNCOMP_PR				
PEX_PR	0.731	0.468, 0.991	0.628	N(0,10)
PEX_NGN	0.058	-0.098, 0.215	0.085	N(0,10)
NGNCOMP_NGN				
PEX_PR	0.117	-0.173, 0.411	0.084	N(0,10)
PEX_NGN	0.572	0.404, 0.739	0.697	N(0,10)
WORK_PR				
PEX_PR	0.919	0.247, 1.605	0.378	N(0,10)
PEX_NGN	-0.053	-0.455, 0.356	-0.037	N(0,10)
WORK_NGN				
PEX_PR	0.618	0.025, 1.222	0.289	N(0,10)
PEX_NGN	0.141	-0.218, 0.502	0.112	N(0,10)

Note: Instrument abbreviations: Outcome variables: NGNCOMP_PR R^2 = 0.425, NGNCOMP_NGN R^2 = 0.518, WORK_PR R^2 = 0.138 and WORK_NGN R^2 = 0.111.

Appendix H

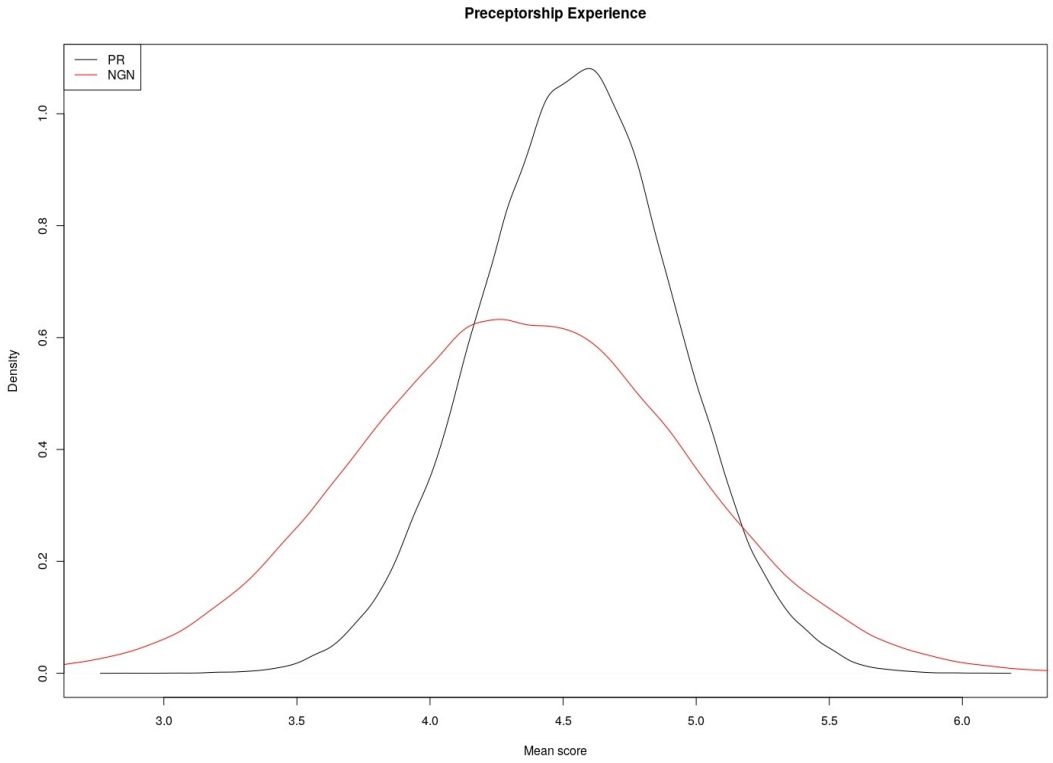
Table 8
Reliability of the Preceptor Evaluation Tool, Specific Competency Tool, and the Utrecht Work Engagement Scale-9

	Reliability Coefficient	
	Alpha	Omega
PEX_PR	0.8605	0.8249
PEX_NGN	0.9324	0.9301
NGNCOMP_PR	0.9480	0.9539
NGNCOMP_NGN	0.9411	0.9278
WORK_PR	0.8953	0.9038
WORK_NGN	0.8558	0.8667

Note: Abbreviations: PEX = PR perception of preceptorship, PEX_NGN = NGN perception of preceptorship, NGNCOMP_PR = PR perception of NGN competence, NGNCOMP NGN = NGN self-perception of competence, WORK_PR = PR work engagement, and WORK_NGN = NGN work engagement.

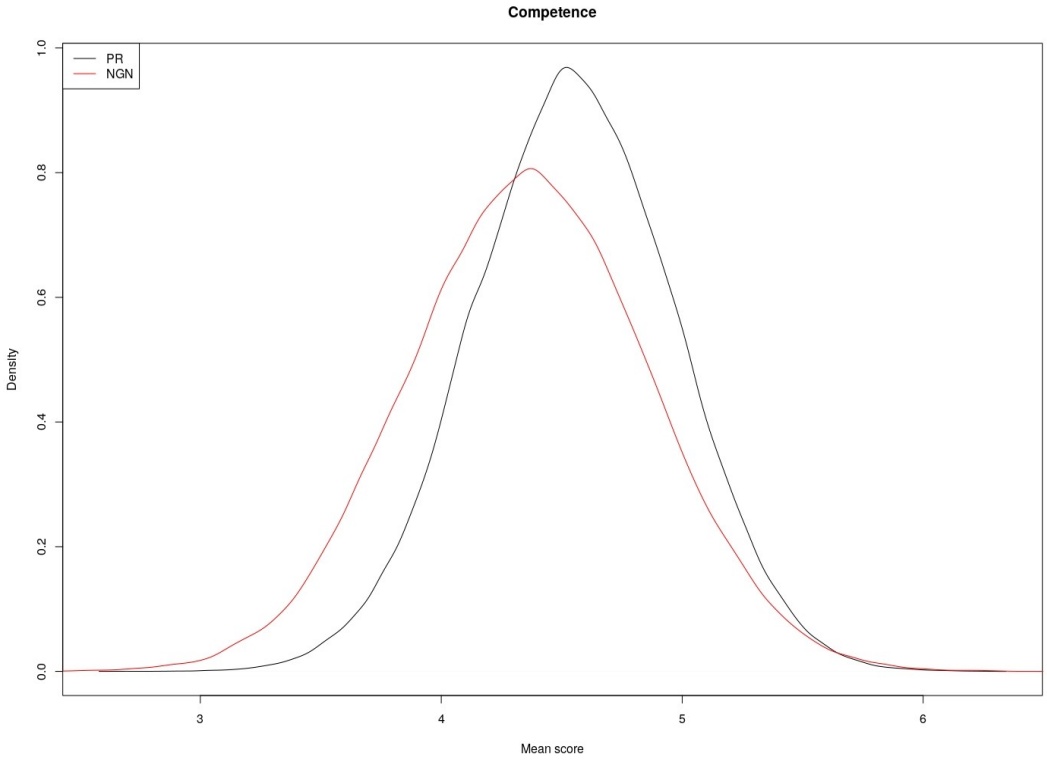
Appendix I

Figure 1. Illustration of Preceptor and Newly Graduated Nurse Perceptions of the Preceptorship Experience Posterior Distribution Scores



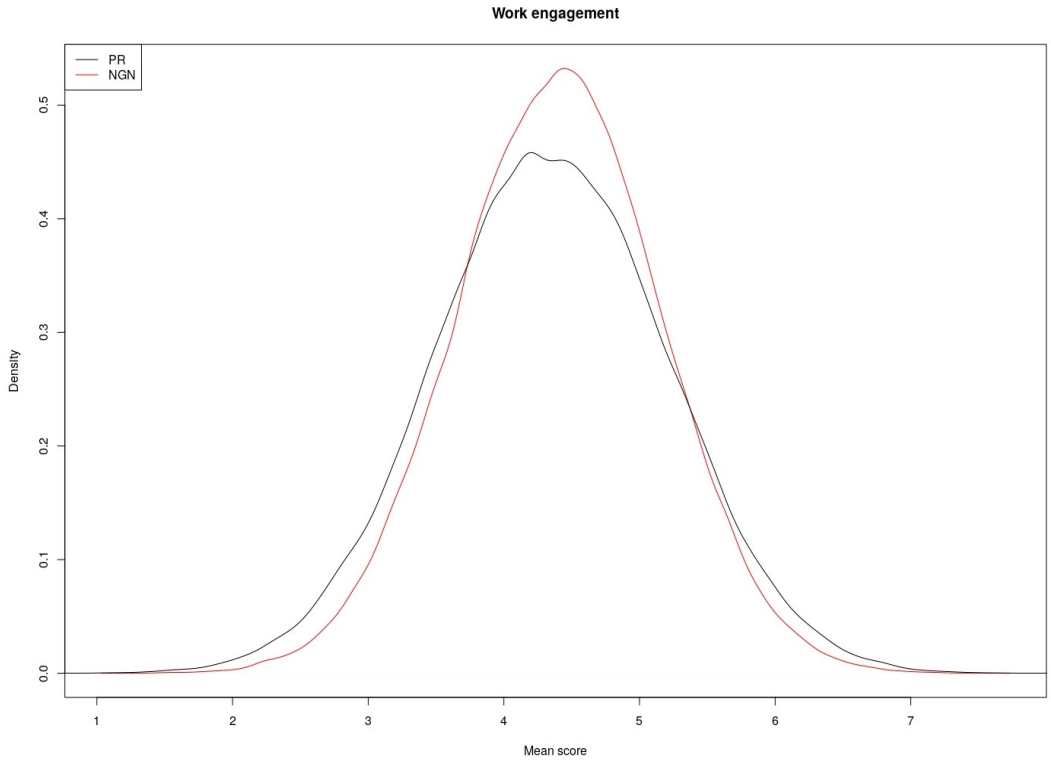
Appendix J

Figure 2. Illustration of Preceptor and Newly Graduated Nurse Perceptions of Newly Graduated Nurse Competence Posterior Distribution Scores



Appendix K

Figure 3. Illustration of Preceptor and Newly Graduated Nurse Work Engagement Posterior Distribution Scores



Appendix L

Figure 1. Bayesian Path Analysis: Preceptor – Newly Graduated Nurse Dyad Study Model.

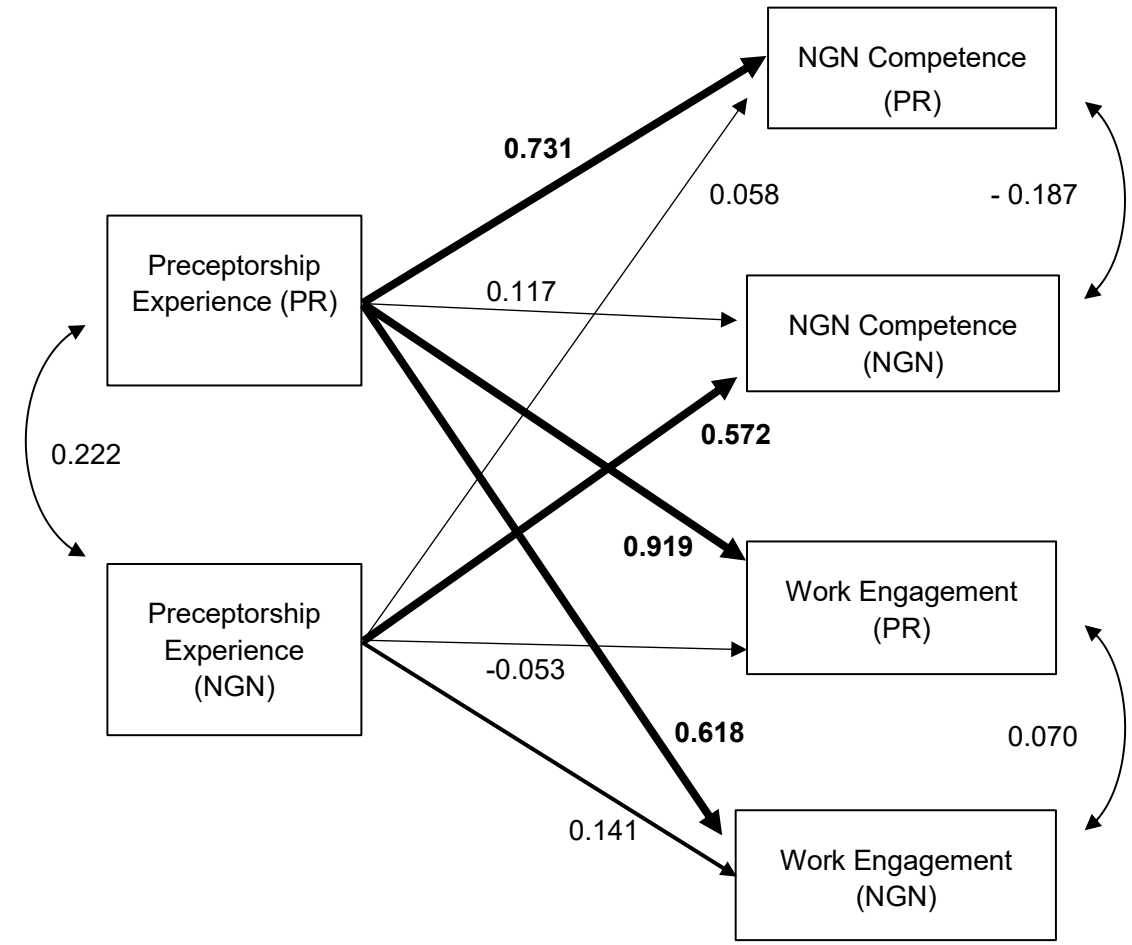


Figure 4. The model illustrates the strength and direction of predicted effects of within dyad preceptor and newly graduated nurse perceptions of the preceptorship experience on preceptor and newly graduated nurse perceptions of newly graduated nurse competence, and on preceptor and newly graduated nurse work engagement.

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Appendix A

Newly Graduated Nurse Questionnaire

NGN Preceptee ID #:

1) Gender (check one):

_____Female _____Male _____Transgender _____I prefer not to answer

2) What year were you born?
_____ (Fill in the blank) or _____I prefer not to answer

3) Race (check one):

____Asian _____Black ____Hispanic _____White ____ Other ____I prefer not to answer

4) What is the highest level of nursing education/degree that you have earned? (Check one):

_____ Diploma of Nursing
_____ Associate Degree
_____ Baccalaureate Degree
_____ Graduate Degree (Masters/DNP/PhD)

5) Is nursing your second degree? (Check one): _____Yes _____No

6) Have you ever been employed as a nursing assistant or licensed practical nurse? (Check one):

_____Yes _____No

If *yes,* for how long? (Fill in the blank. Provide your best estimate):

As a nursing assistant: _____Years _____Months _____ I prefer not to answer

As a licensed practical nurse: _____Years _____Months _____ I prefer not to answer

7) Was your preceptorship experience just one part of your overall participation in a ***formal*** and ***structured***, transition-to-practice program offered by your employer (e.g., nurse residency program, nurse internship program, etc.)? (Check one):

_____Yes ____No

8) How many weeks total did you spend with a preceptor, including your study partner preceptor and any other preceptors? (Fill in the blank):

_____ Total # of weeks

9) Did your assigned preceptor vary from day-to-day? (Check one):

_____Yes _____No

10) Including your preceptor study partner, how many total preceptors did you have? (Fill in the blank):
_____ Total # of preceptors

11) Please estimate the percent of time that you worked the same schedule as your study-partner preceptor
(Fill in the bank):

____%

12) Please provide your best estimate of the total number of shifts that you were precepted by your study-partner preceptor

____ (#) Shifts

13) Did you and your study-partner preceptor share a clinical patient assignment for most of your preceptorship? (Check one)

_____ Mostly, we shared a clinical patient assignment
_____ Mostly, we each had our own clinical patient assignment

14) What type of patient care unit best describes the practice environment where you were precepted by your study-partner preceptor? (Check one).

_____Emergency room
_____Adult intensive care unit (ICU), any type
_____Pediatric intensive care unit (ICU), any type
_____Adult progressive care, intermediate care, or ICU step-down unit, any type
_____Pediatric progressive care, intermediate care, or ICU step-down unit, any type
_____Adult medical-surgical unit, any type
_____Pediatric medical surgical unit, any type
_____Adult procedural lab, any type
_____Pediatric procedural lab, any type
_____Adult operating room or post-anesthesia care unit
_____Pediatric operating room or post-anesthesia care unit

15) Overall, how satisfied were you with your preceptorship? (Circle one):

0	1	2	3	4	5	6
Not satisfied at all						Completely satisfied

16) Did you experience a preceptorship as part of a clinical course in your last year of nursing school? (Check one):
_____Yes _____ No

17) May the researcher contact you by email if necessary to gain clarification of your survey packet responses or to collect any missing data? (Check one):
_____Yes _____No

Appendix B

Preceptor Questionnaire

Preceptor ID #

1) Gender (check one) _____

_____Female _____Male _____Transgender _____I prefer not to answer

2) What year were you born? _____

_____(Fill in the blank) _____I prefer not to answer

3) Race (check one)

_____Asian _____Black _____Hispanic _____White _____Other _____I prefer not to answer

4) What is the highest level of nursing education/degree that you have earned? (Check one)

_____ Diploma of nursing

_____ Associate Degree

_____ Baccalaureate Degree

_____ Graduate Degree (Master's Degree/Doctorate/PhD)

5) How many years/months of nursing experience do you have? (Fill in the blank)

_____ Years _____Months

6) How many newly graduated nurses have you precepted in the last two years?

_____(Fill in the blank) _____

7) Have you participated in a ***formal*** preceptor training/education program? (Check one)

_____Yes _____No

8) Did you have a reduced patient load for the majority of the preceptorship? (Check one)

_____Yes _____No

9) Please rate your ***desire*** *to precept newly graduate nurses* using the scale below (Circle one):

0	1	2	3	4	5	6
No desire						Extreme desire

10) May the researcher contact you my email if necessary to gain clarification of your survey packet responses or to collect any missing data? (Check one)

_____Yes _____No

Appendix C

MARQUETTE UNIVERSITY
RESEARCH STUDY INFORMATION and
AGREEMENT OF CONSENT FOR RESEARCH PARITCIPANTS

Toward Quality Preceptorship: A Dyad Study
Primary Investigator: Laurie A. Kunkel-Jordan
College of Nursing

Nurse preceptors and newly graduated nurses who meet the study eligibility criteria are invited to participate in this research study. Participation is completely voluntary. Before you agree to participate, it is important that you read and understand the following information. If you agree to participate, you will be one of approximately 200 participants in this research study. Please contact the primary investigator via email, telephone, or text with any concerns or questions you may have about deciding whether or not to participate.

PURPOSE:

- The purpose of this study is to examine preceptorship, in the context of newly graduated nurse transition to the professional nurse role, as a quantifiable, dyadic phenomenon and predictor of newly graduated nurse and preceptor outcomes.

PROCEDURES:

- This study involves preceptor-newly graduated nurse (PR-NGN) dyads engaged in a preceptorship and a one-time confidential survey by mail.
- The confidential survey asks PR-NGN dyad-partners to independently answer questions about the preceptorship experience, their work engagement, and the newly graduated nurse's competence.
- Potential PR-NGN dyads will be identified, using the study eligibility criteria, by study hospital nurse-researcher employees acting as hospital gate-keepers, or their designees, who may include patient care unit staff-nurse educators, clinical nurse specialists, or preceptorship coordinators. PR- NGN dyads will *not* be identified for potential participation in this study by patient care unit nurse managers, who directly supervise and evaluate their job performance.
- Preceptors and newly graduated nurses who decide to participate in this study will independently complete the confidential survey packet appropriate for their role and return it to the investigator by mail using the large, pre-addressed and stamped envelope provided.
- Preceptors and newly graduated nurses who decide to participate in this study will also be asked to complete the *Confidential Participant Contact Information Form,* self-address the letter size envelope provided, and return both to the investigator by mail using the business size, pre-addressed and stamped envelope provided.

DURATION: The study survey packet will take about 15 minutes to complete. With your permission, involvement in the study may also include a one-time post-survey contact by the investigator if there is a need for clarification of your survey responses or to recover missing data. You will not be asked about particular survey questions/items that you crossed out with an "X," in accordance with the *Instructions for Participation,* to indicate your preference not to answer.

RISKS: The risks associated with participation in this study are minimal and are no more than you would expect to encounter during a typical work day. There may be minimal psychological risk to

participants, who are affected by the process of self and/or peer evaluation and report of sensitive information. To minimize this risk, your responses will be kept strictly confidential.

BENEFITS: There are no anticipated direct benefits to you for participation in this study. Possible indirect benefits to you include gaining insight about your personal practice as a preceptor or newly graduated nurse and contributing to the evolution of a model of preceptorship quality. Possible indirect benefits to society include competent and engaged nurses in the workforce, sufficient to meet nursing care demand, consequent to improved quality of preceptorship informed by the study results.

CONFIDENTIALITY:

- **The investigator will not disclose your decision about participating in this study** to your PR- NGN dyad-partner, or any other employee or representative of your hospital employer.
- Your personal information and survey response data will be kept strictly confidential.
    - Your name and other identifying information, including that which you provide on the *Confidential Participant Contact Information Form,* will be maintained by the investigator in the study roster, which will be stored on a password protected electronic storage device and secured in the investigator's office.
    - Rather than using your name or other information that could identify you as an individual in the study data base, your survey response data will be assigned a code number that has no meaning external to the study. This code number, assigned by the investigator, is evident in the top right-hand corner of the confidential survey packet contained in your study envelope. The code number was documented on your survey packet and sealed in your study envelope by the investigator *before* it was given to the hospital gate-keeper or designee, who facilitated its delivery to you. **Your data code number is not known to and will not be shared,** by the investigator, with your PR-NGN dyad-partner, or any other employee or representative of your hospital.
    - The study data base, containing only coded survey response data, will be stored on a second password protected electronic storage device and secured in the investigator's office. **Your identifiable personal responses will not be shared with your PR-NGN dyad-member partner, or any other employee or representative of your hospital employer.**
- At no time will the study roster and study data base be combined in a single document, stored on the same electronic storage device, or secured in the same locked file drawer in the investigator's office.
- When results of the study are published, you will not be identified by name.
- All personal participant information and study data will be destroyed by shredding paper documents and deleting electronic files 3 to 7 years after completion of the study.
- Your research records may be inspected by the Marquette University Institutional Review Board or its designees, and (as allowable by law) state and federal agencies.

COMPENSATION: A $25 gift card honorarium will be provided to all preceptor and newly graduated nurse participants, who complete and return the study survey packet as requested. The gift card will be mailed to you, by the investigator, in your self-addressed envelope. You will receive the gift card whether or not your PR-NGN dyad-partner participates in the study.

VOLUNTARY NATURE OF PARTICIPATION:

- Participating in this study is completely voluntary and you may withdraw from the study and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.
- If you withdraw from the study, your data will be destroyed and not included in the study.
- You may skip any questions that you do not wish to answer.
- Your decision regarding participation in this study will not impact your relationship with your PR- NGN dyad-partner, because the investigator will not inform your PR-NGN dyad-partner about whether or not you participate.
- Your decision regarding participation in this study will not impact your relationship with any other employee or representative of your hospital employer because the investigator will not inform any other employee or representative of your hospital employer about whether or not you participate.
- Your decision to participate or not will not impact your relationship with the investigator or Marquette University.

CONTACT INFORMATION:

- If you have any questions about this research study, you can contact Laurie A. Kunkel-Jordan, principle investigator at 262-903-5193 or laurie.kunkeljordan@marquuqette.edu, or Dr. Marilyn Bratt, Marquette University Associate Professor of Nursing at 414-288-3840 or marilyn.bratt@marquette.edu
- If you have questions or concerns about your rights as a research participant, you can contact Marquette University's Office of Research Compliance at (414) 288-7570.

YOUR COMPLETION AND RETURN OF THE STUDY SURVEY WILL SERVE TO INDICATE THAT YOU HAD THE OPPORTUNITY TO READ THIS CONSENT FORM, ASK QUESTIONS ABOUT THE RESEARCH STUDY AND WERE PREPARED TO PARTICIPATE IN THIS RESEARCH STUDY.