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Self-Efficacy in Emerging Nurse Leaders: The Effects of a Virtual Community of Practice on Nurse Educators in a New Practice Role

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Self-Efficacy in Emerging Nurse Leaders: The Effects of a Virtual Community of

Practice on Nurses in a New Practice Role

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Abstract

Background: Clinical nurse educators in long-term and skilled nursing facilities have an opportunity to exercise new leadership skills in bridging the gap between education and practice. *Objective*: To assess the effects of a virtual Community of Practice (CoP) on the self-efficacy of clinical nurse educators who work in newly developing leadership roles in a large long-term and skilled nursing organization operating in multiple sites across the United States. *Methodology*: The exploratory pilot study used a one group pre-test/post-test method. A convenience sample was used to enroll participants with newly created roles in clinical education. The Leader Efficacy Questionnaire (LEQ) was used to evaluate self-efficacy pre- and post-intervention. The LEQ consisted of three subscales (Action self-efficacy; Means self-efficacy; and Self-Regulation self-efficacy). The intervention consisted of virtual Zoom sessions over three months. Participants also answered three open-ended questions to assess their overall experience.

Results: A Wilcoxon Signed-Rank test suggested statistically significant change in overall self-efficacy ($z = -2.139$, $p = 0.032$) with both mean and median scores higher in the post-intervention group. The same pattern was repeated in all subscales with statistically significant changes in Action, Means, and Self-Regulation scales. Among the independent variables and post-test outcomes, Spearman's Rank-Order Correlations did not suggest correlations among the independent and dependent variables.

Conclusions: Participation in a virtual Community of Practice is a successful intervention in increasing the overall self-efficacy of clinical nurse educators who are practicing in a new role and are geographically dispersed.

Background

New leadership roles are needed in the changing environment in skilled nursing and long-term care. As with all health care organizations, skill and comfort with change and innovation is necessary now more than ever (Porter-O'Grady & Malloch, 2015). Consequently, a primary task of nursing leadership is to lead change effectively (Kegan & Lahey, 2009). For those in emerging leadership roles, such as clinical educators in long-term and skilled nursing, such leadership skills may not be supported as successfully as they could be. Professional development has focused on those in the usual formal leadership roles, such as directors of nursing, and has focused on process changes including quality improvement (Tappen et al., 2017), improved work flow design (Roman, Abraham, & Dever, 2016), and managing increasing financial constraints (Woo, Milworm, & Dowding, 2017). While the typical management skills are necessary, little attention has been paid by executive leadership to increasing the leadership self-efficacy and confidence of emerging nurse leaders. Developing the self-efficacy of those in new and emerging leadership roles, such as the nurse educator, is a challenge that needs to be addressed.

Problem Statement

The current challenges in the health care environment require effective nurse educator leadership (Fiset, Luciani, Hurtibise, & Grant, 2017; Smythe, Jenkins, Galant-Miecznikowska, Bentham, & Oyebode, 2017). Even as leadership competencies have been identified for those in traditional leadership roles, they have not addressed the clinical nurse educator. Little has been studied to determine what methods are useful in developing leadership competencies or how successfully those competencies are learned for any roles. The continued focus on such roles as the director of nursing will need to expand to include clinical nurse educators in developing

leadership skills. Clinical nurse educators will then be better equipped to contribute meaningfully to patient care improvements by increasing their sense of leadership identity and confidence. Nurse educator leaders can then create their own clinical education strategies rather than remain in a more traditionally passive role in the hierarchical model of command-and-control.

Self-confidence, and its antecedent, self-efficacy, are especially important for those new to leadership, but perhaps even more so for those in emerging roles. Self-efficacy, or lack of it, can promote or hinder such confidence. Those in emerging leadership roles need the skills to lead, but must acquire or recognize their self-efficacy and, subsequently, exercise their self-confidence. It is not clear that nurse educators in long-term care have such a sense of self-efficacy. This project is aimed at nurse educators in a large, national long-term care organization who are engaged in developing a newly emerging clinical educator leader role. The assumption is that these new clinical educator leaders will benefit from strategies designed to enhance their self-efficacy.

Purpose

The organization addressed in this study was and continues to explore what transformations are needed to compete in a changing post-acute care environment. The clinical nurse educators occupy newly developed roles: Practice Development Specialist (PDS), Practice Development Manager (PDM), and Infection Preventionist (IP). They provide clinical education to geographically clustered groups of skilled and long-term care nursing centers rather than providing education to individual centers (one educator per center). This role change has altered traditional management hierarchies and subsequently made new demands on the educators, requiring them to exercise leadership in new ways. Their previous roles existed in a traditional hierarchy within each center, whereby the clinical educator reported to senior leadership of the

individual center. In this traditional hierarchy, the clinical educator role was a more passive one, taking direction rather than directing action.

In their new roles, the clinical nurse educators are required to navigate new relationships among organization leaders, both vertically and horizontally, requiring new collaborative skills. Since they now engage in providing education support for multiple centers, they report to regional leaders and have become less immediately available to individual centers. These changes have required them to be more strategic and proactive in determining what education needs exist, rather than wait for others to make requests.

What is not clear is whether the PDS, the PDM, or the IP has, or can easily acquire, the needed self-efficacy to work in this new environment. Providing leadership development generally, and self-efficacy specifically, for this population of nurses presents a new focus of professional development for the organization.

The purpose of this study was to determine the effects of a Community of Practice (CoP) intervention on the self-efficacy of these emerging nurse leaders. Communities of Practice (CoPs) are "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott, & Snyder, 2002, p. 4).

CoPs have been determined to have positive effects on learning, relationship building, interprofessional collaboration (Lara et al., 2017; Seibert, 2015), identity formation (Farnsworth et al., 2016), professional autonomy (Lee-Kelley & Turner (2017), problem solving skills, and reductions in feelings of isolation (Edmonson, McGough, Phillips, Blaine, & Mackoff, 2017). CoPs have also demonstrated an ability to strengthen interdepartmental relationships (Gullick & West, 2016), increase quality of care (Monaro, White, & West, 2015; Francis-Coad, Eherton-

Beer, Bulsara, Nobre, & Hill, 2015), and serve as incubators of innovation (Kothari, Boyko, Conklin, Stolee, & Sibbald, 2015). While new, the *virtual* CoP has been shown to be successfully sustained when an organization provides appropriate supports (Lee-Kelley & Turner, 2017).   However, CoPs have not been widely studied regarding effectiveness at creating changes at systems levels in organizations (Kothari, Boyko, Conklin, Stolee, & Sibbald, 2015) or on the self-efficacy of leaders (Woods, Cashin, & Stockhausen, 2016).

Specific Aims

The specific aims of this exploratory pilot study were to:

1. Measure self-efficacy using a validated self-efficacy tool prior to the formation of a community of practice;

2. Engage participants in a virtual CoP over a period of three months;

3. Remeasure self-efficacy using the same self-efficacy tool; and

4. Assess the overall value the participants placed on CoP participation.

Research Questions

The research questions for this project were brief and direct.

1. What is the level of self-efficacy of nurse educators in this role before and after participating in a 3-month virtual CoP?

2. What is the level of participation in a 3-month virtual CoP?

3. What are the perceptions of the impact of a virtual CoP?

Significance

Because of the complexity within health care, all clinical nurse educators have an opportunity to increase their leadership influence. As Beischel & Davis (2014) have argued,

patient safety and the need for quality improvement require nurse educators to be leadership

innovators in order to close the gap between education and practice. A formal CoP, therefore,

may provide the opportunity for clinical nurse educators to increase self-efficacy, enhance self-

confidence, and, by extension, exercise more influence.

Descriptions of the nurse educator as leaders in long-term care nursing do not appear in

the literature in a literature search of Medline, CINAHL, and Scopus (keywords: nurse educator,

leader, self-efficacy, long-term care). As long-term care seeks to reorient itself to the changing

patterns and challenges in post-acute care and skilled nursing/long-term care (higher acuity,

declining reimbursements, nurse staffing shortages), a lack of leadership self-efficacy may

hinder nurse educators who find themselves as emerging leaders.

The context of long-term care is complex, driven by extensive and unusually demanding

regulatory requirements specific to long-term care and require high-level communication skills

(Fiset et al., 2017). There is a deficiency in the expertise required of nurses practicing in long-

term care and for an aging population (Chu, Ploeg, Wong, Blain, & McGilton, 2016). While

experience, confidence, leadership, and mentoring are considered important elements of long-

term care organizational practice, the complexity within long-term care organizations is

commonly not understood even by those who practice within it (Cammer et al., 2014).

Literature Review

Self-Efficacy

Bandura argues that self-efficacy is the foundation for all forms of agency (Bandura,

1997; Bandura, 1989). According to Cox and Simpson (2016) Bandura defines self-efficacy as a

person's "judgment of their capabilities to organize and execute courses of action required to

attain designated types of performances" (Cox & Simpson, 2016, p. 216). And beliefs about

one's own self-efficacy affect work performance (VandeWalle, Cron, & Slocum, 2001).

Self-efficacy is an important feature of being a health care professional generally (Cox &

Simpson, 2016) and an important feature of leadership and psychological self-confidence,

influencing how individuals experience themselves as leaders (Trus, Razbadauskas, Doran, &

Suominen, 2012). However, self-efficacy is fluid and dynamic, affecting an individual's

willingness to engage in leadership growth experiences (Hannah, Avolio, Luthans, & Harms,

2008).

Self-efficacy is an antecedent to self-confidence, focused more on a person's belief that

he or she can achieve a particular level of performance. Self-efficacy is not global in nature, but

rather "a differentiated set of self-beliefs linked to distinct realms of functioning" (Cox &

Simpson, 2016, p. 216). The specificity of self-efficacy is important since it has implications for

an individual's' particular role in an organization (Murphy & Johnson, 2016). In addition, an

individual's self-efficacy determines what goals an individual decides to pursue (Pfitzner-Eden,

2016). Importantly then, self-efficacy is what allows an individual to decide what knowledge to

apply, when and how to apply it, and what new experiences and situations should be pursued

(Seibert, Sargent, Kraimer, & Kiazad, 2017).

A literature review of self-efficacy in long-term care nurse leadership is scant.

Consequently, the long-term care domain would benefit from an exploration of self-efficacy

among both its traditional and emerging leadership roles. Given the unique environment of long-

term care, nurses are not immediately in contact with peers and few nursing staff generally, let

alone other nurse leaders in their immediate work environment. Opportunities to increase self-

efficacy take on special significance. This project is designed to address one of Bandura's spheres of influence on self-efficacy, that of vicarious experiences (Bandura, 1997).

Bandura's work (Bandura, 1997) argues that self-efficacy is effectuated through four spheres of influence: mastery experiences; social or verbal persuasion; psychological and/or physical arousal or engagement; and vicarious experiences (Appendix A). In mastery experiences, the learner reflects on experiences already mastered, using those experiences to increase confidence for the future; in verbal or social persuasion the individual receives positive feedback from peers and/or senior leaders. The third influence, awareness of psychological, emotional, or physical states, occurs when negative states can be reframed to disentangle a negative emotional or physical state from a belief about one's abilities.

A fourth influence is the vicarious experience. The vicarious experience is similar to the verbal or social persuasion sphere; however, in the vicarious experience, individuals benefit from hearing the stories of others, rather than just receiving feedback. It is the sharing of these successful mastery experiences with others and identifying with the storyteller that others come to believe in their own self-efficacy (Avolio & Hannah, 2009). According to Bandura, vicarious experiences occur when individuals "appraise their capabilities in relation to the attainments of others" (Bandura, 1997, p. 86). Bandura compares the vicarious experience to modeling, where people "actively seek proficient models who possess the competencies to which they aspire. By their behavior and expressed ways of thinking, competent models transmit knowledge and teach observers effective skills and strategies for managing environmental demands" (Bandura, 1997, p. 88). During the vicarious experience, those with lower self-efficacy hear from those with high self-efficacy and "have a strong sense of psychological competence which translates to, and subsequently, inspires others" (Havaei, Dahinten, & Macfee, 2014).

The four spheres of influence are not static but dynamic, demonstrating fluctuations when individuals take on new jobs or roles (Appendix B). When an individual takes on a role similar to a previous one, prior experiences allow that individual to bring a level of confidence and self-efficacy to the new job that others who are new to a role may not be able to bring (Osei, Osei-Kwame, & Amaniampong, 2017). Those with successful prior experiences in similar roles quickly engage in creating positive experiences for themselves, thereby reinforcing their self-efficacy (McCormick, Tanguma, & López-Forment, 2002). For emerging leaders, those prior successes may be absent. Support for emerging leaders becomes essential as an individual's self-efficacy can fluctuate, increasing or decreasing, depending on the role, the environment, or both (Gilmartin, 2014).

In viewing this interdependence of the individual and the environment, self-efficacy becomes a dynamic event, where leaders influence and are influenced by their work environment. Hannah et al (2008) distinguish between leader self-efficacy and leader behaviors, arguing that what others observe and perceive and what a leader believes about his or her self-efficacy may not be aligned (Hannah et al., 2008). This dynamic creates changes not only within the leaders and those they lead, but the organization as well (Hannah et al., 2008).

Communities of Practice (CoPs)

Bandura's theory of the vicarious experience forms the basis of this exploratory study since Communities of Practice (CoPs) speak directly to the vicarious learning sphere. CoPs are "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al., 2002, p.4).

CoPs are naturally social where learning occurs through the sharing of experiences, creating a cohesiveness within a community by creating a common language (Morley, 2016). Thus, Wenger's social learning theory describes a model for learning that promotes collegiality and stronger professional identities among peers (Gullick & West, 2016; (Farnsworth, Kleanthous, & Wegner-Trayner, 2016; Morley, 2016).

CoPs can create opportunities for learning that move beyond the individual learner to the group context, or social model, where a different degree of learning occurs. Even though CoPs have been studied for their effects on both learning and identity formation (Farnsworth et al., 2016), little research has been performed on the effects CoPs have on leadership development (Farnsworth et al., 2016; Levett-Jones & Lathlean, 2008).

CoPs contain three pillars: *mutual engagement, joint enterprise, and a shared repertoire* (Morley, 2016). The three pillars have been described as containing the three elements of *domain, community, and practice*, each of which differentiates a CoP from other loose associations such as a club, team, or neighborhood (Wenger-Trayner & Wenger-Trayner, 2015). For example, the differences between a CoP and a team center on goals: teams are typically focused on specific tasks to achieve specific goals. A CoP, by contrast, is a shared learning experience where individual goals are achieved through the interaction with the CoP, but it is the shared learning experience, the relationships that develop, and subsequent identify formation, that are the central features (Farnsworth et al., 2016).

The "domain" element refers to a commitment to a shared competence that separates the CoP from others in an organization; the "community" domain implies that members of the CoP develop strong and trustful relationships within the group, facilitating the sharing of information; and the "practice" domain implies that the members of the CoP are practitioners who engage in

shared learning to advance a specific practice in which the members work (Wenger-Trayner & Wenger-Trayner, 2015). Thus, a CoP is a vehicle and resource for learning where practitioners intentionally share experiences with each other and from which all the practitioners can learn through the relationships within the CoP (Smith et al., 2017), increasing both self-confidence and identify formation.

When a CoP is intentionally formed, CoPs have demonstrated both reductions in isolation and increases in problem solving skills and confidence among the members (Edmonson, McGough, Phillips, Blaine, & Mackoff, 2017). In the few studies or pilot projects reported, researchers argue that a CoP can increase interprofessional collaboration (Lara et al., 2017; Seibert, 2015) and increase quality of care (Monaro, White, & West, 2015; Francis-Coad, Eherton-Beer, Bulsara, Nobre, & Hill, 2015). However, Kothari et al. (2015) asserted that not enough research has been performed on CoPs' effectiveness in creating systems changes even as they have been identified as a potential locus of innovation (Kothari, Boyko, Conklin, Stolee, & Sibbald, 2015).

Few studies have explored the effects of participation in a CoP on self-efficacy and the role and identity of the clinical nurse educator specifically, even as some researchers have concluded that nurse educators would benefit from a CoP to supplement professional practice (Oprescu, McAllister, Duncan, & Jones, 2017; Woods, Cashin, & Stockhausen, 2016).

Emerging leaders within an organization can be confronted with the challenge of creating new professional identities. Smith has previously asserted that the process of learning is not only an acquisition of knowledge but is a process of the shaping of an identity (Smith et al., 2017). Consequently, a significant benefit of membership in a CoP is identity formation as well as an increase in feelings of autonomy, especially when membership is voluntary (Lee-Kelley &

Turner, 2017). Participation in a CoP is not unlike what some have identified as an "important 'coactive learning' process, a relational learning that is bi-directional, not a passive observation of others" (Myers, 2018).

Use of a formal CoP may provide the needed peer-to-peer interaction lacking in the long-term care domain because of the organizational structures that contribute to the isolated nature of the work. CoPs can be a means to increasing the knowledge gaps among leaders to increase their self-efficacy (Wenger-Trayner & Wenger-Trayner, 2015).

Methods

This study employed a one group pre-test/post-test design examining the self-efficacy of new nurse leaders who participated in a virtual CoP. The study was designed to assess a single group of clinical nurse educators who have been either been hired or promoted into an emerging leadership role, a role still understood to be evolving within the organization.

Study Population

The study population included new clinical nurse educators in a large skilled nursing facility. This was a new role in the organization. The inclusion criteria for the study included:

1. All nurses with the title of Practice Development Specialist (PDS); Practice Development Manager (PDM); or Infection Preventionist (IP).

2. All PDS, PDM, and IPs regardless of age, gender, educational level, length of nursing practice, prior leadership experience, or time in the current role.

The exclusion criteria included:

1. PDMs, PDSs, and IPs who were hired into the role after the start of the interventions.

2. Nurse leaders that did not have the titles indicated above.

Sample

The centers are primarily staffed by licensed practical nurses. Practice Development Specialists (PDS), Practice Development Managers (PDM), and Infection Preventionists (IP), however, are registered nurses who hold a variety of educational degrees in nursing.

A convenience sample was used to recruit participants who met the inclusion criteria. Forty-two participants signed consents and were enrolled; however, 38 completed the demographic questionnaire and pre-test. Twenty-eight completed the demographic questionnaire, both pre-tests and post-tests, and attended at least one CoP intervention.

Recruitment

Potential participants were contacted via email and allowed two weeks to respond. The email included a description of the project including the intervention and the aims as well as the time commitment. Participants who consented to participate were notified by email to confirm their participation.

Participants were informed their responses to the pre-test and post-test would be de-identified, data would be aggregated, and results would be shared with the organization for potential future leadership development activity. The George Washington (GW) Internal Review Board (IRB) Consent Statement was used. Participants assigned themselves a five-digit personal identification number which was used for all data collection. Participants were reminded in advance of due dates for the pre-test, the schedule of CoP intervention calls, and the post-test.

To increase participation rates and reduce attrition, reminder emails were sent one day before each CoP call. In addition to email reminders, participants were offered the opportunity to be enrolled in a raffle for one of two $100 gift cards for participation in least five of the six

CoP calls. Participation was measured by documenting the number of sessions each participant attended.

Setting

The setting for the pilot study was a large national long-term care/skilled nursing organization that operates approximately 400 long-term care and rehabilitation centers throughout the United States. Because of the size and geographic range of the organization, the organization is accustomed to virtual meetings, both audio and visual.

Historically, the clinical nurse educators have practiced in individual long-term care centers, with one clinical educator in each center. The roles of the PDS, PDM, and IP were created to allow clinical nurse educators more flexibility in designing needed educational programming while avoiding the underutilization of their knowledge and skills with center-based tasks not appropriate to their roles. These nurses could now, ideally, deliver education and practice development interventions to multiple centers in a geographic region rather than the historically center-based role based and based on their interactions with center leadership as well as quality data available to them.

Intervention

The intervention focused on one sphere of self-efficacy influence: vicarious experience, and by extension, mutual support as participants shared experiences in their new roles. The intervention consisted of a series of six CoP video conference calls held every other week for a total of six calls. Because of scheduling conflicts, on two occasions the calls were spaced three weeks apart. Each call lasted one hour. To encourage participation, two calls were offered on each CoP day, one in the morning and one in the afternoon. Participants were allowed to choose which of the two they preferred on a given day.

Assuming that few participants had previously engaged in a structured, yet informal CoP, each call began with the definition of a CoP, sometimes read by one of the participants, followed by a question or comment designed to stimulate conversation. The questions or comments did not address the Leader Efficacy Questionnaire directly but did pull from it thematically.

Each call began with the a two-slide definition: one long; one short.

The first slide read:

1. Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.

2. It has an identity defined by a shared domain of interest. Membership therefore implies a commitment to the domain, and therefore a shared competence that distinguishes members from other people.

3. Members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other. Members of a community of practice do not necessarily work together on a daily basis.

4. Members of a community of practice are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short, a shared practice. This takes time and sustained interaction.

The second slide read: "Communities of Practice (CoPs) are 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and

expertise in this area by interacting on an ongoing basis' (Wenger, McDermott, & Snyder, 2002,

p. 4)."

The "starter" question/comments included:

1.   What about leadership do you find the most challenging and why? What are your

        "go to" actions to help you be a better leader?

2.   Do you have a story of a success or failure in inspiring, motivating, or coaching

        nursing staff, and/or center or regional leadership, in aligning competing

        concerns. Describe how you motivated yourself, or struggled to, in implementing

        those new solutions to challenges.

3.   Can you think of a time when you drew on others (either a peer, more senior

        leaders, or followers) to enhance your own leadership?

4.   Describe successes you have had in understanding the teams or individuals with

        whom you work where you felt you had to devise or implement a novel solution

        to a problem either you or they were trying to solve. What did you do to

        understand their context or situation?

5.   Do you agree that distress can occur when a person leaves one role with a set of

        expected behaviors and enters another role with a different set of expected

        behaviors?

6.   What kind of successes have you had in inspiring, motivating, or coaching the

        nursing staff in aligning their work with the mission, vision, and goals of the

        organization? What are some of the barriers you have encountered and how have

        you managed this?

The remainder of the call was facilitated to encourage discussion, reflection, and sharing of personal experiences, with comments and questions from participants.

Instrument and Data Collection

A number of variables were developed (Appendix C) and the Leader Efficacy Questionnaire (LEQ) was used for both the pre-test and the post-test (Appendix D). Demographic data was collected simultaneously with the pre-test and included age, gender, education level, years in nursing practice, and any years in formal nursing leadership as defined by any role not based in an individual long-term or skilled nursing center. The post-test also included three open-ended questions. All enrollment and demographic information and the pre-test and post-test information was collected by email with attachments. Once attachments were downloaded and the data recorded, all emails were deleted.

The Leader Efficacy Questionnaire

The LEQ is a self-report tool which assesses an individual's self-efficacy regarding leadership capabilities (Hannah & Avolio, 2013). The LEQ is based on Bandura's theories on self-efficacy (Bandura, 1997), and expanded by Hannah et al (2008), who came to define a more dynamic relationship between the individual leader and their particular work environment. Hannah et al (2008) asserted leaders' engagement in their work environment affects their self-efficacy, either positively or negatively, thereby influencing their sense of agency and ability to lead (Hannah et al., 2008). By measuring self-efficacy through an individual's work or environmental context and its effects on the individual, they proposed a definition of self-efficacy as "Leaders'…beliefs in their perceived capabilities to organize the positive psychological capabilities, motivation, means, collective resources, and courses of action required to attain effective, sustainable performance across their various leadership roles,

demands, and contexts" (Hannah et al., 2008, p. 670). Because of the potential effects of the environment on an individual's perception about his or her ability to lead, Hannah, Avolio, Chan, & Walumbwa (2012) have argued that measurements of leaders' self-efficacy should include a measurement of leaders' ability to influence the work environment itself.

The LEQ is one of the only tools that measures this aspect of self-efficacy (Harper, 2016). It is a 22-item assessment and consists of a Likert-type scale in ten-point increments from zero (not at all confident) to 100 (totally confident) and requires approximately five to ten minutes to complete. It contains three subscales: leader action self-efficacy (LAE), leader means efficacy (LME), and leader self-regulation efficacy (LSRE). LAE is defined as a leader's "perceived capability to effectively executive various critical leader actions, such as motivating, coaching and inspiring followers, and getting followers to identify with the organization and its goals and vision" (Hannah & Avolio, 2013, p. 5). LME is defined as leaders' perception "that they can draw upon others in their work environment (peers, senior leaders, followers) to enhance their leadership…" (Hannah & Avolio, 2013, p. 5). LSRE is defined as a leader's perceived capability to "think through complex leadership situations, interpret their followers and the context and generate novel and effective solutions….as well as the ability to motivate oneself to enact those solutions using effective leadership with followers" (Hannah & Avolio, 2013, p. 5).

Qualitative Assessment Survey

To elicit participants' perceptions of the usefulness of the CoP, participants answered three open-ended questions. This data provided information on the attitudes towards the intervention itself as well as any effects the CoP had on their leadership skills. The questions were:

1. Describe in what ways the Community of Practice calls helped you to reflect on your

leadership skills and confidence?

2. In what ways did the virtual aspect (Zoom sessions) affect the Community of Practice sessions?

3. In what ways did the Community of Practice calls help you to be innovative in your leadership and help your feel supported in your role?

Data Analysis

Quantitative Data

Descriptive statistics were used to describe the sample characteristics as well as identify overall total scores, means, and medians (Table 1 and Table 2). Data were not normally distributed, so the Wilcoxon Signed-Ranks test was used to analyze the data for the totals and each subscale (LAE, LME, LSRE) and reported (Table 3 and Table 4). Spearman's Rank Correlation Coefficient was used to determine whether there were any associations between independent and dependent variables (Table 5).

Qualitative Data

An essentialist-inductive method was used for a thematic analysis of the open-ended questions. An essentialist method allowed the participants' answers to be read as reflections of their experiences and the inductive analysis prevented forcing participants' answers into preconceived constructs (Braun & Clarke, 2006). Thematic analysis was used allowing conclusions to emerge rather than being imposed.

The thematic analysis followed the standard process: "compiling, disassembling, reassembling, interpreting and concluding" (Castleberry & Nolen, 2018, p. 807). Data was compiled and read through several times and then disassembled by placing answers into groups or categories that appeared related. During reassembling, the categories were placed into an

overall context to create meaningful themes. When interpreting the themes, there was less dependence on their frequency, but more so on their relationship to the questions being asked. Conclusions, then, were drawn in response to the research questions.

Ethical Considerations

The research plan for this exploratory pilot study was designed to respect the confidentiality and anonymity of all participants. Participation was entirely voluntary, and the informed consent form explained the study design. Confidentiality was maintained throughout the study. Informed consent was written at an appropriate level for this population. The risk of harm was minimal given the aims of this study, but any potential harm to the participants was minimized further through frequent reminders of the confidentiality process as well as the monitoring of participant reactions during the study. Participants were encouraged to contact either me, the principle investigator or the GW Institutional Review Board if they had concerns. Contact information was provided on the consent form.

The research for this study was performed independently and in consultation with the principal investigator. Any alterations in the study were communicated to the participants as well as the GW Institutional Review Board. There were no financial conflicts to report.

Results

Participant Demographic Characteristics

The majority of the participants were 45 years old or older (42.9%); had spent more than one year in the new educator role (46.4%); had had prior leadership roles (42.9%); and had been registered nurses for 5 years or more (82.1%). The percentages of those with associate degrees were slightly higher than those with bachelor's degrees: 39.3% vs. 35.7%, respectively.

Quantitative Results

The LEQ contained three subscales (Action, Means, and Self-Regulation self-efficacy). Total pre-test scores ranged from 1250 to 1970 with a mean of 1622.86 and median of 1610. Total minimum post-test scores ranged from 1040 to 2010 with a mean of 1708.21 and median of 1720. The individual subscale scores demonstrated the same pattern: the minimum pre-test scores in all three subscales declined while the maximum post-test scores increased. The mean and median scores for all three subscales increased as well (Table 2).

The Wilcoxon Signed-Rank test suggested that a three-month, every other week virtual CoP call elicited statistically significant changes in overall self-efficacy (z = -2.139, p = 0.032). Median scores were higher in the post-intervention group (Table 2). The same pattern was repeated in all subscales with statistically significant changes in Action, Means, and Self-Regulation sales (Table 3). Mean and median scores were higher in all three subscales in post-intervention as well. Eight participants scored lower on the Action and Means post-test scores (28.5%) and six participants (21.4%) scored lower on the Self-Regulation subscale (Table 4).

Among the independent variables and post-test outcomes, Spearman's Rank-Order Correlations demonstrated no strong correlations among the independent and dependent variables. Among Means and Self-Regulation subscales, p values pointed to a potentially statistically significant correlation; however, Spearman's rho demonstrated no such correlation (Table 5).

Qualitative Results

Participants were enthusiastic about the virtual CoP calls in creating an environment where they could share their experiences with a similarly situated group of clinical educators.

Question 1

The essentialist-reductive method found participant responses able to be categorized into 10 domains. Answers fell primarily along the lines of reflection, introspection, openness, confidence, and collaboration and coalesced into three themes: value of peer-to-peer sharing; time for self-reflection; and increased confidence in leadership skills. One participant wrote: "The CoP calls helped me talk through some challenges I have faced as a leader and given me some important feedback and suggestions. Some of the feedback validated my challenges, and some helped me gain a broader perspective." Another wrote: "Having this network with others assisted me in developing more realistic goals within my leadership skills. Trying new leadership skills outside the scope that I have attempted before has helped me not only increase my new strengths but others as well." Regarding self-reflection, one participant wrote: "Community of Practice has led me to question where my current abilities are as a leader and compare them to where I would like to be within a leadership role and within my current role. It has led to introspection on multiple topics and has forced me to grow within my role."

Question 2

Thematic analysis for question two revealed fewer lengthy responses, but not fewer revealing ones. Responses were placed into the following categories of trust, face to face encounters, flexibility, and technology. Mapping these responses to the focus of the question, the dominant themes that emerged were meaningful interaction, technology challenges, and flexibility.

Participants found the visual connection useful. One participant wrote: "Having an open forum type of discussion in a Zoom session where it was easy to see other colleagues made it feel more personal and as if we really were the 'community' that we are. It had the feeling that

we were all sitting around a big room next to other and sharing our stories." Another wrote that the visual aspect "was helpful in building trust and camaraderie." The ability to turn cameras on or off was optional, prompting one participant to write that " "I think what we gain from actually seeing each other's face versus those that would not put their video on...it felt like those willing to share video had a lot more buy-in to the process."

Because of the daily schedule of the participants, some participants had trouble attending all the sessions or, because of location, had technical difficulties in joining virtually. The portable nature of the intervention did allow, however, for some helpful flexibility in attending either a morning or afternoon call and allowed for wide geographic participation. "I think it made it easier to get together from across the country and not just one region. You could meet through Zoom really anywhere from any type of device (iPhone, iPad, laptop, etc.)." Another wrote that "The virtual aspect affects the fluidity of conversation related to connections and the interruption in flow of thoughts." Technology challenges presented occasional problems. "At times the Zoom didn't work because of bad connections but it's a great tool, " wrote one participant.

Question 3

The third question asked participants to describe in what ways the CoP calls helped develop an innovative leadership style. The dissembled items identified were numerous, and occasionally answers from question one reappeared in question three. The domains included creativity, leadership styles, confidence, self-reflection, and organizational change. As question three focused on innovation, two dominant themes emerged: Leadership as a creative and dynamic process and reductions in isolation. The isolation domain related to the need for a community of peers to help understanding others' perspectives and in validating one's current leadership style.

Participants found that participation in the CoP had increased their general confidence in their abilities to perform their roles but, interestingly, found that their peers were using different leadership "styles." Participant responses began to reveal more future-oriented thinking in their comments: "It was good to listen to a variety of leadership styles punctuated by real life experience-enabling alternative approaches to concerns" and "I am exploring new approaches in my professional interactions and situations that call for unique and creative leadership. I look forward to observing how these new approaches positively affect the centers." The lengthiest response was: "Hearing other colleague's stories and all the different leadership styles, it was easy to self-reflect and focus on what my style is, or what I would like it to be. As I am very new to this role, I hadn't realized the importance of a leadership 'style' and I feel like this opportunity enabled me to do some soul searching on what mine might be."

The CoP calls demonstrated value in allowing the PDS, PDM, and IP clinical educators an opportunity to share experiences and feel supported. The CoP helped provide space and time for self-reflection regarding current practice and allowed participants to consider what they do well and what they need to learn to feel more confident. It also encouraged opportunities for a wide variety of participants to discuss leadership from a more theoretical vantage point, allowing the participants to imagine how they are affected by their current role and how they might create alternative leadership styles to suit the new demands of their roles.

Discussion

Overall results suggested that a virtual CoP affects the self-efficacy of its members. In addition, with overall participation in the CoP calls high (67.9% of participants participated in at least 5-6 calls and 28.6% participated in at least 3-4 calls), participants found enough value in a CoP to participate consistently over three months.

While the minimum score totals decreased in the post-test in all subscales, maximum score totals increased as well as did all median and mean scores, revealing that, despite some significant outliers, more participants ranked themselves higher in all the subscales.

The lowest minimum score totals, as well as the lowest median score post-test, was in the Action subscale. The highest total post-test scores, as well as the median score, was in the Self-Regulation subscale.

The Action self-efficacy (LAE) measured participants perceptions of their ability to execute leadership actions such as coaching, motivating, and inspiring. That a large percentage of the participants had had prior leadership experience, had been in their new role for over a year, and had been nurses for 5 years or more suggests that either the nurses had never been taught coaching and motivating skills or they had difficulty in integrating these skills into this new role.

The LEQ post-test revealed that three participants rated themselves a "0" in the Action subscale on the same question. The question asked participants whether they tailored rewards and punishments to the "follower." It would be difficult to draw any particular associations between a lack of self-efficacy in coaching and motivating while also rating oneself very low in knowing how to hold others accountable through a reward/punishment system. However, since the minimum total scores in the Action subscale were lower in the post-test, it is worth speculating about the challenges that the organizational setting in which the participants work may pose to their abilities in this domain. While it may be that coaching skills have yet to be learned, it is also possible that the challenge of working in a mix of hierarchical and matrix reporting lines contributes to role confusion so much so that PDS, PDM, and IP educators feel uncertain who they are coaching and inspiring and how they tailor rewards for followers. In fact,

given the complexity these roles occupy, it may be that the PDS, PDM, and IP are not always

certain who their followers are. Even more so, the lower post-test scores in this subscale may

suggest that many in this role are unsure where the role fits into the overall organization.

Organizations may find this helpful when designing new roles in a matrix-laden organization,

where new roles have new reporting lines or the reporting lines, especially dotted reporting lines,

are not clear.

The themes of the dynamic and creative nature of leadership suggest both uncertainty

about the participants' roles but their desire to improve their leadership skills. Providing

opportunities to learn coaching skills as well as opportunities to define role clarity should be

considered. Nonetheless, the majority of participants ranked themselves higher in the subscale,

suggesting that participation in the CoP was useful in developing this leadership self-efficacy.

The Self-Regulation subscale total score demonstrated the strongest significant change as

well as the highest minimum and maximum total scores and the highest median. It also had the

least number of participants who ranked themselves lower in the post-test (6 participants). The

Self-Regulation subscale focused on working through complex situations to create novel

solutions to challenges. Given that the focus of the intervention was to exploit vicarious learning

through sharing and mutual support, the rise in scores may suggest that in a virtual CoP, this

aspect of self-efficacy is easiest to learn.

The responses to the open-ended questions suggest this as an important consideration.

Themes regarding the value of peer-to-peer interaction, time for self-reflection, collaboration,

and creativity support the idea that a virtual CoP may have its best value in the Self-Regulation

domain. Creatively exploring novel solutions to problems are 'process' solutions for the most

part, which may explain why sharing "how to" solve problems may be more easily shared in a virtual CoP than learning to coach and mentor through a virtual support network.

In summation, organizations may want to incorporate CoPs into opportunities for both those developing new roles as well as those moved into leadership roles. They should consider investing in the technology that supports robust visual interaction across geographic distances. Participants' rate of participation in the CoP calls, combined with their responses, suggest that, despite busy work days, participants found enough value to include these calls on their schedules and began to reflect on their roles in ways that increased self-efficacy. Executive leadership should consider providing time to participate regularly in a virtual CoP as a best practice for leadership development. The increase in self-efficacy will translate to more effective leadership for the organization as a whole. The dynamic interaction between leader and organization could support more positive results, both in outcomes and in staff satisfaction, with this kind of regularly scheduled intervention.

Given the value placed on the CoP, senior leadership may consider establishing them as a routine part of onboarding new nurse leaders, providing both time and technology to make the experience even more valuable. In addition, senior leadership may want to tailor other interventions based on the results of the subscales to assist in specific leadership development activity. The social nature of learning and the dynamic interplay of emerging leaders with their work environment make a CoP a valuable tool in leadership development.

Study Limitations

The research study was limited because of the small sample size. Time constraints prevented participation in all the CoP calls. Participants were not required to participate verbally on each call, despite a leading question or questions being provided to stimulate conversation.

While attempts were made to call on each participant, it was not always possible, thereby allowing some participants only to listen but not engage and share their own experiences. Also, some participants knew each other, and others knew no one. The dynamic of familiarity, or lack of it, may have inhibited some from participating as fully as they might have.

Implications for Policy, Research, and Practice

As health care continues its transformation, nursing roles will continue to evolve especially as the ability to recruit nurses into leadership roles may diminish given the overall nursing shortage. While the participants in this study, overall, improved their self-efficacy, enough of them struggled in certain domains enough to warrant further study on two fronts: what aspect of self-efficacy do virtual experiences help and do nurses in new roles need more peer to peer experiences to help in their development and if so, how much and what kind? The results of this small study revealed a troubling decrease in some participants rating themselves actually lower after participation. Since it was not clear why this was so, further research into self-efficacy among new nurse leaders would be helpful in ascertaining who takes on these roles, what do they need to succeed, and what self-efficacy benefits accrue to them by spending increased time with peers in similar circumstances. It may be that without peer-to-peer interactions, some new leaders overestimate their abilities.

Conclusions

A virtual CoP had a demonstrable effect on self-efficacy. The participants who completed the study reported enjoying the experience and reported learning about leadership generally and their own particular strengths and weaknesses in relation to others. Given the positive experiences reported coupled with the number of participants who had negative rankings of themselves post-intervention, the need for continued support of nurses in these roles is evident.

Going forward, senior leadership may want to build time and space for peer-to-peer support with frequent evaluations of nurse leaders' sense of efficacy and confidence as they evolve complex leadership roles. Exploring best practices in how to conduct effective CoPs is warranted.

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Tables and Appendices

Table 1

Sample Characteristics

Demographics	N	%
Age (Years)	n = 28	%
26 - 29	1	3.6
30 - 34	5	17.9
35 – 39	6	21.4
40 – 44	4	14.3
45 or older	12	42.9
Time in current role		
3 months or less	6	21.4
4-6 months	2	7.1
7 months - 1 year	7	25.0
More than 1 year	13	46.4
Prior Leader Role		
Never	4	14.3
Less than 1 year	5	17.9
2 – 4 years	7	7
5 years or more	12	42.9
Years as RN		
Less than 1 year	2	7.1
2 – 4 years	3	10.7
5 or more years	23	82.1
Education Level		
ADN	11	39.3
BSN	10	35.7
MSN (or graduate degree in other discipline)	7	25.0
Participation in CoP Calls		
1-2 Calls	1	3.6
3-4 Calls	8	28.6
5-6 Calls	19	67.9

Table 2

Descriptive Statistics by Subscale

	N	Min	Max	Median	Mean	Std Dev
Pre-Test						
Total	28	1250	1970	1610	1622.86	180.43
Action	28	290	640	475	485.72	91.43
Means	28	270	640	525	503.57	95.96
Self-Reg	28	410	720	635	633.57	64.13
Posttest						
Total	28	1040	2010	1720	1708.21	229.99
Action	28	50	650	530	504.64	119.18
Means	28	220	650	565	533.93	99.86
Self Reg	28	350	790	675	669.64	81.17

Table 3

Wilcoxon Signed-Rank Test Statistics

	z	Asymp. Sig. (2-tailed)
Total Post Score/Total Pre-Score	-2.139(a)	.032
Post Action/Pre-Action	-1.961(a)	.050
Post Means/Pre-Means	-2.11(a)	.035
Post Self-Regulation/Pre-Self-Regulation	-2.69(a)	.007

a. Based on negative ranks

Table 4

Wilcoxon Signed Ranks with Negative and Positive Ranks in Total and Subscale Scores

		N	Mean Rank	Sum of Ranks
Total Post Score/Total Pre-Score	Negative Ranks	7(a)	14.29	100.00
	Positive Ranks	20(b)	13.90	278.00
	Ties	1(c)		
Post Action Score/ Pre-Action Score	Negative Ranks	8(a)	14.63	117.00
	Positive Ranks	20(b)	14.45	289.00
	Ties			
Post Means Score/Pre-Means Score	Negative Ranks	8(a)	11.56	92.50
	Positive Ranks	18(b)	14.36	258.50
	Ties	2(c)c		
Post Self-Regulation Score/Pre-Self-Regulation Score	Negative Ranks	6(a)	14.17	85.00
	Positive Ranks	22(b)	14.59	321.00
	Ties	0		

a. Post total Score < Total Score
b. Post Total Score > Total Score
c. Post Total Score = Total Score

Table 5

Spearman Correlations of Variables (Post Test Scores)

Independent Variable	Action	Means	Self-Regulation
Age	$r_s = -.078, p = .692$	$r_s = -.253, p = .194$	$r_s = -.265, p = .174$
Time in Role	$r_s = .110, p = .578$	$r_s = .110, p = .578$	$r_s = -.049, p = .806$
Prior Formal Leadership	$r_s = -.058, p = .768$	$r_s = -.378, p = .048$	$r_s = -.419, p = .027$
Years as RN	$r_s = -.207, p = .291$	$r_s = .056, p = .777$	$r_s = -.272, p = .162$
Education	$r_s = -.121, p = .540$	$r_s = .248, p = .204$	$r_s = -.214, p = .275$
Number of Calls	$r_s = .269, p = .166$	$r_s = -.104, p = .597$	$r_s = .327, p = .089$

Appendix A
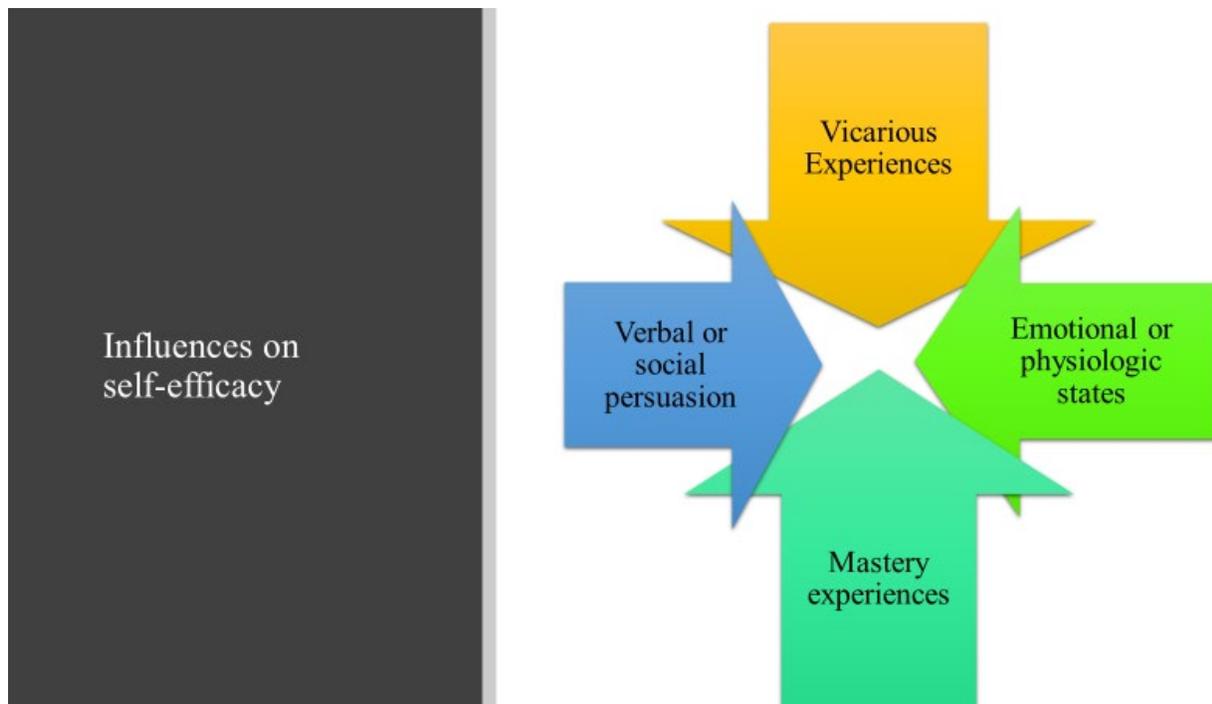
Bandura's Four Spheres of Influence on Self-Efficacy

Appendix B
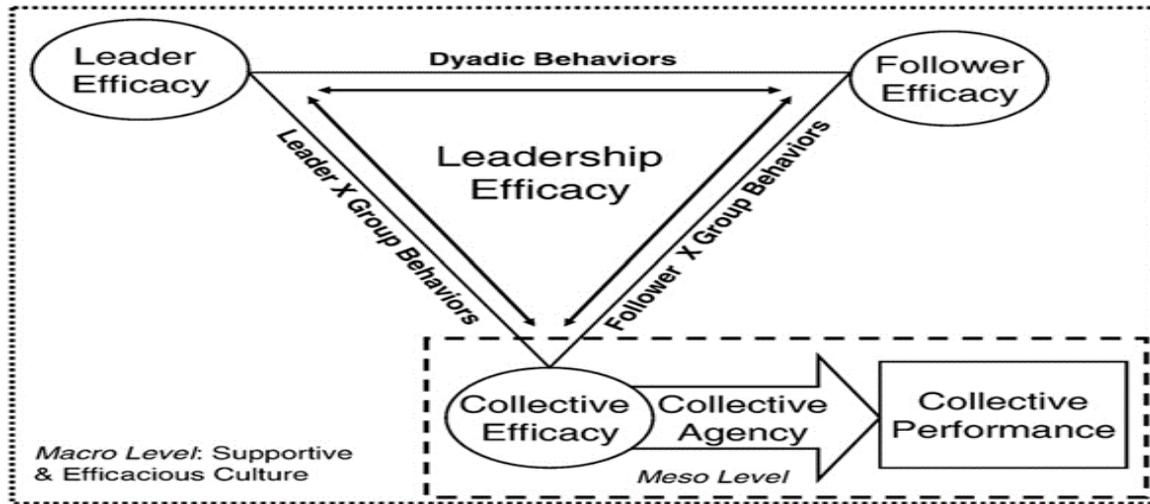
Dynamic Relationship of Leader Self-Efficacy, Performance, and Environment

Appendix C

Table of Variables

Variable Name	Variable Type and Form	Theoretical/Descriptive Definition	Operational Definition/Specification	Measurement
Action Self-Efficacy	Dependent	Ability to executive leadership action defined in LEQ	Self-rating of perceived capability to executive critical leadership actions	Continuous
			0-30 Not or a little confident	1
			40-70 Somewhat confident	2
			80-90 Very confident	3
			100 – Totally Confident	4
Self-Regulation Efficacy	Dependent	Ability to engage in complex leadership activities defined in LEQ	Self-rating of ability to engage in complex leadership situations.	Continuous
			0-30 Not or a little confident	1
			40-70 Somewhat confident	2
			8-90 Very confident	3
			100 Totally confident	4
Means Self-Efficacy	Dependent	Ability to access help for leadership enhancement	Self-rated ability to use organization resources	Continuous
			0-30 Not or a little confident	1
			40-70 Somewhat confident	2
			80-90 Very confident	3
			100 Totally Confident	4
Age	Demographic	Nurse Leader Age in Years	Nurse Leader Age in Years	Interval
			< or = to 25 years old	1
			26 to 29 years	2

			30 to 34 years old	3
			35 to 39 years old	4
			40 to 44 years old	5
			> than 45 years old	6
Education	Demographic	Nurse Leader Academic Degree	Degree	Categorical
			Associate Degree	1
			Bachelor's Degree	2
			Graduate Degree (MSN or doctoral level)	3
Prior Formal Leadership	Demographic	Number of years in formal leadership role	Held titled above a center-based role	Interval
			Never	1
			Less than 1 year	2
			2 to 4 years	3
			5 years or more	4
Years as a Registered Nurse	Demographic	Nursing experience	Number of years since graduation	Interval
			Less than 1	1
			2 to 4 years	2
			5 or more years	3
Time in Role	Demographic	Length in time in new role	Title of PDS, PDM, or IP	Interval
			3 months or less	1
			4-6 months	2
			7 months to 1 year	3
			1 year or m ore	4
CoP Participant	Independent	Level of Participation	Number of Calls	Interval
			1-2 Calls	1
			3-4 Calls	2
			5-6 Calls	3

Appendix D

Leader Efficacy Questionnaire — Self Form
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Directions: Think about yourself as a leader in your organization and for each item below, indicate your level of confidence. A score of 100 represents 100% confidence, whereas a score of 0 means no confidence at all. Write your score in the box to the right of each item.

0	10	20	30	40	50	60	70	80	90	100
Not at all					Moderately			Totally Confident		

As a Leader I can...

1. Energize my followers to achieve their best
2. Develop agreements with followers to enhance their participation
3. Coach followers to assume greater responsibilities for leadership
4. Inspire followers to go beyond their self-interests for the greater good
5. Get my followers to meet the requirements we have set for their work
6. Utilize the forms of rewards and punishments that work best with each follower
7. Get followers to identify with the central focus of our mission
8. Rely on the organization to provide the resources needed to be effective
9. Go to my superiors for advice to develop my leadership
10. Effectively lead working within the boundaries of the organization's policies
11. Count on my leaders to support high standards of ethical conduct
12. Rely on my leaders to come up with ways to stimulate my creativity
13. Count on others to give me the guidance I need to complete work assignments
14. Rely on my peers to help solve problems
15. Determine what leadership style is needed in each situation
16. Motivate myself to take charge of groups
17. Remain steadfast to my core beliefs when I'm challenged
18. Motivate myself to perform at levels that inspire others to excellence
19. Develop detailed plans to accomplish complex missions
20. Strive to accomplish the targeted goals set by my superiors
21. Think up innovative solutions to challenging leadership problems
22. Distinguish the ethical components of problems/dilemmas