JOURNAL OF LEADERSHIP EDUCATION

JANUARY 2022

RESEARCH SECTION

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LEADERS AND SCHOLARS:

How Faculty Mentoring Behavior Influences the Development of Leadership Self-Efficacy

Abstract

Students pursuing doctoral degrees are expected to become leaders in their disciplines. Given that, leadership development should be an important part of any curriculum that prepares doctoral students for professional careers after graduation. However, there are questions regarding the effectiveness and prevalence of formal leadership development structures in graduate school. With this gap in formal professional preparation, faculty mentors are expected to provide the necessary socialization, support, and guidance for doctoral students to develop as leaders in their disciplines. This mixed-methods study of graduate students was conducted using online questionnaires and personal interviews to determine the impact of faculty mentoring behaviors on the development of doctoral student leadership self-efficacy. Findings suggest that students in doctoral programs experience significant negative emotional arousal in the form of uncertainty, anxiety, and self-doubt. Faculty mentors that are accessible, trustworthy, and provide constructive feedback can mitigate these negative feelings and encourage the development of leadership self-efficacy through verbal support and mastery experiences. In addition, the data suggests that active student cohorts and effective departmental leadership are also important to the development of doctoral student leadership self-efficacy.

Introduction

Doctoral education is an important process for developing human capital and is critical to the development of the modern world. Doctoral students are expected to become masters of their discipline, create knowledge, and transform understanding through writing, teaching, and application (Craddock et al., 2011; Golde & Walker, 2006). The Council of Graduate Schools asserts that the best doctoral programs provide interdisciplinary opportunities that prepare graduate students to become effective academic change agents in their research careers (Council of Graduate Schools, 2005). The National Science Foundation (NSF) further suggests that doctoral scientists must be educated to become leaders and change agents in their respective disciplines in order to be effective researchers (Terry & Liller, 2014). However, leadership practitioners question whether current leadership development initiatives in collegiate environments are effective at preparing students to become productive and collaborative researchers and note that there is a lack of leadership development programs to meet the unique needs of graduate students (Posner, 2006; Terry & Liller, 2014).

Research has supported the positive relationship between formal leadership training and leadership

development, and has demonstrated that a combination of formal development, challenging assignments, and developmental supervision, offered simultaneously, are most effective for leadership development (Seibert et al., 2017). As it relates to doctoral students, research has shown that transdisciplinary approaches in doctoral education improves publication impact, team science participation, and collaboration across disciplines as a research professional (Keck et al., 2017). Despite this research, and the stated need for doctoral students to be effective leaders in order to improve their research impact, graduate programs rarely offer formal leadership development opportunities for students to transition from being pedagogically directed to self-directed researchers comfortable with collaboration and ambiguity (Gardner, 2008; Margolis & Romero, 1998; Posselt, 2018, Twale et al., 2016). Fortunately, informal developmental experiences can also be effective at building leadership self-efficacy (Seibert et al., 2017). This presents an opportunity for doctoral student leadership development because the primary model of graduate education is that of cognitive apprenticeship through student-faculty mentoring relationships (Collins, 2006).

High-quality mentoring of doctoral students can result in the development of relational skills such as emotional awareness and compassion (Ragins, 2012). These abilities are transferrable to other interpersonal skills needed for building high-quality relationships which are critical for effective leadership and research collaboration (Ragins, 2012; Tebes & Thai, 2018). In addition, mentoring can increase career self-efficacy and promote the development of positive selves which are critical components of professional confidence and identity development as doctoral students' progress into the professional arena (Johnson, 2016; Packard & Nguyen, 2003). High-quality mentoring relationships allow both mentees and mentors to experience, understand, and practice activities that support the development of future leadership self-efficacy (Chopin et al., 2012). It is imperative that leadership educators understand optimal mentoring practices in order to maximize leadership development in these informal learning environments in order to prepare doctoral students for collaborative professional research challenges post-graduation (Middlebrooks & Haberkorn, 2009; Johnson, 2016; Tebes & Thai, 2018).

The purpose of this study was to explore the role of faculty mentoring functions in promoting leadership development of doctoral student mentees. This study examined how mentoring behaviors impact the development of doctoral student leadership self-efficacy (LSE) through their interaction with the leadership environment and faculty mentoring behaviors. The goal of this research was to inform mentoring practice in higher education institutions in order to improve leadership development outcomes amongst doctoral graduates. Three research objectives were developed to achieve these goals:

1. Identify quantitative student evaluations of faculty mentoring skill

2. Identify faculty behaviors associated with above and below average quantitative evaluations of faculty mentoring skill

3. Qualitatively investigate the impact of faculty behaviors associated with above and below average quantitative evaluations of faculty mentoring skill on self-efficacy antecedents.

Literature Review

Doctoral Education. Doctoral education in the United States (US) is built upon two tenets. First, doctoral programs must prepare novice scholars to conduct methodologically sound research (Posselt, 2018). Second, the primary model of knowledge acquisition operates through cognitive apprenticeship (Posselt, 2018). According to Collins (2006), a cognitive apprenticeship attempts to enculturate learners through social interactions that emphasize generalization of knowledge across many content areas. The cognitive aspect places emphasis on teaching learners how to think about what they are learning in addition to the skills associated with expertise in a discipline (Merriam et al., 2007). Doctoral students in a cognitive apprenticeship should be provided with training in how to apply techniques across a variety of increasingly complex settings so that skills and models can be integrated (Merrian et al., 2007; Posselt, 2018).

According to Golde and Walker (2006) doctoral students must "generate new knowledge, critically conserve valuable and useful ideas, and responsibly transform those understandings through writing, teaching, and application" (p. 5). Doctoral students must possess analytical and synthesis skills in order to develop conceptual frameworks and glean the significance of scientific findings across different contexts (Posselt, 2018). These skills become more complex and difficult to navigate as one progresses, however this learning is expected to occur as doctoral students are given progressive independence and increasing responsibility in their cognitive apprenticeships (Collins, 2006; Kennedy et al., 2005; Posselt, 2018).

Few graduate programs provide formal guidance for becoming a responsible and independent knowledge creator (Margolis & Romero, 1998). Past research has concluded that the primary methods by which students are socialized into a research profession include the culture of the department and mentoring relationships with faculty (Posselt, 2018). Weiss (1981) found that informal interactions with faculty develop student professional role commitment, but almost no graduate programs report this interaction as a critical component to the educational process. Further studies found that high self-esteem of doctoral students was driven by feeling competent in their research, worthwhile, deserving of acceptance, and having expectations of success (Johnson, 2016; Posselt, 2018). Students self-determine these characteristics based on the frame of reference provided by their culture and the structural features of their primary socializing body (Egan, 1989). Consequently, the role of the faculty mentor in this educational setting is significant, and research has shown that ineffective mentoring can cause issues with student socialization into their professional environment and difficulty in resolving conflicts between their preconceived notions of graduate school and their perception of early career failures (Johnson, 2016; Posselt, 2018).

Mentoring. According to Johnson (2016), academic mentoring is:

> A personal and reciprocal relationship in which a more experienced faculty member acts as a guide, role model, teacher, and sponsor of a less experienced student. A mentor provides the mentee with knowledge, advice, counsel, challenge, and support in the mentee's pursuit of becoming a full member of a particular profession. (p. 23)

Mentors engage in numerous behaviors to achieve these qualities and outcomes. In her seminal work, Kram (1985) grouped several of these functions that were typical of mentoring relationships into two categories: career functions and psychosocial functions. Career functions included the parts of a professional relationship that improved career advancement, while psychosocial functions included tasks that enhanced competence, identity, and

effectiveness of younger adults in their personal and professional lives (Kram, 1985). As mentors engage in career and psychosocial functions, relationships between students and faculty should ideally become more emotionally connected, collaborative, and reciprocal (Johnson et al., 2014). As mentoring relationships evolve faculty members begin to offer an expanding range of career and psychosocial support that motivate mentees by revealing new and transformative pathways in their professional and personal lives (Johnson et al., 2014; Sternberg, 2002).

Students eventually outgrow the mentoring relationship as they gain maturity, confidence, and competence (Wang et al., 2010). As that happens, students desire a more collaborative, reciprocal relationship with their faculty member that includes stronger social support (Ragins, 2012; Wang et al., 2010). Effective mentoring relationships eventually produce what Ragins (2012) referred to as growth-fostering interactions (GFI). These are characterized by mutual empathy, authenticity, and empowerment. As the frequency of these GFIs increase, the mentor and mentee form a closer personal and professional working relationship that includes increased departmental socialization and greater professional identity development (Margolis & Romero, 1998; Ragins, 2012).

Synthesis with Leadership Development. Day and Dragoni (2015) defined leadership development as "the expansion of the capacity of individuals to be effective in leadership roles and processes" (p. 134) and identified leadership self-efficacy (LSE) as a developmentally important phenomenon (Coers, 2017). LSE is an individual's perception of their ability to utilize positive psychological skills, motivation, collective resources, and appropriate courses of action to successfully perform leadership roles across contexts (Hannah et al., 2008). A review of literature conducted by Machida and Schaubroeck (2011) suggested that feedback, challenge, and support significantly influenced the development of LSE.

Lester et al. (2011) suggested that leadership efficacy was a key component to leadership development and that it could be developed in mentor-mentee relationships. Bang and Reio (2017) found that among graduate students, creative self-efficacy was directly associated with personal accomplishment and mentoring. Dweck (2007) reported that faculty encouragement of a fixed mindset caused students to misinterpret underperformance as an issue of innate ability and lack of belonging. However, when faculty encourage a growth mindset, students view intellectual challenges as learning opportunities and are more likely to persist (Dweck, 2007). This process may mediate feelings of the impostor phenomenon (Posselt, 2018). Impostor phenomenon occurs when individuals perceive insufficient support from influential others and is exemplified by the tendency to feel inadequate despite repeated success and is common in graduate programs (Clance & Imes, 1978; Cohen et al,. 2009).

Given the ambiguous expectations in graduate programs and the evidence presented, doctoral students require various types of support in order to develop LSE. This support includes academic (or career) support, psychosocial support in the form of navigating sociocultural rules of academia, and cognitive support in the form of creating a growth mindset through discipline specific performance mastery (Dweck, 2017; Posselt, 2018).

Conceptual Framework

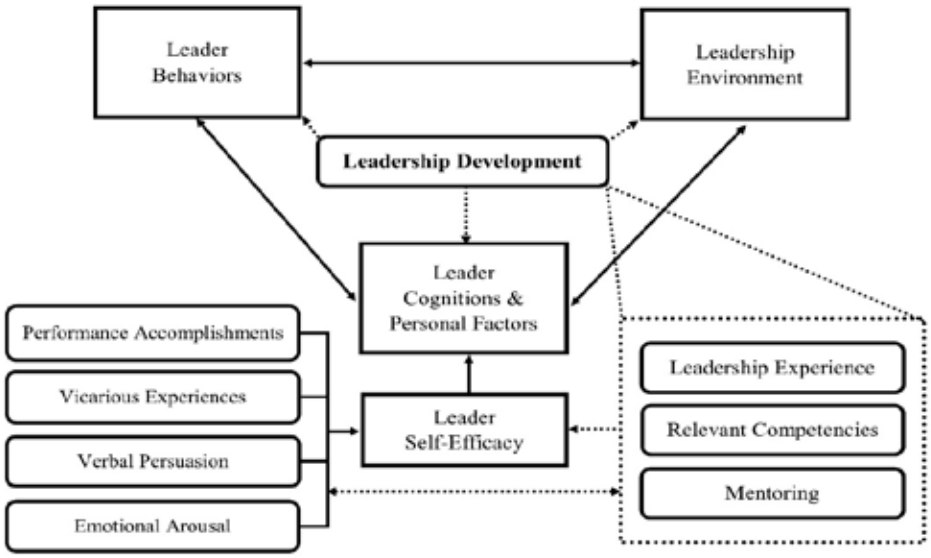
Bandura's (1986) Social Cognitive Theory (SCT) provided a theoretical framework to explain the formation of leadership self-efficacy in this study, with supporting literature from Coers (2017) model of mediating practices for executive leadership development. Self-efficacy was defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given levels of attainment" (Bandura, 1998, p. 51). Bandura (1977) theorized four variables that informed self-efficacy: performance accomplishments, vicarious experience,

verbal persuasion, and emotional arousal.

Bandura (1986) also proposed the concept of reciprocal determinism, which theorized that an individual's behavior both influences and is influenced by personal, behavioral, and environmental factors. McCormick (2001) applied this theory to leadership and posited that "variations in leader cognitions, leader behaviors, and the leadership environment are necessary and sufficient to account for variations in leader effectiveness" (p. 24). Within this context, LSE can be conceptualized as one's self-perception of personal capability to perform cognitive and behavioral actions required to facilitate group processes (Coers, 2017; McCormick, 2001). Within this framework the current study sought to investigate how mentoring behaviors and the leadership environment influenced the LSE of doctoral students.

Figure 1:

Coers' Model of Mediating Practices for Executive NGO Leader Development



Method

A convergent mixed-methods design was selected for this study in order to better understand how doctoral students' quantitative evaluations of faculty mentoring competency aligned with qualitative explanations from personal interviews. The goal of convergent mixed methods is to independently analyze quantitative and qualitative data, separately, and then to merge the data to assess how they expand understanding by interpreting the extent the quantitative and qualitative results converge and diverge. (Creswell & Plano Clark, 2017). In addition, qualitative and quantitative data provide different information, and when taken together, can create more in depth understanding of psychological phenomena (Campbell & Fiske, 1959).

The population of interest in this study were doctoral students at a southeastern tier-one research institution that served as official, part-time, or one-time members of a club known as the Graduate Student Council (GSC). GSC members communicate with the university regarding student needs and disburse travel grants. Student members must attend monthly general body meetings, vote on policy, and report back to their home department. This population was selected because the students involved with GSC were thought to be more likely to have had leadership experiences or the desire to act as a leader while pursuing a doctoral degree.

From this population, self-selection sampling was used to generate subjects. Public announcements were made at three general body meetings in October, November, and December 2019 to request participation in a short online survey and a semi-structured personal interview. 16 interviews were conducted during the Fall 2019 semester, with 13 conducted face-to-face and 3 conducted using the Zoom online meeting platform. All participants were provided informed consent and this study was approved by the Institutional Review Board (IRB201901870).

The 16 participants in the study included 14 women (87.5%) which was significantly different than the distribution by gender of doctoral students at this institution (50.85% female) and the distribution of registered GSC representatives (59.40% female). This is congruent with previous research that has indicated that female graduate students perceive mentoring relationships as significantly more important than do their male counterparts (Liang et al., 2002). The participants ranged in age from 24 to 55, with an average age of 32.3. All 16 participants were full-time doctoral students. Fourteen of the participants (87.5%) had been in their program for at least one full academic year. Students were asked to self-select their primary area of research. Seven students (43.5%) selected social science, four (25%) selected lab-based basic research, two (12.5%) selected field-based applied research and lab and field-based research respectively with one (6.25%) choosing clinical science.

The Mentoring Competency Assessment (MCA) designed by Fleming et al. (2013) that identified six competencies thought to be critical for effective mentoring in research settings was utilized for this study. These competencies include maintaining effective communication (MEC), aligning expectations (AE), assessing understanding (AU), fostering independence (FI), addressing diversity (AD), and promoting professional development (PPD). The mentee version of the MCA uses a 7-point Likert scale in which 1 = "not at all skilled," 4 = 'moderately skilled," and 7 = "extremely skilled" (Fleming et al., 2013). The MCA was previously found to be valid and reliable for mentees working in academic research settings (Fleming et al., 2013).

The interview questions were designed by two researchers which included a faculty member and a doctoral student who served as the primary research team on the study. The interview question design was guided by Bandura's (1986) social cognitive theory and the Coers (2017) model and conducted in three phases by both researchers on the project. The initial interview guide included 40 questions, and after three meetings between the research team, were eventually reduced to 15 items.

Coding was conducted on all 16 interview transcripts by a single researcher using a priori coding. Codes were developed through analytical theoretical triangulation, which involved a deductive approach to coding based on a review of the transcripts while also accounting for the competneices measured by the MCA, and pre-existing theory on the development of leadership self-efficacy (Ravitch & Carl, 2015). In addition, Creswell and Creswell (2017) recommended being open to emergent coding in a priori design as long as researchers can codify emergent themes into the research framework. Researchers strived to elucidate maximum understanding by analyzing where quantitative and qualitative data converged and diverged. Quantitative and qualitative data were collected on all 16 participants and analyzed in a side-by-side comparison (Creswell & Creswell, 2017). Validity was maintained by recording an equal sample size in both the quantitative and qualitative sampling. In addition, member checking was conducted with all participants to verify the credibility of the interview findings.

Reflexivity Statement. My interest in mentoring research stems from two areas: my personal experience with effective mentoring and my professional work as an academic advisor where I witnessed firsthand the devastation caused by ineffective faculty mentors.

My personal experience with mentoring has been overwhelmingly positive. As a 37-year-old heterosexual middle-class white male raised by two parents in a relatively liberal university community, I have had access to many mentors that were similar to me in appearance and ways of thought. I was also privileged enough, given my family's financial support, to pursue a B.S. in Psychology and an MBA prior to beginning my doctorate. I personally experienced the career benefits associated with professional mentoring from an early age, especially through informal mentoring relationships. My educational background, work ethic, and ability made it so that many more experienced professionals were happy to have the chance to guide me developmentally without my having to ask for the opportunity. Consequently, I have had strong developmental guidance from the time I first started working in 2003 and continue to experience high quality mentoring as a doctoral student in 2020.

It was not until I began my work as an academic staff member in 2009 that I recognized that other people struggled to find these developmentally critical mentoring relationships. From 2009 to 2019 I witnessed the full spectrum of good and bad mentoring relationships between graduate students and faculty and how the quality of these relationships impacted graduate education. As time progressed, I became curious as to why some relationships were successful and others incredibly dysfunctional. This curiosity guides my current research. I want to understand what graduate students experience in mentoring relationships and how their perceptions impact them developmentally.

Results

Objective 1. The first research objective in this study was to identify student's quantitative evaluations of their primary faculty advisor's mentoring competency. The average of the 16 participants evaluation of faculty mentoring competency was 4.86 based on an average of all 26-items on the MCA, with a low of 1.62 and a high of 6.96 (see Table 1). Six of the sixteen students in the research project evaluated their advisor as below average overall, while a seventh participant scored at 4.88, just slightly above average. In the six MCA competency areas, eight students scored faculty skill in maintaining effective communication (MEC) and fostering independence (FI) as below average, the most of any category. Seven students rated faculty ability in assessing understanding (AU), addressing diversity (AD) and promoting professional development (PPD) as below average. Aligning expectations (AE) was rated as below average

Table 1:

Participant Evaluations of Faculty Mentoring Competency

the least, with only six students reporting ineffective faculty mentoring in this area.

Participant #	MEC	AE	AU	FI	AD	PPD	Overall
1	6.80	7.00	7.00	7.00	7.00	7.00	6.96
2	7.00	7.00	6.33	7.00	7.00	7.00	6.92
3	6.83	7.00	6.33	7.00	7.00	7.00	6.88
4	5.83	6.20	6.67	6.00	6.00	5.40	5.96
5	6.17	6.00	4.00	6.80	4.50	6.20	5.88
6	6.33	6.20	5.67	6.20	5.00	5.00	5.85
7	4.67	5.60	5.33	6.20	7.00	7.00	5.85
8	6.50	4.80	7.00	6.80	7.00	3.40	5.73
9	6.40	5.80	4.00	4.80	6.00	4.80	5.32
10	4.00	5.20	6.00	4.00	4.50	6.00	4.88
11	3.50	4.20	6.67	4.20	3.00	3.00	4.00
12	4.67	2.80	3.33	4.00	6.00	3.20	3.85
13	3.67	3.60	4.33	3.40	4.00	3.00	3.58
14	2.17	1.80	3.67	2.80	3.50	2.60	2.58
15	3.00	1.00	1.67	2.00	1.00	1.80	1.88
16	1.00	1.20	1.67	2.20	1.00	2.40	1.62
Average	4.91	4.71	4.98	5.03	4.97	4.68	4.86

Objective 2. The second research objective in this study was to identify the faculty behaviors associated with above and below average mentoring assessments. A thematic analysis of participant interviews was conducted to examine student perceptions of faculty mentoring behaviors, with consideration given to whether a student had quantitatively assessed satisfaction with a specific competency above or below average. Several faculty behaviors were identified by multiple participants as being effective or ineffective across MCA competency areas (see Table 2).

Maintaining effective communication (MEC) was mentioned by all 16 interview participants as the most important quality of effective mentoring in a graduate context. All eight students who rated faculty skill in MEC as above average indicated that their advisors were trustworthy, easily accessible, and proactively scheduled regular meetings or check-ins. The qualities of ineffective communication were described as behavioral inconsistency that promoted a lack of trust, infrequent and ineffective feedback, and a lack of accessibility or regular meetings with students. These negative qualities existed on a spectrum, with lower MEC scores including all three, while scores closer to the average only included one or two.

Aligning expectations (AE) was only explicitly mentioned by one student during the interview process. What was instead discussed in every interview was the desire to work with a mentor who was engaged in the student's research objectives and who was willing to set shared goals and to develop strategies to facilitate research projects (both questions measured by the MCA). There was a clear division between students who rated AE above

average in that effective mentors were perceived to be involved and engaged in this facilitation and goal-setting process. The only exception was in the case of a student whose advisor was engaged, but who was unable to provide the student with adequate resources to complete the project to the participant's standards. The advisor in this case was unable to come up with an alternative solution and consequently the student scored AE at 4.80, the lowest in the above average score.

Table 2:

Thematic Analysis of Above and Below Average MCA Scores by Competency

	Above Average Scores	Below Average Scores
MEC	Student trusts advisor to follow through with shared tasks (8/8)	Lack of trust due to behavioral inconsistency or perceived lack of support (6/8)
	Advisor provides regular and effective feedback (8/8)	Advisor does not provide regular feedback and/or the feedback is unhelpful (5/8)
	Regular scheduled meetings between mentor and mentee (8/8)	Advisor does not set regular meetings and/or is typically hard to reach (5/8)
AE	Advisor is actively involved in helping students plan and carry out their research projects (9/10)	Advisor is disengaged from student research interests and does not help facilitate research projects (6/6)
AU	Advisor actively seeks to understand student goals, interests, and/or psychological needs and provides resources to meet those needs (9/9)	Advisor does not understand student needs as it relates to professional goal setting, training, and/or psychological needs and does not provide adequate resources to meet those needs (6/7)
FI	Advisor provides students with experiences that build confidence over time (8/8)	Advisor is too hands-off and has not provided adequate scaffolding or training to build student confidence (8/8)
	Advisor is trusted to "have the student's back" especially in research settings and when dealing with external forces (7/8)	Student perceives that their faculty member does not "have their back" (6/8)
	Advisor is passionate, motivational, inspirational, and/or accomplished (7/8)	Advisor tries to micromanage or control student (3/8)
AD	Despite any differences, student and advisor are able to have a comfortable relationship (6/9)	Differences between advisor and student cannot be overcome and student is uncomfortable around the advisor (5/7)
PPD	Advisor is actively involved in the professional community (9/9)	Advisor is not perceived as a role model (7/7)
	Advisor supports and/or models a healthy work/life balance (8/9)	Advisor is not involved with the professional community (5/7)
	Advisor provides networking and collaborative opportunities (7/9)	Advisor does not provide student access to a professional network and does not provide collaborative opportunities (5/7)
	Advisor is viewed as a role model (7/9)	Advisor does not actively support or model a healthy work/life balance (3/7)
	Advisor is viewed as ethical (7/9)	

group.

Assessing understanding (AU) was another competency where participants only discussed the behavior of mentors in a single area: the ability of the mentor to understand and serve their needs as it relates to training, goal setting, and psychological needs. Students who rated their faculty as above average in AU consistently discussed the ability of their advisor to proactively explore student needs and interests. For students who scored their advisors below average, each student mentioned a benign ignorance and misunderstanding of student needs at best, or at worst, a self-involved lack of concern for student interests. The only exception was participant 5 (AU=4.00) who admitted that, by no fault of the advisor, the mentor could not understand the student's needs because of differences in age and gender that made the student uncomfortable and unforthcoming.

Participant responses during the interview process suggested that mentors must walk a fine line to effectively foster independence (FI). Students who evaluated FI as below average universally reported that faculty were too hands off. Although the concept was only mentioned once during the interviews, students in different ways expressed their desire for scaffolding in their graduate training. In other words, participants wanted faculty to progressively provide more challenging goals and less direct supervision over time as students became more experienced and comfortable. In below average cases, faculty did not provide the proper scaffolding and students had too much independence which many viewed as indifference. Consequently, students felt demotivated, unconfident, and unsupported. The lack of support was a big factor for below average evaluations of FI, and was often expressed in terms of, "not having the student's back" or "not being on their team." One trait that was unique to above average mentors in FI was being professionally accomplished and inspirational. Faculty who could manage their many professional responsibilities with grace, who were passionate about their research, and who were recognized for their acumen in their disciplines were much more likely to be viewed as effective at FI because they were more motivational and inspired confidence.

Addressing diversity (AD) was not discussed at great length in most of the interviews. The most important aspect of this competency for students was forming strong personal or professional relationships with their mentors. In some cases, the differences between mentors and students were so great that it caused discomfort. This was far more likely with mentors who were viewed as less effective in other mentoring competencies, especially MEC. AD was viewed through many varied lenses, including faculty helping international students adjust, helping first generation graduate students feel comfortable in their programs, and supporting creative student pursuits. AD and AU were often interconnected in the interview process. Five of seven faculty who scored lower in AU also scored below average in AD.

Promoting professional development (PPD) was the lowest scored faculty competency on average. The most important behavior identified in all nine above average faculty advisors was active mentor involvement in the department from a leadership perspective. This tied in closely with serving as an effective professional role model and collaborating with other researchers. In all instances of below average PPD, the advisor was not perceived as a role model and was not actively involved in the department. In the two exceptions, the advisors were involved in administrative leadership positions, but the students viewed mentor motivation in both cases as self-serving and therefore not the actions of a leader or role model. Other behaviors identified as important to above average ability in PPD were modeling a healthy work-life balance and showing strong ethics. Only three students in the entire study viewed their mentor as being unethical, and those three participants scored overall mentoring the lowest in the study, suggesting that perceptions of unethical behavior are extremely detrimental to perceptions of effective mentoring behavior.

Objective 3. The third research objective in this study was to investigate the impact of mentoring behavior on the antecedents of self-efficacy. The previ-

ous thematic analysis of the quantitative assessment provided the framework with a list of behaviors of both effective and ineffective mentors (see Table 2). Faculty had the greatest impact on the development of leadership self-efficacy when students were able to participate with them in mastery experiences that involved research collaboration. For example, mentors that provided students with the independence to choose collaborative projects while also providing verbal support greatly increased student leadership self-efficacy.

> *When we went to the second meeting of this project, my advisor stood up on my behalf and said, If she's going to be doing most of the work and analysis and methodology on this, then (student) should be the first author on it. And I really appreciated him setting that really firm expectation and having open and honest communication with our group in a way that was just firm, but fair and open to discussion. It made me feel like that's something that I would want to do on my own the next time too. And now that I've seen it happen, I feel more comfortable (Personal Interview, December 19, 2019).*

These types of mastery experiences were only possible when students and faculty had open lines of communication. Faculty without effective communication in place would often miss opportunities to have these types of experiences with students. When faculty missed out on these opportunities, it severely damaged the mentoring relationship. In the next example, a student had attempted to communicate their interest to participate in a shared research project on multiple occasions, and the advisor was too disorganized to remember.

> *My advisor invited me onto a paper over a year ago, and I said yeah I'd do whatever needs to be done, but I haven't heard anything about it since. Then later, apparently at a meeting to evaluate graduate students, someone said, "well, your student hasn't had any publications," And apparently, my mentor said that he had invited me on a paper but I wasn't interested. So that's frustrating (Personal Interview, December 2, 2019).*

However, when students work on shared projects with faculty the opportunity exists for these mastery experiences to facilitate leadership self-efficacy, but only if the faculty provide effective feedback. One of the most frequent complaints of students in below average mentoring evaluations was a lack of effective feedback which often left the students feeling like they were learning on their own which significantly increased their emotional arousal.

> *What I'm realizing at this point is that if I want to become a researcher I really have to learn it myself. And I can't really expect much guidance from (my mentor) on that, which I hadn't realized till recently, which is kind of a disappointing thing to realize. I had to reach out to other people (in my department) to try to get more of that feedback, which is a bit awkward, because I think they all assume I'm getting it from my advisor (Personal Interview, December 13, 2019).*

The interviews showed that many students shared feelings of impostorism, and those without effective mentors had significant thoughts about quitting their graduate programs. Thoughts of leaving graduate school were far more prevalent in the below average mentored group. However, effective faculty mentoring behaviors could overcome feelings of self-doubt. Participant 6 who rated their mentor as effective in all six MCA categories reported the following:

> *I think (my mentor) is really amazing. I've heard a lot of horror stories about mentors and how it can really make or break the experience. And she has 100% made my first and second year bearable and made me stop questioning that I want to be in graduate school (Personal Interview, October 31, 2019).*

This level of mentor support was highly predicated on faculty being regularly available and accessible which allowed them to understand graduate student needs. Students that didn't feel like their faculty were available did not repoting having access to as many

mastery or vicarious experiences to improve their self-efficacy, and often felt unsupported, which was a critical piece of the mentoring relationship students discussed in every interview. Participant 12 entered their program with a great deal of confidence and also received what they described as strong in-class training in their program. But even so, their confidence was reduced over the duration of the program because of inconsistent communication with their advisor which led to them withdrawing from their peers and engaging in fewer research experiences.

> *I think I wish (my mentor) was more intellectually involved in my work in general because I think that would help him give better feedback. But I realize now that he has never really been that intellectually involved from the beginning so there is no reason to expect that's going to change at this point. I could fall off the edge of the planet and he wouldn't even realize it (Personal Interview, December 13, 2019).*

Students that were able to meet with their faculty regularly to receive feedback felt much more supported, even if they had less confidence entering the program. One student who was coming back to school after many years working was nervous about pursuing a PhD, but regular faculty access made them feel supported, and that support improved their leadership self-efficacy.

> *I was very nervous going back (to get a PhD) but I don't feel nervous anymore because I know that my advisor has got my back and that he is very invested in my success… so I just I feel very supported… He is very good about making a point to meet. He provides very thorough feedback. Very, very thorough. He will let me know if I'm on the wrong track or if I need to correct myself (Personal Interview, December 17, 2019)*

Student leadership self-efficacy, however, did not appear to be heavily influenced by faculty providing verbal persuasion for non-research related leadership experiences. Participant 13, who evaluated overall mentoring as the fourth weakest of all participants, was not encouraged by their mentor to participate in student leadership activities but still participated:

> *(My mentor) said don't get involved in these (student) organizations, because it's a waste of time. You can be working on your dissertation, a publication and all this stuff. The burden of all this extra work doesn't really advance careers. I was the (leadership position) of one group for a year, another position of another group for a year. So I did a lot even though I had people tell me I probably spent too much time working on that stuff. But I think these organizations are helpful (Personal Interview, December 2, 2019).*

In addition, faculty who did not model effective leadership and were withdrawn and uninvolved from their own department also did not detract students from leadership. Participant 8 held a position of leadership in their department student organization despite their faculty advisor being apathetic towards involvement in department activities.

> *My advisor is a good scientific advisor but in order to be a good leader you have to be more involved with other people (in the department). My advisor doesn't have time to do that, and I think a leader should know the situations of the people who work with them to facilitate ways for them to achieve their goals. My advisor does not do that (Personal Interview, December 4, 2019).*

In both previous cases, participants were encouraged by other students in their department to engage in student leadership. The doctoral students who were the most involved in leadership positions did so because of a tight-knit community within their student cohort.

Participant 16 was extremely dissatisfied with the mentoring ability of their advisor but commented that their student cohort was strong, which encouraged participation:

> *"(My advisor) can be really frustrating. You can't be vulnerable, and you have to be careful with what you say because you don't want them to*

> *take it the wrong way. It's a constant dance and can be exhausting some days. But I have had a lot of great experiences with the other graduate students. I participate in our student club and I actually quite enjoy that. It's a little time consuming. But I like it. (Personal Interview, December 2, 2019).*

An active and involved student community provided participants vicarious experiences and verbal persuasion necessary to overcome the negative emotional arousal of graduate school and ineffective mentoring. However, this community was often facilitated and nurtured collectively by multiple graduate faculty and other leaders within a department. Participant 3 commented on how the environment created by the faculty helped to nurture an involved graduate student community:

> *I would say that the faculty and the graduate students are very aware of the importance of leadership. And so they make a point to do best practices. They've created a very inclusive environment, among the grad students and among the faculty to the grad students. So it's on both ends, I know that as a graduate student, I can send a message out to any of my fellow grad students asking for help or advice and they come running. Our faculty is very open door. So you can just kind of stroll in sometimes, and they're there. So I feel like they model best practices of leadership because they understand what leadership is and the importance of that (Personal Interview, December 17, 2019).*

Leadership self-efficacy in graduate students appears to be driven collectively by active involvement with other students. However, active student cohorts must be nurtured by faculty and administrators who model a collaborative atmosphere. Although one faculty member may not be influential enough to discourage interactions between students, a group of faculty members disinterested in collaboration can stymie graduate student social interactions within departments. The power of student community can overcome even the worst individual mentoring experiences to keep students involved, however. Participant 10 had a tumultuous graduate school experience and described several ineffective mentoring experiences but still reported the following:

> *I'm really not a joiner you know what I mean? But even me, like cynical, jaded, incredibly busy, me, I make time to do stuff to support my cohort because I know that everybody's in the same boat. And I like all of those people. I want to support them. When I got my grant, which was, as I said, a shock, the first thing that I did was email everybody who's writing a grant for the next cycle and said Hey, get in touch with me, and I'll give you my grant. And I'll give you all the tips that I learned and tell you everything that I did. And I really like that kind of stuff. Somebody did that for me and I wanted to give back (Personal Interview, November 5, 2019).*

Students who received ineffective mentoring and who did not have a strong student cohort possessed the lowest levels of leadership self-efficacy in this study. Students who did not receive effective feedback, lacked mastery experiences, and who worked in departments with weaker student communities had much higher levels of negative emotional arousal and a lack of confidence that inhibited their participation with other students and with research experiences.

> *I'm not doing the research for the love of research anymore. And I think that a lot of that is the fact that I was never trained on how to do research. I'm so self-conscious about my ability to do research. I don't feel like I have the chops in research at all. And that makes me so afraid to interact in that environment because I was never like, taught how to do it. I'm going into my fifth year of nothing but bad things and it like weighs on you and I have aggressive imposter syndrome (Personal Interview, October 23, 2012).*

This student had an ineffective mentor and also worked in a department with a dysfunctional leader-

ship environment which included a weak student cohort, divided faculty, and dysfunctional department leadership. Consequently, they had very low leadership self-efficacy despite entering the program with many previous leadership and research experiences and high confidence. This final example demonstrates that especially in unfavorable conditions, faculty mentorship is critical to the development of doctoral student leadership self-efficacy.

Discussion

The purpose of this study was to explore the role of faculty mentoring functions and the department leadership environment in promoting leadership self-efficacy (LSE) of doctoral students using the Coers (2017) leadership development model as a framework. The primary finding drawn from this research is that effective faculty mentoring behavior can improve leadership self-efficacy when students have regular and relevant mastery experiences combined with regular verbal support. Vicarious experiences and verbal support through the student community and a collaborative department leadership environment were also found to be important factors influencing student LSE.

There are many publications that suggest effective mentoring behaviors (Johnson, 2016; Searby et al., 2020). This study suggests that maintaining effective communication (MEC) is the most important mentoring competency for promoting leadership self-efficacy. Three themes emerged when discussing MEC: accessibility, trust, and constructive feedback. There are many stressors in graduate school, and faculty can only mitigate and appropriately educate their mentees when they are trusted, give timely and relevant feedback, and are regularly accessible to provide affirmation, encouragement, and support (Blackwell, 1989; Forehand, 2008; Johnson, 2016). In this study, MEC acted as a prerequisite for all other mentoring behavior. Without MEC, faculty could not align expectations, understand their mentees needs and goals, or provide opportunities to foster independence and provide professional development.

Rose (2003) reported that faculty providing direct guidance was one of the most desirable characteristics of an effective mentor. Students in this study who reported regular meetings and verbal support from mentors were more likely to communicate their expectations and interests to their mentors. Students who evaluated faculty mentoring skill as above average in MEC were also more likely to experience increased confidence and have more access to independent assignments (element of FI). Participants who reported greater skill in FI described more positive mastery experiences and guidance from their mentor. Previous research has shown that leadership self-efficacy is positively influenced when individuals are provided sequentially challenging assignments and who also receive support and feedback (Machida & Schaubroeck, 2011, Seibert et al., 2017). Students in this study who perceived strong faculty skill in MEC reported more personal mastery experiences and felt that work-life balance (element of PPD) was better recognized by faculty mentors. It is important to note, however, that dysfunctional leadership environments (DLE) within departments coincided with reduced student perceptions of effective communication from their advisors, and this dysfunction hurts the development of leadership self-efficacy. This study also found that collaborative and collegial student and faculty cohorts were important to the development of graduate student leadership self-efficacy.

Research has suggested that doctoral students require guidance through institutional politics, norms, skills, paths for advancement, and common stumbling blocks (Levinson, 1978; Rose, 2005). Without guidance in these areas, doctoral students can become anxious and focused on survival and can miss out on educational and leadership experiences (Johnson, 2016). Six of the sixteen students in this study identified their department as having a dysfunctional leadership environment (DLE). All six of these students also reported mentor skill in MEC as below average and reported higher levels of negative emo-

tional arousal, less verbal support, and fewer mastery experience opportunities or positive vicarious experiences. An effective mentor must intervene to support doctoral students in dysfunctional leadership environments (Blackwell, 1989). This protection can mitigate DLEs and increase leadership self-efficacy by reducing emotional arousal (Bandura, 1986; Johnson, 2016). Faculty who are not accessible cannot provide this level of support.

Egan (1989) and Posselt (2018) found that high self-esteem in doctoral students was driven by self-confidence, feeling worthwhile, and being accepted, and it has been thought those feelings must come from faculty mentors due to a lack of formal structures in graduate school. However, both also suggested that students self-determine these qualities based on the context provided by their culture and the attributes of their primary socializing body, so students may seek those feelings from their student cohort rather than their advisor as it relates to leadership development (Egan, 1989; Posselt, 2018). In addition, current research has suggested that individuals must self-identify as a leader and purposefully reflect on the social interactions of leadership in order for leadership development to be more effective (Day 2000; Epitropaki et al., 2017). None of the students in this study had explicit or intentional dialogues with advisors regarding leadership despite several students and faculty both holding leadership positions across campus. Consequently, doctoral students did not regularly reflect on leadership nor describe their work with their advisors as leadership experiences. However, graduate students did talk to each other about leadership. This may explain why collaborative and collegial student cohorts were also important to the development of graduate student leadership self-efficacy in this study.

There are several limitations in this study that must be considered. First, student perceptions of leadership self-efficacy and faculty mentoring competency can change suddenly and dramatically. Further studies with repeated measures over time should be conducted to better understand how mentoring behavior impacts leadership development. Second, students from this study came from only one institution, and were already associated with leadership positions, although many on a limited basis. Further studies should attempt to purposively select students not involved in voluntary leadership positions. Third, faculty were not involved in this study. It would be valuable to consider if the perceptions of students in this study align with faculty perceptions of the mentoring relationships and department level dysfunctional leadership environments.

Many departments, colleges, and institutions in higher education place different weight on the importance of leadership preparation in doctoral students. Further research should explore differences between these units to determine how different research training traditions influence the development of leadership self-efficacy in doctoral students. Further research should also be conducted to determine exactly how and why poor administrative leadership and a lack of faculty collaboration in a department weakens student cohorts and inhibits the growth of student leadership self-efficacy.

This study has important implications for leadership educators at the graduate level. Few standards exist for what formal methods should be included in doctoral training in leadership educator graduate programs (Boyd et al., 2019). Even less is known about the informal pathways in which doctoral students socialize into leadership professions as scholars (Seemiller & Priest, 2015). Although mentoring is often cited as key in retaining and preparing doctoral students and especially leadership educators, little is known about how mentoring behaviors influence the development of leadership self-efficacy (Boyd et al., 2019). This study is significant to leadership educators in that it provides explicit guidance on effective mentoring behaviors that can enhance doctoral student leadership self-efficacy across disciplines.

Conclusion

This research project was designed to investigate leadership self-efficacy in doctoral students, a critical population which requires leadership development to become effective research professionals (Keck et al., 2017; Tebes & Thai, 2018; Terry & Liller, 2014). This research is important because it provides practical guidance on how faculty can improve leadership self-efficacy in doctoral students through effective mentoring behaviors. Graduate departments can support doctoral student development by creating a culture that demands accessible faculty and regular meetings between mentors and mentees where leadership identity in a research context are explicitly addressed. Students must identify as leaders before they can experience effective leadership development, so explicit discourse between faculty mentors and their students represent an important informal educational opportunity for leadership development in a research context (Day 2000; Epitropaki et al., 2017). With regular meetings faculty mentors should be able to understand the needs and aspirations of their mentees. More understanding should allow a better alignment of expectations. This alignment should ideally lead to more opportunities for students to engage in relevant and progressively more challenging experiences that promote confidence and independence which fosters the growth of professional identity. Once professional leader identity develops, faculty can provide appropriate learning opportunities which will promote the development of graduate student leadership self-efficacy in their professional careers.

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