LEARNING DOCTORAL SUPERVISION IN EDUCATION: A CASE STUDY OF ON-THE-JOB DEVELOPMENT OF EFFECTIVE MENTORING PRACTICES

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ABSTRACT

Aim/Purpose	In this case study research, we aimed to understand the development of effective doctoral supervision practices in Educational Research by examining supervisors' experiences as doctoral students and how they learned their evolving supervision and mentoring roles as professors.
Background	Doctoral supervision is shaped by institutional systems, program structures, research cultures, and national guidelines. Supervisors impact doctoral students' research experiences, academic success, and personal growth. Many new professors lack formal training, rely on their own experiences being supervised, and learn how to supervise effectively through trial and error and on the job.
Methodology	Our case study research involved interviewing five tenured, mid-career doctoral supervisors who were deemed effective based on doctoral student completions. Using reflexive thematic analysis and evaluative coding of interview transcripts, we identified two key findings and nine themes to describe supervisors' experiences as doctoral students and their on-the-job development and practices as supervisors.
Contribution	This study highlights how experiences being supervised as a doctoral student impact and influence the development of supervision practices in combination with various experiences of learning on-the-job during one's academic career.

	We expand understanding of the complexity of supervision practice and uncover differences between contemporary contexts and past experiences being supervised. We demonstrate how several supervisors translated impoverished experiences with their own supervisor into targeted efforts to learn how to effectively supervise their own students, to change history, and to deliberately not supervise the way they were supervised.
Findings	Two findings are presented: (1) experiences being supervised influence early supervision practices, and (2) learning to supervise on-the-job happens in a variety of ways. Nine themes describe how supervisors' experiences being supervised influenced their supervisory practices and the various informal on-the-job development approaches, such as learning from students, colleagues, and prior career experiences. Findings highlight the roles of doctoral supervisors, academic peers, doctoral students, programs, and institutions that contribute to developing effective supervisory practices. In our case study, we demonstrate how supervisors can transform academic and research cultures over time.
Recommendations for Practitioners	Institutions, programs, and supervisors play crucial roles in ensuring doctoral student success. Institutions should offer structured professional learning and peer mentoring that supports supervisors in developing effective practices early in their careers. By leveraging study findings, institutions can design professional learning opportunities that increase faculty adoption of effective supervision practices and accelerate their learning.
Recommendations for Researchers	Given the vital role played by supervisors in research training and talent development of the next generation of researchers and leaders across society, we argue it is crucial to understand and optimize the ways in which doctoral supervisors develop effective supervisory practice as a matter of ongoing research interest. Future research can investigate the importance of intergenerational learning and knowledge transfer in academia, encouraging a more reflective and informed approach to supervisory development.
Impact on Society	Findings can inform how to maximize individual, institutional, and governmental investments in higher education. This research can improve outcomes in doctoral education by expanding effective, research-informed development of supervisory practices. Quality supervision impacts doctoral students' academic success, mental health, and career progression. Understanding supervisory lineage enables universities to enhance current and future doctoral experiences.
Future Research	Four questions are provided to guide and promote supervisory development and ongoing research. There is an ongoing need to examine how supervisors and doctoral students define the impact and outcomes of successful supervision and mentoring practices beyond the completion of the thesis.
Keywords	doctoral supervision, effective mentorship, educational research, supervisor development

INTRODUCTION

Doctoral supervisors play a critical role in shaping the next generation of researchers. As doctoral students navigate complex research journeys, effective supervision can be the difference between academic success and failure, making it one of the most vital yet challenging roles within higher education. Supervisory practices are embedded within institutional systems, disciplinary cultures, and national guidelines for effective research training (Bengtsen & McAlpine, 2022; Friesen & Jacobsen,

2021; Halse & Bansel, 2012; Social Sciences and Humanities Research Council [SSHRC], 2014). Research has long recognized the importance of supervision in doctoral studies. The demands on supervisors are increasing as graduate student populations become more diverse and institutional expectations grow in education, particularly the impact of supervisory practices on students' academic and personal development. Effective supervisors not only guide their students' research but also support their overall well-being and professional growth. Despite this recognition, there is still much to understand about how supervisors develop and enact effective supervision practices. Supervisors must navigate complex power dynamics, institutional pressures, and diverse student needs, yet the existing literature offers limited insight into how supervisors actually manage these challenges in practice. Specifically, there is a need to explore how supervisory practices are developed and influenced by broader institutional and programmatic factors and how supervisors can be better supported in developing supervision practices.

This study addresses these gaps by investigating how experienced doctoral supervisors developed effective supervisory practices on the job, with a focus on their experiences being supervisors and the institutional and programmatic contexts in which they work and learn. The research aimed to answer the following question: How do doctoral supervisors describe their experiences being supervisors and their on-the-job development of effective supervisory practices?

The paper proceeds as follows. First, it reviews the relevant literature on doctoral supervision, followed by a detailed explanation of the methodology used to investigate supervisory practices. The findings are then presented by highlighting key themes and insights on how supervisors navigate institutional and programmatic factors in their work. Finally, we offer recommendations for enhancing supervisory development and support within higher education in the discussion and conclusion.

LITERATURE REVIEW

To frame the complexities of doctoral supervision, this literature review applies the communities of practice conceptual framework, which views supervision as a situated social practice. This framework highlights how supervisory practices are co-constructed through mutual engagement, joint enterprise, and shared activities (Wenger, 1998) in pursuit of expertise within academic communities. Doctoral supervision, therefore, is not merely an individual endeavor but a relational process shaped by the institutional and disciplinary communities in which it occurs. This framework allows for a structured analysis of how supervisory practices are influenced by institutional and programmatic factors, providing a lens through which to examine the experiential development of supervisory expertise.

SUPERVISORY DEVELOPMENT

Decades of research call for more attention to supervisory development (Friesen & Jacobsen, 2021; Holdaway et al., 1995; Jacobsen, Alharbi, et al., 2021; Jacobsen, Friesen, & Becker, 2021; Wisker, 2012); however, formal opportunities for supervisory development tend to be superficial and are usually sporadic (Jackson et al., 2021), which is unfortunate and unhelpful (Raffing et al., 2017). Absent formal training opportunities, many new professors rely on their own experiences being supervised or learn the rules of the game on the job rather than being informed by sound theories or practices of supervision (Amundsen & McAlpine, 2009; Halse, 2011; Motshoane, 2023).

Historically, supervisory development has been considered a secondary concern, with minimal formal mechanisms in place. S. L. Smith (1991) emphasized the central role of supervision in graduate education in Canada. Yet, as the complexity of supervision practice becomes increasingly apparent (Fossland, 2023; Manathunga, 2007; Rouse, 2023), the need for structured, theory-informed supervisory development has become clear. The supervisor-student relationship emphasizes the significance of relational positioning and power within a broad catalog of supervisory practices (Hopwood & Frick, 2023; Rouse, 2023), where creativity vs production is in "the collective creation of conditions conducive to learning and identity work as a developing researcher" (Hopwood & Frick, 2023, p. 154).

Traditionally, approaches to learning about supervision often involved supervisors reflecting on their own experiences as a graduate student (Mahon, 2023; Richards & Fletcher, 2018; Rouse, 2023) and as an early career academic supervisor (Amundsen & McAlpine, 2009; Turner, 2015) with some supervisors repeating practices they experienced as students (Berdahl et al., 2022) and others who resist by doing supervision differently (Hopwood & Frick, 2023). In a self-study on early supervision experiences in the context of one's prior experience being supervised, an early career scholar reflected on tensions in negotiating personal and professional aspects of student-supervisor relationships, including finding balance, maintaining social relationships, and giving up control (Richards & Fletcher, 2018).

Research has demonstrated that doctoral candidates often emanate from vastly different starting points; they may be mature learners with extended family roles and responsibilities, have published articles, or are experienced working at a university as a lecturer or a researcher (Everitt, 2022). The supervisors recruited for our case study research described varied life experiences and role responsibilities during doctoral study and into the early years of their careers.

Guidance on the characteristics of effective relationships between students and supervisors has been sought across disciplines. In a naturalistic inquiry, with nine supervisor–student pairs from applied professions, natural sciences, social sciences, and humanities, Buirski (2021) illuminated dispositional qualities, or mindfulness traits, that well-regarded doctoral supervisors embody in practice, such as support, easeful attitudes to time, meeting diversity with openness and flexibility, trust and respect, equality and power, and intentionality. Buirski (2021) argued that supervisors are embedded in academic cultures that do not tend to support or reward teaching and mentoring.

GAPS IN SUPERVISORY DEVELOPMENT

It is important to examine the ways in which effective doctoral supervisors were supervised and how they learned supervision on the job as they engaged in relationships with students. Our case study research is guided by this research question:

> How do doctoral supervisors describe their experiences being supervised and their on-the-job development of effective supervisory practices?

We aim to shed light on promising approaches to supervisor development and bring attention to the roles supervisors, academic peers, students, programs, and institutions play in developing effective supervisory practices.

While supervisory practices are recognized as crucial, formal training remains rare, and many supervisors develop skills through informal mentoring, trial and error, and observation (Jackson et al., 2021). It is rare for a doctoral program to incorporate the skills needed for graduates to become effective supervisors. Most often, supervisors develop skills and practices informally and through observation and experience. In a study with 21 experienced doctoral supervisors in nursing, Jackson et al. (2021) derived three themes to describe faculty experiences with supervisor development from informal mentoring from colleagues, learning through trial and error, and strengths and limitations in supervision training – "it's like tick a box" (p. 1062). Recently, researchers have advocated for formalized mechanisms and sustained instruction to support new academics in learning their roles and responsibilities as graduate supervisors (Carter et al., 2017; Fossland, 2023; Huet & Casanova, 2022; Jacobsen, Alharbi, et al., 2021). However, it is essential to investigate how existing informal learning processes occur and whether they adequately prepare supervisors to meet the evolving demands of their roles, particularly in the ways that supervisors transcend their own experiences and adapt to the complexities of contemporary doctoral education.

SUPERVISORY PRACTICE IN THE CANADIAN CONTEXT

In Canada, the higher education landscape presents unique challenges and opportunities for supervisory development. Policies from national funding agencies, such as the SSHRC (2014), shape expectations for supervisors, requiring them to balance research productivity with their mentoring responsibilities. Canadian universities have seen an increase in the diversity of graduate students, necessitating more inclusive and adaptive supervisory practices (Jacobsen, Friesen, & Becker, 2021). Research on Canadian academic supervision highlights the importance of supporting supervisors to navigate these pressures while fostering strong, effective supervisory relationships (Amundsen & McAlpine, 2009; Berdahl et al., 2022).

Our findings are contextualized within current Canadian (Amundsen & McAlpine, 2009; Berdahl et al., 2022) and international research on supervisory development, and the institutional and programmatic contexts in which supervision occurs, to provide recommendations for sustainable practices. First, our case study builds upon prior research on pre-tenured, early-career academics' experiences of supervision within the broader context of establishing oneself as an academic in Canadian universities (Amundsen & McAlpine, 2009). From interviews with eight assistant professors, the authors identified the purpose of the supervisor's role, such as creating goals and timelines, highlighting student progress, and remembering that "what 'worked' with one student need not work with another one" because "different students required different kinds of interaction and perhaps different kinds of supervision" (p. 335). Amundsen and McAlpine argue early career researchers regard the primary objective of supervising as the completed thesis, along with developing a sense of community "based on their own positive experiences being supervised" (Amundsen & McAlpine, 2009, p. 335). Regarding how one learned the supervisor role, the authors found "they were learning from and through experience and that more formal sources of learning, though desired, were not available" (p. 336). Notably, the pre-tenure, early career academics' "principal sources of learning were their own experiences as doctoral students and their own experiences as supervisors" (p. 336), which led us to question whether and how mid-career, tenured supervisors might remember their own experiences being supervised, and how they might describe the process of learning to be a good supervisor.

Second, Berdahl et al. (2022) summarize findings from a recent survey of 113 Canadian supervisors in political science. They determined that supervisors who did not experience a particular mentorship practice as a student still went on to engage in that practice themselves. This finding led us to question how supervisors developed practices that went beyond their own experiences being supervised. Our purpose in this paper is to extend this Canadian research on doctoral supervision (Amundsen & McAlpine, 2009; Berdahl et al., 2022) in two ways: (1) by exploring and expanding understanding of on-the-job learning by experienced doctoral supervisors, and (2) by focusing on the experiences of supervisors in education whose practice is considered effective.

From the broader literature, Wisker (2012) and Jackson et al. (2021) underscore the complexities of the supervisory role across disciplines. Wisker highlights the importance of reflective practice, while Jackson et al. emphasize the need for sustained, formalized training for supervisors. Our study aims to extend Jackson et al.'s (2021) research on supervisory development in clinical nursing with findings from supervisors in education. Notably, McChesney (2022) offers a critical perspective on trauma-informed postgraduate supervision, emphasizing the need for supervisors to learn how to address the emotional and psychological dimensions of doctoral education. This is particularly relevant in the current context, where the impact of the COVID-19 pandemic has heightened concerns about student well-being. These contributions, along with others from diverse international contexts, provide a comprehensive understanding of the evolving nature of doctoral supervision and the importance of adaptive, evidence-based practices.

METHODOLOGY

This study employs a qualitative and explanatory approach to case study research (Merriam & Tisdell, 2016; Yin, 2018) that identified five key enabling factors in effective online doctoral supervision and mentoring academic writing (Jacobsen, Friesen, & Becker, 2021). The use of a case study approach is essential for investigating the complex, real-life context in which doctoral supervision occurs. At the same time, thematic analysis (Braun & Clarke, 2006, 2019, 2021) allows for a deep exploration of patterns within the qualitative data collected from participants. These two methods work together – the case study framework provides the contextual boundaries, while thematic analysis develops the underlying themes and patterns in participants' reflections on their supervisory practices.

We interviewed five experienced doctoral supervisors from one Faculty of Education who demonstrated effectiveness in their supervisory practice by graduating one or more doctoral candidates in the past five years. Our third author, who served as a research assistant, interviewed the participants and anonymized the transcripts prior to thematic analysis by the research team.

Interview questions invited participants to reflect on their own experiences being supervised in graduate school, their perspectives and memories about the ways in which they learned how to be a good supervisor, and their approaches to working with doctoral students. While structured interview questions were used (see Appendix), the interviews were also responsive to topics introduced by each participant. Drawing upon the interview data, we examined whether and how our supervisor participants' experiences being supervised and ongoing learning experiences as a supervisor have influenced the development of the participants' current supervision practices and philosophy.

ANALYSIS

Interview transcripts were reviewed and coded by all three members of the research team using a thematic analysis (Braun & Clarke, 2006, 2019, 2021) approach. Rounds of inductive coding and review enabled us to identify two key patterns, such as experiences being supervised and learning to supervise. Patterns were defined further and named as themes through rounds of evaluation coding. Then, we used deductive coding and analysis using five key factors for effective student-supervisor relationships identified in earlier research (Jacobsen, Friesen, & Becker, 2021). We employed evaluation coding (Saldaña, 2016) to assess the participants' reflections, categorizing their responses into positive, negative, and interesting attributes. This evaluation coding was complemented by DeBono's (1983) PMI (plus, minus, interesting) tool to ensure a comprehensive examination of each participant's experience. This approach allowed for nuanced interpretations of the data, offering insights beyond simple dichotomies of positive or negative experiences. The positive, negative, and interesting codes were then categorized into themes, which were developed across the five participants.

In terms of our methodological integration, while Yin's (2018) case study approach provides the overarching framework for investigating the context-specific dynamics of doctoral supervision, the reflexive thematic analysis (Braun & Clarke, 2006, 2019, 2021) and evaluation coding (Saldaña, 2016) enabled us to systematically interpret the qualitative data within that framework. The case study method allowed us to focus on a bounded system – doctoral supervision within one Faculty of Education – while thematic analysis and evaluation coding facilitated a detailed exploration of recurring patterns and themes within that system. Together, these methods offer a comprehensive approach to understanding how supervisors develop effective practices in specific institutional contexts.

BRIEF DESCRIPTION OF DOCTORAL SUPERVISORS

The participants in this case study were recruited based on their reputations as effective doctoral supervisors. While the study selection criteria included success in graduating at least one doctoral candidate in the past five years, it is fair to say that this was a minimum threshold. In aggregate, the research assistant reported that the five supervisors in this case study were experienced, mid-career, tenured academics who had successfully supervised and graduated multiple doctoral candidates each

over the past five years. For each participant, although it had been many years since they completed their own doctoral dissertation, they readily recalled details of their experiences being supervised and reflected on ways they had learned, and continue to learn, how to be a good supervisor on the job.

FINDINGS

There are two major findings from the data: (1) experiences being supervised influenced early supervision practices, and (2) learning to supervise on the job happened in a variety of ways. In the sections that follow, we elaborate on the themes that were developed within each of the two key findings, provide data extracts to illustrate and tell the story of each theme and connect to insights from prior research. Gender-neutral pseudonyms are used to identify the five supervisors who engaged as anonymous participants in this case study: Hart, Aidan, Emery, Max, and Chase.

FINDING ONE: EXPERIENCES BEING SUPERVISED INFLUENCED EARLY SUPERVISION PRACTICES

The five doctoral supervisors in our study reported a variety of experiences as doctoral students, some positive, some negative, and some interesting, which aligns with Amundsen and McAlpine's (2009) statement, "clearly most participants had spent some time thinking about their own experience as a doctoral student, reflecting on what they had found and not found useful or helpful and positioning themselves in relationship to their own doctoral supervisor" (p. 336). We developed four themes from our analysis of supervisors' reflections and insights on their experiences being supervised.

Participants expressed low expectations for doctoral supervisors

Four of the five participants expressed low expectations of their supervisor and supervisory experience, characterized their experience being supervised as the norm, and, surprisingly, reflected on doctoral student experiences in ways that were not critical of the supervisor. Participants often communicated in matter-of-fact, emotionless terms, which suggests a belief that their experience "was just the way things were" and "you just put up with the supervisor you got." Hart, for example, described supervisory support in this way: "I met with my supervisor about three times during that period (4-5 years) and took an independent course from him, but didn't really have a lot of interaction and did most of it on my own." Hart's description suggests that a current expectation that supervisors provide structure and guidance in the doctoral journey (Amundsen & McAlpine, 2009) was missing from their own doctoral experience.

Hart's comment aligns with Amundsen and McAlpine's (2009) assertion that supervisors often reflect on their own experiences as doctoral students, positioning themselves in relation to their former supervisors. This reflection can influence how they approach supervision, either replicating or resisting the practices they experienced, which is evident in the participants' low expectations.

Emery's description corroborated Hart's account of how they compared their own doctoral history with current-day supervision practices in their institution.

> My supervisor ensured I had a workspace (office area). I had an office during my time as a student. I did courses. There was no support. I did my doctoral work. I don't recall being given opportunities to do a number of things that we offer our students today.

Both Chase and Aidan, while recalling a lack of structural support in their own experiences being supervised, relayed the importance of the relational, which may have served to alleviate concerns held about lack of support. Aidan recalled:

> There weren't a lot of processes and protocols in place; there were no checklists. That kind of thing, that just wasn't there. But because I had taken some classes with [supervisor] when

> I moved to a doctoral program, I felt we already had a relationship which was really positive. I felt very safe.

Chase also mentioned a prior relationship with their supervisor, who served on their Master's committee. "She was an interesting model because she was actually quite hands-off in a lot of ways. Just kind of, you know, trusting me to shape my own program." Both Aidan and Chase's focus on the relational, which will be explored in more depth in Theme 4, was expressed positively as if that was a key aspect of the doctoral experience.

These findings resonate with Hopwood and Frick's (2023) emphasis on relational positioning in supervision. The participants' reflections highlight the significance of building trusting relationships, which is a key element of effective supervisory practices, as noted in the literature. Relational dynamics, such as those described by Aidan and Chase, demonstrate the importance of creating a safe and supportive environment, a supervisory practice also explored by Rouse (2023).

Max, of the five participants, was unique in their accounting, as they became visibly emotional and reticent about audio recording the challenges they experienced with their supervisor.

> I remember one time I sat with her, and I said, "Who am I? Who are we? What is our foundation?" We never talked about that when I was a student. The words like epistemology, ontology, and stuff like that, we never talked about those things. So yeah, I sat in her office and said, "What, who are we?" And she said, "Well, read more." She said that to me.

In Max's case, although they did not name the lack of relationship with their supervisor, there was a sense they expected more in terms of one-on-one dialogue and relationship building regarding who they were becoming as a scholar. This theme of low expectations of supervisors reflects the findings of Parker-Jenkins (2016) and Turner (2015), who argue that mismatched expectations can lead to tension and dissatisfaction in supervisory relationships. Apart from Max, we surmise the other participants' lack of expectation played into their evolution and success as independent students. Perhaps because of their limited expectations for their supervisors, we suspect that supervisors linked the successful completion of their degrees to their own initiative and resourcefulness. We unpack this further in the next theme.

Participants noted their doctoral success corresponded to their own initiative

Building on the theme of low expectations, all five participants indicated it was their own personal responsibility and initiative that made the difference in overcoming any shortcomings of their supervisor. Hart stated, "I didn't feel badly about not getting a lot of personal contact. I learned to think that it was my responsibility to do the work … I just sort of was interested in figuring out how to do it myself. And so that, you know, it didn't hold me back." This sentiment about taking the initiative was echoed by Aidan, who articulated, "I did take a lot of responsibility as a student. He wasn't great with dates, and you know, those kinds of details that just weren't his thing. But, you know, in all honesty, that's not what I needed from him at that level. I was able to do that work myself."

Hart's and Aidan's comments align with Sørensen's (2016) and Sverdlik et al.'s (2018) findings that initiative and motivation are key determinants of doctoral success. The participants' reflections further support the argument that self-directed learning and personal responsibility are crucial for navigating the challenges of doctoral education, particularly in the absence of structured supervisory support.

Emery, whose supervisor left the university for another position in the middle of their doctoral program, described how they took the initiative and responsibility for maintaining the student-supervisor relationship at a distance. "I continued with my doctoral work with supervision at a distance. I'm very self-driven and was able to continue" [with my supervisor]. This statement indicates how it was Emery who took the initiative to make the long-distance relationship a success.

Chase indicated their supervisor provided broad reminders in relation to program goals but that the onus remained on them to manage their own doctoral program. "Every once in a while, she [supervisor] would come in and say, 'Okay, now you've got to start thinking about candidacy.' And I think after that I was pretty much the one who did, driving dates, and getting all of those kinds of things organized." Rather than describing their initiative as a student, Max expressed a sense of fragility, particularly in the case of their relationship with a supervisor who was "a star in the field." Max stated,

> I was always shy or couldn't talk. One time, we were doing data collection, which I was driving. She asked me a question. I didn't know what to say. So, the relationship wasn't personal enough for me. I froze every time she talked to me. That was interesting, but I did continue with her anyway.

We posit that Max's statement, "the relationship wasn't personal enough for me," speaks to a lack of relational trust with their supervisor (Friesen et al., 2022; Jacobsen, Friesen, & Becker, 2021). Even so, Max completed the doctoral program with the supervisor, which may indicate a sense of personal responsibility in making the relationship successful, especially given that their supervisor was "a star."

Initiative Sørensen (2016) and motivation (Sverdlik et al., 2018) have been articulated as determinants for doctoral student success. The five participating supervisors' reflections on their own experiences as doctoral students align with these two authors' arguments about initiative and motivation being key to their success in doctoral education. However, the participants' attention to supervisory pedagogy speaks more clearly to choices made by supervisors, which they found to be effective.

Participants attended to their supervisor's pedagogy

Participants attended to the pedagogical choices made by their supervisors, whether positive or negative, in becoming supervisors themselves. The patterns of "low expectations" coupled with "personal responsibility and initiative," however, reverberated in their comments. For example, Hart drew on their former experience and knowledge as an educator and administrator instead of modeling their approach on their former supervisor's practice.

> I don't think I learned very much actually. I'd say that I didn't have a really good role model … I guess I learned that when somebody really wants to do the work, you have to adapt the support to the person. My approach to supervision is more based upon my approach to teaching and my approach to supervising people in their work over a number of years.

Emery, who described a positive relationship with their supervisor, highlighted the importance of open and honest communication. "With my doctoral experience, I knew if I needed a conversation with my supervisor about my work, we could have the conversation. I think that the ability to be open about things is important." Interestingly, a great deal of Emery's attention in this statement is on taking responsibility as a student. Emery's focus on openness, however, carried through into their comments about their own pedagogical approaches as a supervisor. For example, when describing student requests to provide general feedback about the direction of the writing, Emery stated, "I appreciate such requests because that shows that it's a very open conversation, as opposed to 'I don't know what the supervisor will do or say.'"

Both Aidan and Max, who describe dramatically different doctoral experiences from each other, revealed insights into what pedagogy they adopted from their supervisors. Aidan stated,

> And rather than directing me, [supervisor's] style was to sort of nudge me with questions to consider … I could tell now in retrospect that he did direct me a lot, but he did it through questioning and through gently moving me to dig deeper and to look more critically at the research that I was taking up.

Max's struggle to understand who they were as a learner, teacher, and researcher required active reflection and developing a supervision pedagogy that differed from their own doctoral experience.

They stated, "It took me becoming a prof before I understood who I was as a student, and what my field was."

Two supervisors referenced positive role modeling by their own supervisor in learning how to be a good supervisor. Aidan, who experienced a relational approach as a doctoral student, described the same approach in their own supervision practice, namely, "very much focused on being guided by the relational in order to build the process. And [my supervisor] definitely leaned into that." Chase described their experience being supervised as a blend of direction and guidance, which is reflected in their own approach to seeking that sweet spot between the two.

Researchers have explored the pedagogical implications of the complexity found in doctoral supervision and students' need for diverse supports (Buirski, 2021; Halse & Malfroy, 2010; Major, 2023; McChesney, 2022; Richards & Fletcher, 2018; Rouse, 2023; K. Smith, 2022). Many suggest a focus on relational and responsiveness, which aligns with what participants in our study highlighted as critical to developing trusting relationships between supervisor and student.

Participants emphasized the importance of developing relational trust

Three participants – Aidan, Emery, and Chase – described the importance of developing trusting relationships with their own supervisor, while Max and Chase emphasized the importance of being part of a research team (Buirski, 2021; Friesen et al., 2022; Jacobsen, Friesen, & Becker, 2021) in their development as a doctoral supervisor. Student data collected by several researchers echoes these sentiments about trust and ideal supervision (Barnes et al., 2010; Bastalich & McCulloch, 2022; Davis, 2020). Of the five participants, Hart was the least expressive in describing trusting relationships as critical to their own success as a doctoral student. Referencing their supervisor, Hart shared, "We had a relationship through being involved in an organization, and so he was enthusiastic about what I decided to do my work on, but you know, didn't really get too involved in it until the very end." Hart indicated that initiative was a central aspect of their doctoral work. "I did a lot of reading of other dissertations, the coursework was good, I did the one research course in the PhD program, and that was really well done." The theme of personal responsibility and actions by the student versus the supervisor aligns with findings on the differing perceptions of roles and autonomy held by students and supervisors (Janssen et al., 2020)

Emery's description of taking personal responsibility for progress and success as a doctoral student follows a similar thread but with slightly more emphasis than Hart's on the relational. Emery stated, "I would send my work to my supervisor for feedback. I had a great relationship and great rapport with my supervisor." Aidan was explicit in describing their positive experience of being supervised.

> What I remember most is that I never felt any power differential. It just was not there. I mean, our roles were different, but I never felt that he assumed power over me in any way. And he was always responsive to any questions that I had … what impacted me most was how he engaged with me and recognized me as a whole person.

Aidan's exposure to a relational power balance was in stark contrast to the experience described by Max.

> I was asked to write an article on the topic of my PhD, but my doctoral research was part of the bigger research. So she kind of had a little bit of ownership on that … And after all, they gave it [authorship] to her because she has a bigger name. She said to me, "Well, the best wins."

We posit Max's retelling of this negative event signified a power imbalance, a lack of relational trust (Friesen et al., 2022; Jacobsen, Friesen, & Becker, 2021), and even exploitation (Dineen et al., 2024) by their supervisor.

The challenges of negotiating power in student supervisory relationships are well-documented and complex, given the expectations placed on both students and supervisors (Halse, 2011; Manathunga,

2007; Richards & Fletcher, 2018). Indeed, "the issue of power remains an integral part of any form of pedagogy" (Manathunga, 2007, p. 208). We note how the different ways in which Aidan and Max experienced power relationships as doctoral students appear to have influenced their own approaches to working with doctoral students. Aidan, for example, stressed the importance of relationality in supervision practice and getting to know their students "so that expectations I might have are reasonable and appropriate." The key for Aidan was "set[ting] up a trusting space … so that they [students] feel more comfortable to share with me."

Max commented on the importance of "trust," in their own approach by explaining, "For me, it's more, let's do it together." Max emphasized a team approach to supervision, describing their own opportunities to learn about supervisory practices from other scholars on various supervisory committees. Max stated, "I still learn when I have people on my committee who work in different ways with their students." We surmise that Max's emphasis on a team approach was influenced by the positive and equitable relationships formed when they were a doctoral student as part of a team research project in juxtaposition to their singular exploitation (Dineen et al., 2024) by their supervisor.

> I was working with a team that was really strong in [specialization] work and I had two profs working with us on this one. The supervisor that I had didn't work with us. So I saw really, the difference between a very strong team and one person working alone …

Working on a productive research team also had a memorable effect on Chase's experience as a doctoral student.

> That was phenomenal in terms of helping me understand how projects get conceptualized, how they get off the ground, how data collection is done, and the analysis. Really working through that whole range of a research project with experts, not just me on my own, you know, as I was for my Master's. I think that kind of scaffolding or apprenticeship was critical both in terms of the skills I learned and how to be part of a team and also the confidence in moving a large project forward.

Chase's experience with a research team, however, did not contrast or replace the support they received from their supervisor:

> She was incredibly supportive emotionally … But, you know, it was exactly what I needed and not somebody who was really you know, hard on me in those moments where I was having trouble coping. So, an interesting blend of hands-off and being very supportive.

The five participants expressed differing degrees of support from their former supervisors, which we posit reflects differing degrees of relational trust (Jacobsen, Friesen, & Becker, 2021). In considering the four elements of relational trust identified in effective student-supervisor relationships, namely, *respect*, *competence*, *personal regard* for others, and *integrity* (Friesen et al., 2022), we found that Max, for example, acknowledged their supervisor's *competence*, by relaying that she was a "star." However, in terms of *trust*, *personal regard*, and *integrity*, although Max was reluctant to overtly castigate their supervisor in the interview, the anecdotes shared indicate those elements were absent in the relationship. Conversely, Aidan's comments about their supervisor sharply focused on *respect*, *personal regard*, and a sense of *integrity* gleaned from their supervised doctoral experience. Both Max and Chase highlighted the benefits of participation on a research team during their doctorate, a finding that promotes the importance of a collaborative community of support and building trusting relationships with others in addition to the supervisor (Friesen et al., 2022; Jacobsen, Friesen, & Becker, 2021).

In this first finding, we note in participants' responses a generative approach to developing a responsive supervision pedagogy around practices that related to their own experiences being supervised, both positive and negative, the implementation of structural supports for students that did not exist for them as students, supportive connections to their academic peers as mentors, and for some, the role of personal and professional backgrounds. Our second finding elaborates on the variety of ways that supervisors learn on the job.

FINDING TWO: LEARNING TO SUPERVISE ON-THE-JOB HAPPENED IN A VARIETY OF WAYS

Our second finding captures stories from participants about learning to be a good supervisor on the job. In analyzing the data, we identified and named five themes to illustrate the variety of ways that professors told us they learned how to supervise: (i) learning from and with students; (ii) learning from colleagues; (iii) engaging in self-directed and experiential learning; (iv) learning from doctoral program design, and (v) learning from past teaching and leadership experiences.

Learning from and with students

All five of the doctoral supervisors described the importance of building relationships with doctoral students and how they learned to respond to each student's unique learning needs, expectations, and timelines. Max describes how they reflected on what did or did not work with a particular student and then applied that experiential learning over time and with more experience by tailoring their advice and guidance to the unique needs of subsequent doctoral students. Similarly, Hart describes learning from doctoral students over time, such that "my philosophy of supervision is that it needs to be matched to the needs of students and subsequently differentiated."

Learning from one's students resonates with Wenger's (1998) concept of communities of practice, where learning is co-constructed through shared experiences and interactions. The supervisors in this study are not only teaching but also learning from their students, participating in a reciprocal exchange of knowledge and ongoing reflection that contributes to the development of effective supervisory practices.

Aidan describes their practice of ongoing communication and feedback as learning with and from students: "After we have a conversation, I always ask the student to send me an email that captures in bullet points what their understanding was of what we discussed. I think that's really important because that gives me really good feedback as to what they comprehended or interpreted where there might be some disconnects." This theme also expands upon the "trial by fire" approach to learning supervision on-the-job expressed by early career academics (Amundsen & McAlpine, 2009).

Learning from colleagues

This second theme was identified from participants' stories about developing ideas and strategies for effective supervision from observing and interacting with experienced colleagues and translating those experiences into one's own supervision practices. Each of our participants described or referenced the value of learning how to respond to the complexities of working with diverse students from colleagues who were more experienced in supervision.

The five participants described ways in which they learned to become good supervisors by working alongside colleagues whom they trusted and respected. Learning from colleagues was said to occur on-the-job during formal and visible experiences, such as candidacy and thesis oral examinations, and during informal peer mentoring and role modeling the participants experienced in supervisory committee meetings. Max described the importance of choosing the right people for supervisory committees based on the doctoral student's research and methodology and how they learned how to supervise through careful observation of how colleagues explained concepts to students. Max concluded that "working with others helps really to help the student" and that there is a specific value in learning from diverse colleagues and perspectives. Max also demonstrated awareness that their own supervisory practice was visible to colleagues during exams where they desired to "measure up" as a supervisor by asking good questions.

The learning from colleagues theme aligns with Wenger's (1998) communities of practice framework, where learning is a social process that occurs through participation in shared practices. The participants' descriptions of learning from colleagues reflect the communal aspect of supervision, where knowledge and strategies are co-constructed within a supportive academic community.

Chase positioned themselves as a learner who is still developing their supervision practice, learning by observing how colleagues engage with students. They reflected on their journey, saying:

> I don't know if I am a good one. (laughs). I have my moments where I think I'm okay … I'm still trying to figure out where that sweet spot is between being hands-off and letting students drive their own projects, … and still being close enough to give them the support they need. So, I think from working with [colleague] and watching the way she worked with other people, I really came to see the importance of not having just one approach but that the approach really does need to be connected to each particular student and their needs.

Chase describes an ongoing quest to learn from peers about the perfect blend of hands-on direction and supportive guidance that is responsive to each student's diverse learning needs.

Three supervisors described how they had to be intentional as a new professor to learn from colleagues on the job. Emery was asked whether their doctoral experience with their supervisor was similar to how they currently supervise students. "No, my experience was different as a grad student. It was all fine, but it was different than the way I work today. I think I've learned lots along my journey over the many years. I'm constantly striving to be better at this work." Max said it took them years to overcome gaps in their own training as a doctoral student. "I remember [PhD student] asking me about the lit review. And, I said, 'you're missing the framework', and she said, 'what is the difference?' I remember searching to see the difference … It took me so many years because I wasn't trained properly to actually learn how to do it". For Max, the ongoing reflection included lamenting about their earlier experiences as a supervisor: "I cannot say that I didn't learn a lot when I was a PhD student because I did. And that's why I got [large external grant] … but, how I learned to actually be a good supervisor? I could be better. I could have been better … and connected more with my students". Supervisors who lacked a good role model for supervision had to be more intentional about learning how to supervise on-the-job from colleagues who offered different images and examples of effective supervision.

Engaging in self-directed and experiential learning

Each supervisor described taking the initiative to learn how to supervise on the job. In describing their transition into the supervisory role, Max implies it was self-directed learning in context. "When I came [here]? How did I become a good one? I just guess I can say trial and error, eh?" Aidan describes their reflective practice and "holding themselves accountable", while Emery and Chase describe how they listened and observed to learn what students seemed to need. Emery describes reflective practice and learning on the job: "You also learn how to figure out the ebbs and flows with this supervisory work … how do we navigate that to support people to be successful but not become overwhelmed by some of this work?". Further, Emery describes how they adhere to institutional regulations and hold themselves accountable. "One of the things I hold myself to is providing a good turnaround time in providing feedback on student work. I work within the three-week expectation that they have feedback on their work". Emery describes a reflective practice of supervision as part of their learning how to supervise on the job.

> I think part of it is because it's the nature of who I am; I think I am a mentor. I like to work in a community. As a graduate supervisor, I also observed what others were doing and the types of support. I also then saw some major changes around the ways it was being supported, at an institutional level, that opened up greater opportunities for actually creating a different way of working than the experience I had.

Emery took the initiative by leveraging institutional structures to learn how to supervise. Hart describes increased self-awareness about their supervision strengths and weaknesses, from students' choices to supervisor changes. "Recently, I had a student who switched from being my student to being another person's student. And part of it was the choice of methodology … because it is not my

strength. So, I think it is realizing your limitations and not feeling like a failure … you can't be everything to all students". Although it was not named as such, Hart demonstrates a critically reflective approach to developing a supervision practice here.

Learning from doctoral program design

Doctoral supervisors mentioned elements of the program design in describing their approach to building relationships with students and the strategies used to support students' progress. Several supervisors described the value of doctoral cohorts, collaboratory of practice seminars, and the structured doctoral program design (Friesen & Jacobsen, 2021) as helpful scaffolds for supervising students. Some supervisors described how they patterned their guidance and mentoring of doctoral students based on the year and program elements, such as summer residency and coursework, along with knowledge of each student's needs and expectations. Max recounted learning how best to support students by scaffolding their own learning within existing program structures and timelines. Emery chronicles the triangle of supervisor, student, and instructor in navigating doctoral coursework and how in the doctoral program:

> Those courses are set, and it creates a good foundation. As a supervisor, I know about those courses … and I think that helps with the conversations. I think one of the beautiful things about the EdD program is the eight courses, and there is a process and a flow to it. And for me, as a supervisor, it's where do I step in there? Where am I in supporting the student's work … But it also helps me because I know what they get in those courses that then helps me to take the conversation from there and move it forward.

Chase described how the program design impacted their supervision strategy and elaborated on how their practice is modified by the student's degree pathway, either PhD or EdD. Chase indicated they were influenced by beliefs about what type of support different types of doctoral students need to be successful. Within the context of the structured professional EdD program, Chase admitted, "I do a lot more leading with them, and I felt badly about that in the beginning, and now I realize it's exactly what most of them want. And they appreciate that very tightly sort of scaffolded approach".

Chase elaborated on practices and program elements specific to professional doctoral students. "The other thing I was just thinking about too, … for EdD students … most of them are doing this program in addition to a full-time job, so time management can be a real problem. So, I think the collabs really do keep most of them moving along, right. The way it's structured is helpful for that."

Learning from past teaching and leadership roles

Two participants described prior career experiences as a foundation for developing their doctoral supervision practice. Hart detailed prior experiences as a K-12 system leader and their experience supervising and mentoring school leaders as a key influence on how they currently supervise doctoral students. Hart also recounted how they supervise many doctoral students who bring similar backgrounds to their own experiences in school and jurisdiction leadership and how they consider these doctoral students as highly capable scholars. "My approach to supervision is more based upon my approach to teaching and my approach to supervising people in their work over a number of years, you know, supervising a lot of principals and other people in district offices over a [long] period of working and at that level."

Aidan referenced prior career experience and a background in the industry when likening supervision to aspects of project management, such as goal setting, record keeping, tracking timelines and milestones, and regularly checking in with students. In contrast to the nursing supervisors in Jackson et al.'s (2021) study, our five supervisors in education did not describe any formal training on supervision, nor did they identify this as a gap.

DISCUSSION

Our study expands our understanding of how experienced supervisors learned how to supervise and highlights two key findings: first, that a professor's experiences being supervised influenced their early supervision practices, and second, that learning to supervise on-the-job happened in a variety of ways. These findings align with and build on Berdahl et al.'s (2022) survey findings with professors in political science and Jackson et al.'s (2021) research with supervisors in nursing, who emphasized the informal and varied nature of supervisory development. Our study adds depth by exploring how three of five of the effective supervisors in education intentionally transcended their often-impoverished doctoral experiences through diverse learning approaches within supportive communities of practice.

TRANSFORMING SUPERVISORY PRACTICE

Three of the supervisors in our study translated and transformed their own below-par experiences being supervised into effective supervision practices with their own students. Hart, Emery, and Max describe supervisory practices that diverge significantly from the experiences they described as doctoral supervisees. This transformation is consistent with Wisker's (2012) work on reflective practice in supervision, which emphasizes the need for supervisors to critically reflect on their own experiences to improve their practice. All five supervisors described learning from more experienced colleagues in both formal and informal encounters, which appears to have influenced their intentional shift beyond modeling what they experienced as doctoral students. Such peer-learning opportunities resonate with Pyhältö et al.'s (2022) findings on the centrality of peer mentoring in supervisory development, align with Wenger's (1998) description of joint enterprise and shared activities, and address an unanswered question in Berdahl et al.'s (2022) findings, that supervisors learned effective practices from close observation and interaction with experienced colleagues on-the-job.

CONTRIBUTION TO THE LITERATURE ON SUPERVISORY DEVELOPMENT

Our case study findings contribute to research on developing effective doctoral supervision practices and extend research on the transition from doctoral student to supervisor, demonstrating that some supervisors shifted away from ineffective practices modeled by their former supervisors. This shift highlights a crucial aspect of supervisory development, echoing the findings of Carter et al. (2017), who argued for the importance of structured mentorship in helping new supervisors overcome the limitations of their own doctoral experiences. As they transitioned, we noted a marked change in how Hart, Emery, and Max described their experiences, from supervisees to supervisors. Our second key finding, *Learning to Supervise On-the-job Happens in a Variety of Ways*, and five associated themes offer insights into this shift: supervisors chose not to replicate their own supervision experiences but instead learned from and with their students and colleagues, engaged in self-directed and experiential learning, aligned their practices with structured doctoral program design, and drew upon prior career and leadership experiences.

EXPANDING ON EXISTING RESEARCH

Our research findings extend upon Amundsen and McAlpine's (2009) finding about learning on-the-job by demonstrating that the ways in which experienced professors were supervised as doctoral students had an enduring effect on their early supervision practices. However, our study provides a unique contribution by showing how education supervisors continuously developed their practices beyond their initial experiences, a process also highlighted in the broader literature by Jackson et al. (2021), who emphasized ongoing adaptation and learning in supervisory roles. In addressing whether supervisors supervise in the ways they were supervised, our study provides evidence that instead of adopting weak or ineffective practices they experienced as doctoral students, effective supervisors invested in self-directed and experiential learning, learning from their students and experienced colleagues and leveraging sound program designs in developing their practice.

CONTINUOUS LEARNING AND ADAPTATION IN SUPERVISION

Additionally, our findings build and expand on Jackson et al.'s (2021) research on learning to be a doctoral researcher in clinical nursing, incorporating insights from effective and experienced doctoral supervisors in a Faculty of Education. The connection between disciplines further supports Pyhältö et al.'s (2022) suggestion that supervisory learning benefits from cross-disciplinary insights, making education a key context for understanding broader supervisory practices. The five themes associated with *Learning to Supervise On-the-job Happens in a Variety of Ways* include (i) learning from and with students, (ii) learning from colleagues, (iii) self-directed and experiential learning, (iv) learning from doctoral program design, and (v) learning from past teaching or leadership experiences, demonstrating that effective supervisors do not simply adopt the practices they experienced as doctoral students, but instead engage in continuous learning and adaptation.

While our supervisors did not describe any formal or structured training activities, our study findings align with Pyhältö et al. (2022), who found that professors benefitted from engaging in a "variety of informal and formal supervisory development activities and support. Particularly, peers seem to provide a central resource for both informal and formal institutional supervisory development activities. This implies that systematic supervisory development should draw on this resource for diversity of forms, including encouraging, orchestrating, and creating arenas for peer learning" (p. 10). This finding underscores the importance of informal learning networks, as also noted by Amundsen and McAlpine (2009), suggesting that institutions should place a higher emphasis on facilitating these peer-learning environments as part of developing communities of practice focused on supervision. Further, we agree with the authors' contention that measures to support supervisory development should be integrated into the supervisor's regular weekly work patterns rather than layering ad hoc training on evenings and weekends. Strategies offered by Pyhältö et al. (2022) included peer mentoring and co-supervision as powerful approaches for supervisors to learn on the job.

Supervising and guiding graduate students' research projects while encouraging their academic and personal growth and well-being is a complex teaching and research practice. The complexity of effective supervision practice stems from many different and connected roles and competencies that require multiple skill sets and responsive supervision pedagogies. This is consistent with Halse and Malfroy's (2010) argument about the need for adaptive supervision approaches to meet the diverse needs of students. Additionally, supervision practice is complex because it takes place with diverse students with various learning needs, which may include experiences of trauma (McChesney, 2022), and within dynamic programmatic and institutional contexts. These complexities underscore the importance of the two key findings from our study.

IMPLICATIONS

Understanding that a professor's experiences being supervised can profoundly influence their early supervision practices highlights the need for intentional training and development for new supervisors. Without this early support, new supervisors may unconsciously perpetuate ineffective practices they experienced or take years to develop an effective practice, potentially impacting the quality of supervision and, consequently, the success and well-being of graduate students. Research by Huet and Casanova (2022) suggests that such training should focus on reflective practice, helping supervisors to critically assess and refine their approaches. Universities must recognize and address this ongoing learning need by providing structured mentorship and professional learning and development opportunities that help new supervisors reflect on and refine their supervision practices.

Our finding that learning to supervise on-the-job happens in a variety of ways over a career emphasizes the necessity for continuous, lifelong learning opportunities for supervisors. As Berdahl et al. (2022) and Pyhältö et al. (2022) have pointed out, peer mentoring and co-supervision are particularly valuable in this regard, providing opportunities for sustained professional growth. This continuous development can enhance supervisors' ability to adapt to the evolving needs of students and changing academic landscapes. For universities, this means investing in ongoing professional learning and

development programs, peer learning opportunities, and communities of practice, as well as creating a culture that values and supports the professional growth of supervisors. By doing so, institutions not only improve the quality of supervision but also foster an environment where both faculty and students can thrive, ultimately enhancing the institution's academic reputation and student outcomes.

Attention to the relative, and some would argue unequal, emphasis on research and teaching on campus led to seminal work on reconsidering scholarship in higher education (Boyer, 1990). However, less attention and recognition is focused on supervision, which we posit is key to both priorities. Doctoral supervision pedagogy brings together two main priorities in a research university by combining research and teaching expertise and experience in mentoring the next generation of scholars and leaders across disciplines. Learning to be an effective supervisor enhances academic growth by providing ways to connect one's teaching and mentoring with one's research. Our case study findings suggest that universities need to strategically support supervision as a critical component of their academic mission, integrating it into their broader goals of teaching and research excellence. This integration is essential for nurturing the next generation of researchers and scholars, ensuring their success and well-being, and maintaining the institution's competitive edge in a global academic environment.

Given these implications, we advocate, along with other scholars, for a collaborative culture of support and the provision of program and institutional support for supervisory development from the beginning of an academic's appointment rather than leaving the development of effective supervision pedagogy to chance. Motshoane (2023) argues there is a pressing need for supervisory development across institutions. Their review emphasizes a lack of support for graduate supervision across institutional types. There is an opportunity for institutions, at both the university and department levels, to further invest in building the capacity and ability of supervisors to be effective mentors (Berdahl et al., 2022; Huet & Casanova, 2022).

Our findings present an optimistic story about experienced, mid-career faculty who, despite some having experienced impoverished experiences with their supervisors as doctoral students and no structured training or development, learned to develop effective supervisory practices in a range of ways on-the-job. We contend that every early career scholar deserves access to meaningful and continuous opportunities to collaborate and learn alongside their peers to develop an effective supervision practice from the start of their careers.

Emerging from our study, we propose that the following questions be considered when promoting supervisory development and ongoing research on supervision.

1. What structures and supports can be put in place to nurture positive relationships for both doctoral students and supervisors, given that these supervisory relationships are often private, not visible, and there is sensitivity about asking one about their relationships with students (Lee & McKenzie, 2011)?
2. What opportunities exist for co-supervision, peer support, and participation in informal and formal coursework or seminars related to graduate supervision?
3. Why should supervisors have regular opportunities to examine supervision practices in the company of their peers (Jacobsen, Alharbi, et al., 2021; Jacobsen, Friesen, & Becker, 2021) and to observe diverse supervisory practices in their discipline? Across disciplines?
4. In what ways can supervisors be provided feedback or assessed on their practice and outcomes with students?

These questions are ones we continue to think about regarding the complex and dynamic nature of supervision and the need to take steps to avoid the potential pitfalls in designing and implementing meaningful support for supervisors.

CONCLUSION

This research highlights how doctoral experiences being supervised impact and influence the development of effective doctoral supervision practices in combination with experiences learning on-the-job during one's academic career on campus. Supervisors in our study detailed how they learn from academic peers on examinations and through informal mentorship, take guidance from doctoral program structures, learn from and with students, and are influenced by prior teaching and leadership experiences. Our results expand our understanding of the complexity of supervision practice and uncover differences between contemporary contexts and the supervisor's own experience of being supervised. Importantly, Hart, Aidan, Emery, Max, and Chase, the supervisors in this case study, explained how they worked to translate often negative or impoverished experiences with their own supervisor into the fuel that propelled their own efforts to be a good supervisor with their own students, to change history, and to deliberately not supervise the way they were supervised. Whether supervisors completed their degree as full-time students or in combination with work, they developed experience, empathy, and understanding to effectively supervise students who often combine full-time work with doctoral research and academic writing.

LIMITATIONS

Our study has produced several intriguing findings on how being supervised impacts early supervision practices of Canadian faculty in education, how effective supervisors develop their practice on the job in various ways, and suggestions for further study. For example, effective supervision was gauged by evidence of the supervisors' success at graduating doctoral candidates in the past five years. More questions could have been asked about how supervisors define the impact and outcomes of successful practice beyond the completion of the thesis. The supervisors we interviewed all came from one discipline (i.e., education), and our methods did not include observations of practice or interviews with current or past supervisees of each supervisor or other disciplines, all of which would have added detail to the research. We analyzed supervisors' descriptions and reflections on their own experiences and practices and thus cannot comment on doctoral students' experiences of these reported supervisory practices and acknowledge this as an important area of research to pursue.

SIGNIFICANCE

Findings matter most to graduate students across Canada, their hundreds of thousands of counterparts around the world, and all of the doctoral supervisors who deserve structured and intentional support in developing effective supervision and mentoring practices. Findings leverage prior research from Denmark on the need for institutions to stop relying on on-the-job learning or experience-based apprenticeship to enact a commitment to the professionalization of supervision (Raffing et al., 2017), and expand on Berdahl et al.'s (2022) keys to moving forward with intentional supervisory development, and urgent calls for institutions to put intentional scaffolds and supports in place for supervisors to expand their practice and better understand their mentoring role and responsibilities from the start of their careers. There is an opportunity and pressing need for institutions, at both the university and department level, to invest in robust supervisory development coupled with sound graduate program designs along with investments in building the capacity and ability of supervisors to be effective mentors within those structures and supports.

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APPENDIX

SELECTED INTERVIEW QUESTIONS

1. Please describe your own doctoral research process. What were the ways in which you worked with your own supervisor?
2. In what ways was your own development as a researcher supported in graduate school?
3. In what ways did your doctoral supervisor support you in completing the dissertation?
4. In what ways did you learn how to be a good graduate supervisor?
5. In general, what are the ways in which you work with doctoral students?
6. If you are comfortable, describe in detail one or more individual supervisor-student relationships and how you worked with this/these student(s) online to complete their dissertation research.

AUTHORS

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