Doctoral Supervision in North America: Perception and Challenges of Supervisor and Supervisee

Constance Denis[1], Nicole Rege Colet[2] & Christelle Lison[1]

[1]Faculté d'éducation, Université de Sherbrooke, Sherbrooke, Canada

[2]Yggdrasil. Living Wholeness, Gudhjem, Bornholm, Denmark

Correspondence: Constance Denis, Faculté d'éducation, Université de Sherbrooke, Longueuil, QC J4K 0A8, Canada. Tel: 1-450-463-1835. E-mail: constance.denis@usherbrooke.ca

Abstract

The completion rate for graduate studies is around 50% in some programs, and several authors suggest that doctoral supervision in a key factor in explaining this. Existing research on doctoral education reveals an uneven international landscape made up of the perceptions of both doctoral students and their supervisors. In the French-speaking North American context, exploration of doctoral supervision practices still remains unchartered. As a part of the first author's doctoral thesis, interviews were conducted with 20 supervisors and 20 doctoral students from 8 different faculties. The purpose of these interviews was to capture their perceptions and experiences around doctoral supervision, and to explore with them the main issues related to doctoral supervision. Four dimensions for framing doctoral supervision have emerged from these interviews: a) scientific, b) personal, c) administrative and d) professional. Three main issues stretch along a timeline: 1) admission into a doctoral program, 2) mastering of scientific writing, and 3) employability. This study is an attempt to unpack the complexity of doctoral supervision and, in doing so, to construct a shared language for all concerned parties. The overall purpose of the doctoral research is to identify practices that support effective doctoral supervision and reduce the dropout rate.

Keywords: doctoral advisor, doctoral student, doctoral supervision, supervision practices, supervisor, student-supervisor relationship

1. Introduction

Sverdlik, Hall, McAlpine and Hubbard (2018) mention that the enrolment rate of graduate students increased significantly in Canada and the United States between 1998 and 2010 from 57% to 64%. This is a very much welcomed and commendable fact. Nonetheless, despite raised enrolment, graduation rate does not seem to follow the inflation. One simple explanation to this is the dropout rate, which is around 50% combined with the duration of studies, which continue to be spread out despite scholarships (McCallin & Nayar, 2012; Skakni, 2016; Sverdlik et al., 2018).

Several authors suggest that the quality of doctoral supervision could be a key factor in supporting completion (Amundsen & McAlpine, 2009; National Graduate Council, 2012). Indeed, "The first - and often most influential - external factor that affects doctoral students' experiences in graduate school is their relationship with their supervisor(s)" (Sverdlik et al., 2018, p. 369). A good relationship between the doctoral student and his supervisor affects on studies and success rates. A challenging relationship will have the opposite effect affecting duration of the program and sometimes causing the doctoral student to abandon (McCallin & Nayar, 2012).

As mentioned by Gube, Getenet, Satariyan and Muhammad (2017), "Matching the research expertise between supervisors and doctoral students can be challenging partly due to the rising number and diversity of students enrolled in postgraduate research programs" (p. 2). If so, it might be essential to take a deeper look at doctoral supervision, which is considered in many respects the most complex and subtle task that a professor will have to take on, since it is somewhere between teaching and research and has no clear framework to draw upon (Conell & Manathunga 2012; Green 2012; Prégent 2001; Royer 1998; Smit 2010). Complexity is reflected, amongst other things, by finding that delicate balance between providing "enough guidance for students to learn research skills while giving students autonomy to become confident independent researchers" (Overall, Deane, &

Peterson, 2011, p. 791). The point of balance is ever changing and will necessarily be reviewed as the program and the process unfold integrating new issues and perspectives rising with the flow of time and work (Prégent 2001; Royer 1998; Vilkinas 2008).

In Quebec, doctoral supervision remains an ambiguous and volatile field because there is no standard procedure that people can follow or refer to. Therefore, the beliefs, understandings and initiatives of the various actors play an important part in defining what doctoral supervision is or should be (Bégin, 2018; Prégent 2001; Voyer 1992). The exclusivity of the relationship requires both the supervisor and the doctoral student to clarify quickly mutual expectations and their respective needs in order to adopt practices and tools that support effective supervision (Jutras, Ntebutse, & Louis, 2010).

In the light of these facts, here are some of the current lines of inquiry. How can the partners clarify their expectations and needs when there is so little clarity around what doctoral supervision is about? To what extent do supervisors and doctoral students know about the range of practices and tools available? What does it mean to be trained "to do" research "by doing" research? What are the conditions that support doctoral students to produce an original contribution in his discipline and to become self-dependent? And last but not least, what really is doctoral supervision?

More than ever, answers to these questions are desired, particulary considering the lack of pedagogical training of some supervisors (Denis & Lison, 2016). Most often academics report having learned to carry out supervisions on the job with an understanding that stems, "from and through experience and [where] more formal sources of learning, though desired, were not available. Consistently and often unsolicited, [they] referred to their learning as emerging from personal experience. [...] However, some noted the potential of watching others in committee and team meetings and having a co-supervisor or other colleague to call on to test ideas" (Amundsen & McAlpine, 2009, p. 336). Added to this, doctoral supervision practice still largely remains a privatized practice, almost off bounds of collective reflections (Haag, 2017; Halse, 2011; Halse & Malfroy, 2010; Malfroy, 2005; Manathunga, 2005). So, considering the complexity of supervision that rarely benefits of some form of external validation (Halse, 2011; Halse & Malfroy, 2010), how do learning "on the job" or "see one, do one" practices (Jutras et al., 2010; Turner, 2015; Wisker & Kiley, 2014) affect study perseverance?

Several authors underline the lack of a common language to talk about practices and goals (Green, 2012). Encapsulating doctoral education within a theoretical framework is required in order to guide practices in doctoral supervision. Both supervisors and doctoral students "need pedagogies about which we may know little yet, and [we know] that a transmission of knowledge from supervisor to candidate cannot work in important areas. [...] In other words, conversations about research work help generate a vocabulary and theoretical stance that place the work in a context within which it can be scrutinized" (Engels-Schwarzpaul, 2015, p. 1258-1259). Unfortunately, prescribed sources of information and standardized training programs focusing on doctoral supervision are not necessarily available, neither in Quebec nor internationally (Amundsen & McAlpine, 2009, 2011; Halse, 2011; Wisker & Kiley, 2014).

Literature on doctoral supervision however is abundant. Two comments about this profusion: first, the complexity of doctoral supervision has just started to be explored (Turner, 2015) and, second, there are only a small number of qualitative researches that bring together the perceptions of doctoral students and supervisors operating in different disciplinary fields (Sverdlik et al., 2018).

1.1 Purpose of the Study

Although doctoral supervision is undeniably a key factor impacting on persistence in studies at graduate level, this particular teaching practice holds a number of doubts and blurry zones that prevent it from unfolding effortlessly and effectively. Furthermore, despite an abundant literature on doctoral education, it still remains an implicit and invisible activity under the surface of more documented aspect related to doctoral studies (Hammond, Ryland, Tennant, & Boud, 2010; Kiley, 2011). This paper therefore aims to explore ways of encapsulating doctoral supervision, particularly in the French-speaking North American context where the supervisors play a key role both in supervising the doctoral students' progress and in assessing the outcomes (Amundsen & McAlpine, 2009). The purpose is twofold: 1) to describe doctoral supervision as perceived by doctoral students and supervisors and 2) to report back on the issues they raise.

2. Method

Our inquiry into the nature and scope of doctoral supervision is based on semi-structured interviews that look into personal definitions of doctoral supervision. During those, we also asked interviewees to recount a high quality personal event they experienced, and to voice their needs and desires. A total of 20 research doctoral

students and 20 supervisors from a French-speaking Quebec urban university were interviewed in three conditions [face-to-face, Skype or telephone] for approximately one hour each between January and April 2017.

The inclusion criteria for a doctoral student were the following: 1) to be a research doctoral student in a natural sciences and engineering program OR in a humanities program OR in a health program, 2) to have completed a minimum of one year in a doctoral program. The inclusion criteria for a supervisor were : 1) to be supervising students in a research-based doctoral program in natural sciences and engineering OR in humanities OR in health, 2) to have brought to completion at least one doctoral student, 3) to have supervised doctoral research for at least six years in accordance to Turner's work (2015).

When a doctoral student or a supervisor responded to our email agreeing to be interviewed, we sent them the interview guide. All participants signed consent forms enabling their data to be used for the purposes of publication. The consent form covered the nature of the study, anonymity and confidentiality of the results, as well as the risks and benefits for the interviewees. The intentional non-probability sample includes women (n = 12) and men (n = 28) working in 8 different faculties: 1) Faculty of Education (n = 9), 2) Faculty of Law (n = 1), 3) Faculty of Engineering (n = 5), 4) Faculty of Business Administration (n = 3), 5) Faculty of Arts and Social Sciences (n = 2), 6) Faculty of Sciences (n = 10), 7) Faculty of Physical Activity Sciences (n = 2), and 8) Faculty of Medicine and Health Sciences (n = 8). The interviews were recorded, transcribed and then reviewed by the interviewees.

The data were thematically analyzed (Creswell, 2014) - content analysis (Bardin, 2013) – and validated by two external reviewers - enabled us to identify the threads of the canvass of doctoral supervision practices for this particular North American French-speaking context. These results were obtained as part of the doctoral thesis of the first author. The study was reviewed and approved by the University Research Ethics Board of the first author.

3. Results and Interpretation

In this article, we have chosen to focus on the definitions of doctoral supervision suggested by the supervisors and the doctoral students we interviewed. We will then move on to the three key issues they raised, i.e. admission into a doctoral program, mastering scientific writing, and employability. Since the interviews were conducted in French, no verbatim extract was included in the article. The results are therefore the paraphrased words of the respondents. In the following sections, the codes attributed to each person will appear as references to their insights and inputs. The identifiers are read according to the role (di for director, do for doctoral student), gender (f for women, m for men), faculty (FE for education, FD for law, FGen for engineering, FGes for management, FLSH for Humanities and Social Sciences, FS for Science, FSAP for Physical Activity Sciences, FMSS for Medicine and Health Sciences), the following number shows the chronology of the interviews. We will be linking their responses to information available in the literature on doctoral supervision. In particular, we will be drawing on the studies carried out by Gérard and Daele (2015), and Jutras and her team (2010) who have also worked in a French-speaking context. Finally, we will also draw upon our own experiences in doctoral supervision that necessarily accompany this study and are constantly alive in our working space.

3.1 Defining Doctoral Supervision

Doctoral supervision is perceived as a power-oriented relationship with some occurrences where both parties show up as equal partners (DiMFGen27, DiMFMSS40, DoMFSAP13). This unique cooperation-based relationship (DoMFMSS36) – which, hopefully, should be genuine and meaningful - is fostered by the personalities of the supervisor and the doctoral student as well as their values and wishes. These results validate what Gérard and Daele (2015) noticed and, at the same time, indicate a shift in the relational field inasmuch as the interviewees emphasize their strong awareness, within the dyad, of the other person and the need to respond to the other person's needs. From what we can perceive, cooperation shifts from an exclusive and almost privatized relationship to a strong educational partnership built on reciprocal respect (Halse & Malfroy, 2010). In this regard, two values are advocated: self-dependency and freedom (DiMFS9). Doctoral supervision reflects a practice in balancing commitment and spaciousness in order to provide conditions that empower doctoral students to become self-dependent (DiMFS17, DiMFE26). The more the project expands, the more the doctoral student can grow from the work and the ideas that unfold with it, whilst also learning to manage his time, his communications, his creativity, etc. (DiFFE20). For the growth of the relationship, an agreement, that can be either explicit or implicit, will link the doctoral student and the supervisor; they will agree on the process, the product, the means, the needs, etc. (DoMFMSS36, DiMFE26). Doctoral studies therefore nurture self-empowerment that will require both support and to be challenged (Lee, 2008; Pearson & Kayrooz, 2004). The respondents often quote this key idea around "balance", whether they are supervisors or doctoral students.

This will show up, for instance, in terms of a delicate balance to be found between doing things for the doctoral student and setting him new tasks, versus letting him find things out for himself so that he can set his own agenda, make his own choices, and take decisions regarding certain topics, etc. (DiMFS11, DoMFGen10, DoFFLSH7). The balancing act comes back when commenting on the resources available, as we will discuss later.

The foundational basis of doctoral supervision seems to be the shared interests and the trust between the supervisor and the doctoral student (DoFFGes24). Well beyond the expertise or the reputation of the supervisor (Maxwell & Smyth, 2011), the educational partnership requires reciprocal respect as well as flexibility and cooperation (Halse & Malfroy, 2010). Respondents named compatibility within the dyad, trust, and complicity as key ingredients for an effective doctoral supervision (DiMFGen27, DoFFGes24, DoFFLSH19, DoFFLSH7). As pointed out by one doctoral student, it is important to be able to trust the assessment and the skills of the supervisor who, in turn, needs to trust the intelligence and the achievements of the doctoral student as well as his ability to produce a scholarly piece of work of high-level quality (DoFFGes24). In their study, Gérard and Daele (2015) had already underlined the importance of these principles; they are consistent with our own results that also highlight the importance of valuing openness in the partnership. In fact, in the resources consulted, empowerment is only possible thanks to the trust granted by the supervisor. Respondents suggest that trust allows for greater self-dependency and sovereignty, leaving it up to the doctoral student to organize himself, for instance, over themes related to time management and resources (DoFFLSH19).

In the same way, communication is crucial because if the needs are not voiced it will be difficult to address them (DoFFE1, DoMFMSS36, DiFFE20, DoMFS30). Communication must therefore be clear, constructive, and frequent (DoFFE21, DiFFE20). In this regard, Halse and Malfroy (2010), as well as Lison (2016), mention that often, challenges related to supervision can be traced back to a lack of communication between the doctoral student and his research director. Supervisors therefore encourage written and verbal communication to explain, amongst other things, the strategies that will support growth along the doctoral learning journey. Transparent communication grows over time enabling each partner to more clearly and transparently voice his needs, frustrations, and uncertainties (DoMFS30, DiMFE25, DoFFLSH7, DoMFMSS36).

3.2 Dimensions Affecting the Nature of Doctoral Supervision

Content analyses of the interviews break up doctoral supervision into four dimensions: 1) scientific, 2) personal, 3) administrative and 4) professional (DiMFE25, DiMFMSS39). This breakdown into dimensions is not unlike the work carried out by Jutras, Ntebutse and Louis (2010) as well as that of Gérard and Daele (2015). Although working with dimensions leads to separate labels, the realities they encompass remain very close and similar. Jutras and her team (2010) suggest a single divide with, on one hand, administrative and institutional aspects and, on the other, relational and intellectual aspects. Gérard and Daele (2015) suggest a three-dimensional perspective weaving together scientific, institutional and relational features. In both these frameworks, the professional dimension seems to be absent.

The scientific dimension addresses the issue of providing the doctoral student with the appropriate context for carrying out a research project (DoFFE4). This implies setting up a space for deep inquiry into scientific issues, for clarifying problems, for arguing and debating perspectives, challenging ideas and insights, etc. (DiFFE20). Furthermore, providing an adequate context implies making sure that the doctoral student has sufficient access to the scientific, financial and human resources that are needed to ensure completion (DiMFE6, DoFFE4, DoMFMSS36, DiMFGen27). Gérard and Daele (2015) go beyond this list and invoke the aspect of integrating doctoral students into their relevant community, a notion described by Lee (2008) as enculturation.

The personal dimension addresses the complexity of the relationship that will change over time as the needs evolve according to the phases of the research project (DiMFE2). Doctoral supervision will therefore consist of a supportive backup process focusing on guiding, nurturing, encouraging and inquiring with the doctoral student (DiMFE2, DiMFE6, DiMFGen27, DiMFMSS35). According to the respondents, learning depends mainly on the quality of interactions between the supervisor and the doctoral student (DiMFMSS35). As Gérard and Daele (2015) point out, in all circumstances, it remains crucial to clarify mutual expectations within the partnership. The nature of the doctoral supervision will vary according to personalities, the strengths and weaknesses of both partners and their capacity to bring them into the relational space (DiFFE20). The delicate balance between self-dependency and guidance takes up a lot of space in the personal dimension (DoMFGen10). Respondents mention that supervision should always be individualized (DiFFE20, DiFFE23, DiMFE26, DiMFGen27) therefore allowing as much flexibility and adaptability as needed to pursue the agreed goals. As remarked on by Gérard and Daele (2015), the principles of individualization and flexibility go beyond doctoral partnership and

should be extended to all other partnerships, i.e. with peers, other teachers, members of the same laboratory, etc.

The administrative dimension tackles the specific context and the guidelines framing doctoral supervision (DiMFMSS37, DiMFS9, DoMFGes28, DoMFMSS36). Both the supervisor and the doctoral student need to collect and master the relevant information related to the program regulations, the resources available, as well as all the existing opportunities for personal development, extending cooperation, venturing into publication, and career development (DoFFE4). Jutras et al. (2010), as well as Gérard and Daele (2015), draw attention to the fact that most higher education institutions offer services and facilities that will include administrative guidelines to support effectiveness during the doctoral process. McCallin and Nayar (2012) emphasize that the quality of doctoral supervision also depends on the quality of information and clarity within the higher education institution.

Finally, the last dimension identified from the interviews concerns professional development. This starts before getting on to the program and ends well after completion (DiFFE20, DiMFE2, DoFFS29). Carrying out professional scientific activities take place in a richly textured context that includes finding funds, securing materials and other resources, and following up on opportunities of various nature. Doctoral students need to be aware of this and to learn to navigate the complexity of scientific practice (DiMFGen27). Other than producing a scholarly piece of work, doctoral students take part in activities related to dissemination of knowledge, various scientific writing proposals and scientific communications, etc. (DiMFE2, DiMFGen31). Throughout doctoral studies, doctoral supervision will also touch on topics such as networking and dissemination of results, a way of coming in contact with and integrating the professional values and norms related to the scientific culture (DiMFS5). After completion of doctoral studies, supervision might continue in order to promote employability of the newly acclaimed doctor within his scientific community (DiMFE26, DiMFE25). Although Gérard and Daele (2015), as well as Jutras and her team (2010), do not consider these aspects as being part of a singular dimension, they do hint that these tasks are inclusive of doctoral supervision and will appear throughout doctoral studies.

3.3 Main Issues Related to Doctoral Supervision

Unpacking the contents of the interviews we did with the doctoral students and supervisors yielded three main issues: 1) selection and admission into a doctoral program, 2) mastering of scientific writing, and 3) employability.

3.3.1 Selection and Admission into a Doctoral Program

Supervisors report that their research training does not prepare them to carry out the human resource tasks they meet in the workplace (DiMFS17). One of the first challenges they come across is in selecting future doctoral students and signing them on for a research program. Several supervisors admitted to rely on their intuition when assessing the students' potentialities (DiMFGen27). They also ground their decision on the personality, the attitude and the interests of the candidate, as well as on their expressed passion for the research topic (DiMFE2), their previous publications and, of course, recommendations from other colleagues (DiMFS12). Some supervisors insist, from the start, that the doctoral student should work on a research project selected from an established list (DiFFE20).

To help them select candidates the supervisors we interviewed make sure to discuss, from the start, mutual expectations, i.e. publishing the results, taking part in activities related to dissemination of knowledge, the timeline and future professional prospects (DiMFE26). Some invite candidates to register for an internship with them or to sign up for a graduate level course in order to assess their skills and capacities for doctoral research work (DiMFS12). This mainly concerns foreign students in fundamental sciences or engineering programs.

Selecting the right doctoral students is key since their results will contribute to the reputation of the research lab (DiFFE20). Supervisors find it easier to reject candidates when they themselves are in the later phases of their career (DiMFE25), which is not the case for those at the beginning of their career who might be tempted to take on the first comers to step up to their supervision duties.

3.3.2 Mastery of Scientific Writing

An important part of doctoral supervision has to do with teaching doctoral students to master high-level scientific writing, which differs hugely from writing at other levels of studies (DiMFS14, DoFFGen18). During their graduate studies doctoral students become more familiar with the art of writing high-level scientific papers, producing CVs, applying for research grants or scholarships (DiMFE2, DoMFMSS38), and sometimes they need to be able to do all of this in another language (DiFFE20, DiMFS14, DiMFS17).

This can often represent a steep learning curve, and in order to climb the curve progressively, some supervisors

suggest that doctoral students pace out their efforts when they tackle writing high-level scientific papers (DiMFE6). As a starter, this can be done within the framework of a research lab or as part of an assistantship contract. In all circumstances, cooperation and collective writing must respect academic integrity (DoFFLSH7). For this specific reason, Vessey, Davies, Fraser and Smith (2008) invite supervisors to clarify all aspects dealing with editorial work and to inform the doctoral students of the university's policy regarding scientific integrity. They should cover all these aspects in order to reach an agreement on certain issues: authorship rights, order of authors or ownership of data, all of which is perceived as fully inclusive of the training of a doctoral student.

As for the mastery of high-level scientific writing, some supervisors review published works - theses or papers – with their doctoral students. This enables them to learn how to review papers, to comment critically, to establish criteria for doing so and to recognize the structure and narratives of scientific genre (DiMFGen27). Subsequently, text analysis can be broken down identifying relevant outcomes and ways to express them, leading to establishing a clear outline (DiMFGen31).

Respondents agree on the importance of feedback in the course of mastering high-level scientific writing (DiMFE25). Many of the doctoral students interviewed use iteration when writing: they break up the task, seek and receive lots of feedback, then go back to writing until they have reached the desired level (DiMFS17, DiMFGen27, DiMFS12). This will inevitably lead to difficulties in receiving feedback in particular when it is challenging (DiMFS12, DiMFMSS35, DiMFMSS40, DiMFMSS40). Doctoral students wish for feedback to be appreciative of the strong arguments and to point out what could be improved or might lead to a misunderstanding and to be centred on facts rather than opinions (DiMFMSS40). To help with the art of receiving feedback, one supervisor suggests carrying it out in a team sharing (DiMFS5), learning to bring in nuances, and to partake with an open-mind (DoMFGes28). Feedback is sometimes a source of frustration for doctoral students, especially when the reviewer does not clarify possible misconceptions or inaccuracies (DoFFGen18). In order to progress, doctoral students say they appreciate the use of "track changes" in editing software (DoMFMSS38), and collective work session where challenging topics can be addressed and discussed openly (DiFFE20, DoFFE21). Feedback is seen as a valuable tool for doctoral students to self-assess their skills and achievements (DiMFS8, DoFFLSH19).

3.3.3 Employability

In addition to generating a doctoral dissertation, doctoral students will develop skills and tools that will enhance their employability (DiMFE2, DiMFGen27, DiMFMSS39). Within the framework of the doctoral supervision, the supervisor plays a key role in acknowledging the student's career goals so that he can adjust the pathway and suggest relevant opportunities, i.e. publishing papers, participating in dissemination of knowledge events, teaching duties, etc. (DiFFE20, DiFFE23). As specified by Overall et al. (2011), a key element in doctoral supervision is about empowering the doctoral student, in particular, by encouraging him to open up to new ideas and offering him opportunities to take decisions and make choices. The presence of the supervisor is essential, because he will endorses his doctoral students when they meet up with potential employers, providing them, for instance, with recommendations. He can review cover letters, comment on the grant applications, draw attention to fresh opportunities, etc. (DiFFE20, DiFFE23, DiMFE26, DiMFS14, DoFFE4, DiMFGen27, DiMFS17). For all this to happen, the doctoral student needs to communicate his needs and expectations in terms of employability and to draft a speculative career plan (DoFFMSS34, DiMFGen27, DoFFLSH19). The idea here is to optimize strengths and to work on the weaker aspects of the doctoral student in order to enhance his perspectives on the labour market (DiFFE20, DoMFS3, DoFFGes24). In this regard, one supervisor recommends that from the beginning two separate pathways should be suggested according to topics addressed in the doctoral research (DiMFE2).

Gérard and Daele (2015) mention all these aspects related to employability and then discuss the role and duties of supervisors in supporting employability. Maybe it would also be good to remember that they do so in an ever-changing workplace world, which is often very different from what they themselves experienced when they were going through their doctoral studies. Adapting to today's context and an almost uncertain future might prove challenging even for the most dedicated of supervisors.

4. Discussion and Conclusion

The purpose of this article is to draft an exploratory framework of doctoral supervision by listening to what doctoral students and supervisors from different faculties have to say about their experience and, in particular, the challenges they have met along the way.

The discourses of the doctoral students and supervisors yield a common definition that conveys the emergence of a shared language. Doctoral supervision is perceived as an educational partnership bringing together at least two

people – the supervisor and the doctoral student. The purpose of the process is to empower the early stage researcher (doctoral student) in becoming a proficient researcher by carrying out a research project as part of his doctoral studies and delivering a scholarly piece of work – the doctoral dissertation – that can be varied in its form and scope. Doctoral supervision will unfold as a practice of finding the right balance between the doctoral student's independence and the supervisor's guidance.

The paper also aims to look into the particular context of doctoral supervision in French-speaking North America. Whereas existing French-speaking literature tends to discern two or three distinct dimensions connected to doctoral supervision (Gérard & Daele, 2015; Jutras et al., 2010), content analysis of our interviews suggests that there might be four distinctive dimensions; 1) scientific, 2) personal, 3) administrative, and 4) professional. The latter – that is mentioned on some of the literature consulted - addresses employability, which clearly appears to be a strong concern for the doctoral students and the supervisors we interviewed. In their study, Gérard and Daele (2015) reveal that doctoral students would like their supervisors to have a greater awareness of issues related to employability. Our results suggest that some progress has been made regarding this in the French-speaking North American context we explored.

Content analyses revealed the three main issues of doctoral supervision: 1) selection and admission into a doctoral program, 2) mastering of scientific writing, and 3) employability. As mentioned at the beginning of the paper, increases in enrolment in doctoral studies go hand in hand with a diversification of the student population. Without explicitly referring to this, many supervisors mention changes in the doctoral student audience, and furthermore, evoke a feeling that there is a decline in the quality of their prior education. As a result, before starting off on a doctoral project, they advocate checking up the candidates understanding of the whole process in order to assess their motives for undertaking doctoral studies and whether or not they have the necessary skills to complete them. There are many ways of doing this; open and honest communication during the first meetings is one recommendation, so as suggesting an internships or a graduate program delivered by the research lab or reviewing previous research work pieces. Added to this, using validated human resources tools may optimise selection and admission of candidates. Nonetheless, due to the lack of pedagogical training (Denis & Lison, 2016) added to which is the private and almost intimate aspect of doctoral supervision (Haag, 2017; Halse & Malfroy, 2010), supervisors see the risk of disruptions that can become serious challenges when not addressed openly. How does one tackle an open and honest conversation about doctoral supervision? Can I reach out for help from colleagues? What tools and devices are likely to support an effective and respectful supervision practice? How can one draw upon external resources – and which ones – in order to enhance effectiveness?

As a key part of supervision practices, the mastery of scientific writing is a challenge in itself in particular when several people are involved. Mastering a specific scientific language, and then later communicating with this new language, is part of the socialisation of the doctoral student (Halse & Malfroy, 2010). Prégent (2001) reminds us that a doctoral dissertation is not produced *ex nihilo* and it requires several iterations between the supervisor and the doctoral student. In order to gently tackle this challenging and steep learning curve, our respondents came up with the following suggestions: step by step and slow progressive work, understanding the specific criteria applied in the workplace, deep analyses of various published works in order to identify the criteria, giving and receiving feedback. Although there are many options available, they only seem to partially address the issue. In some cases, – too few in our opinion - higher education institutions provide students with opportunities to develop and hone a set of high-level skills, which relieves the supervisor of having to also attend to this. For instance, the *Centre universitaire d'enrichissement de la formation à la recherche* at the University of Sherbrooke offers a free four-credit course to doctoral and postdoctoral students on writing and publishing a scientific paper in English.

The last issue concerns the continuation of doctoral supervision in respect of employability. As one respondent points out, the reputation of the supervisor will colour the career of the early stage researcher. McAlpine, Amundsen and Turner (2013) observe that half of doctoral students are thinking of an academic career. Our respondents emphasize the key role of the supervisor in terms of employability, i.e. in providing opportunities to acquire and develop specific skills, in endorsing candidates and providing references, in advising on opportunities inside and outside of the institution, etc. We observe that the way doctoral supervision addresses employability issues varies according to how people feel called to respond to requests for professional development or sighting interesting opportunities. This is also mentioned by McAlpine and her team, "Given the investment that students and supervisors make in advancing students' research capabilities, programs do a disservice of they are not explicit about are possibilities post-PhD; doing so, of course, is not straightforward. First, new possibilities are constantly arising both within and outside academia. Second, supervisors cannot be expected to have such knowledge at their fingertips, so means need to be found to ensure that other sources of

information are available and well known" (McAlpine et al., 2013, p. 51).

All three issues highlight the importance for both the supervisor and the doctoral student to have a good knowledge of the resources available in order to reduce conflicting expectations within the educational partnership.

Through clarifying the nature and scope of doctoral supervision, this paper starts to suggest the basis of a common language, a framework that should be shared by all concerned in order to get a deeper understanding of the purposes of doctoral studies and the resources available to ensure an enjoyable ride by all concerned. In our study, we have not questioned institutional representatives who could also have offered interesting insights. We would have liked to interview together a duo of a supervisor and doctoral student so as to discuss their definition of doctoral supervision and explore together the challenges they have had to go through. Finally, our inquiry focuses on doctoral supervision and we imagine that it would be interesting to look into other similar contexts in graduate studies. Is there something special about doctoral studies that set them apart from other forms of supervision? The word initiation and the sense of sacredness of a PhD immediately come to mind. So maybe doctoral supervision is also a journey in honouring the past traditions and desecrating the sacredness in order to step into the future, a world of possibilities, and to fully embrace the learning journey into scientific expertise. Further explorations of the personal events we asked people to recount during the interviews might give us a glimpse of what happens in the background and serves empowerment.

Acknowledgments

References

Amundsen, C., & McAlpine, L. (2009). 'Learning supervision': trial by fire. *Innovations in Education and Teaching International*, *46*(3), 331-342. https://doi.org/10.1080/14703290903068805

Amundsen, C., & McAlpine, L. (2011). New academics as Supervisors: A Steep Learning Curve with Challenges, Tensions and Pleasures. In L. McAlpine & C. Amundsen (Eds.), *Doctoral Education: Research-Based Strategies for Doctoral Students, Supervisors and Administrators* (1st ed., pp. 37-55). New York, NY: Springer Netherlands. https://doi.org/10.1007/978-94-007-0507-4

Bardin, L. (2013). *L'analyse de contenu*. Paris, France: Presses Universitaires de France.

Bégin, C. (2018). *Encadrer aux cycles supérieurs: étapes, problèmes et interventions*. Boisbriand, Québec: Presses de l'Université du Québec.

Conell, R., & Manathunga, C. (2012). On doctoral education. *Australian Universities' Review*, *54*(1), 5-9.

Conseil national des cycles supérieurs de la Fédération étudiante universitaire du Québec (CNCS-FEUQ) by National Graduate Council (2012). *Avis sur l'encadrement des étudiants aux cycles supérieurs*. Montréal, Québec: Conseil national des cycles supérieurs de la Fédération étudiante universitaire du Québec.

Creswell, J. W. (2014). *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage Publications Inc.

Denis, C., & Lison, C. (2016). Et si l'encadrement des étudiants au troisième cycle universitaire devenait une priorité? *Actes Du 6e Colloque International Du RIFEFF*, 375-385.

Engels-Schwarzpaul, A.-C. C. (2015). The Ignorant Supervisor: About common worlds, epistemological modesty and distributed knowledge. *Educational Philosophy and Theory*, *47*(12), 1250-1264. https://doi.org/10.1080/00131857.2015.1041443

Gérard, L., & Daele, A. (2015). L'évolution de la formation doctorale a-t-elle engendré une évolution dans les pratiques d'accompagnement doctoral ? *Recherche et Formation*, *79*, 43-62.

Green, B. (2012). Addressing the curriculum problem in doctoral education. *Australian Universities' Review*, *54*(1), 10-18.

Gube, J., Getenet, S., Satariyan, A., & Muhammad, Y. (2017). Towards "operating within" the field: Doctoral students' views of supervisors' discipline expertise. *International Journal of Doctoral Studies*, *12*, 1-16.

Haag, P. (2017). Analyser et évaluer la relation entre doctorant et directeur de thèse. Quels cadres théoriques et

quels outils en psychologie ? *Émulations. Revue Des Jeunes Chercheuses et Chercheurs En Sciences Sociales.*, *21*, 19-37.

Halse, C. (2011). 'Becoming a supervisor': the impact of doctoral supervision on supervisors' learning. *Studies in Higher Education*, *36*(5), 557-570. https://doi.org/10.1080/03075079.2011.594593

Halse, C., & Malfroy, J. (2010). Retheorizing doctoral supervision as professional work. *Studies in Higher Education*, *35*(1), 79-92. https://doi.org/10.1080/03075070902906798

Hammond, J., Ryland, K., Tennant, M., & Boud, D. (2010). *Building Research Supervision and Training across Australian Universities Project team and authors of the report*. Strawberry Hills, Australia: Australian Learning and Teaching Council.

Jutras, F., Ntebutse, J. G., & Louis, R. (2010). L'encadrement de mémoires et de thèses en sciences de l'éducation : enjeux et défis. *Revue Internationale de Pédagogie de l'enseignement Supérieur*, *26*(1), 1-18. Retrieved from http://ripes.revues.org/index333.html%5Cnhttp://ripes.revues.org/pdf/333

Kiley, M. (2011). Developments in research supervisor training: causes and responses. *Studies in Higher Education*, *36*(5), 585-599. https://doi.org/10.1080/03075079.2011.594595

Lee, A. (2008). How are doctoral students supervised? Concepts of doctoral research supervision. *Studies in Higher Education*, *33*(3), 267-281. https://doi.org/10.1080/03075070802049202

Lison, C. (2016). La direction de recherche. In P. Noreau & E. Bernheim (Eds.), *La thèse : Un guide pour y entrer... et s'en sortir* (pp. 37-49). Montréal, Québec: Presses de l'Université de Montréal.

Malfroy, J. (2005). Doctoral supervision, workplace research and changing pedagogic practices. *Higher Education Research & Development*, *24*(2), 165-178. https://doi.org/10.1080/07294360500062961

Manathunga, C. (2005). The development of research supervision: "Turning the light on a private space." *International Journal for Academic Development*, *10*(1), 17-30. https://doi.org/10.1080/13601440500099977

Maxwell, T. W., & Smyth, R. (2011). Higher degree research supervision: from practice toward theory. *Higher Education Research & Development*, *30*(2), 219-231. https://doi.org/10.1080/07294360.2010.509762

McAlpine, L., Amundsen, C., & Turner, G. (2013). Constructing post-PhD careers: negotiating opportunities and personal goals. *International Journal for Researcher Development*, *4*(1), 39-54. https://doi.org/10.1108/IJRD-01-2013-0002

McCallin, A., & Nayar, S. (2012). Postgraduate research supervision: a critical review of current practice. *Teaching in Higher Education*, *17*(1), 63-74. https://doi.org/10.1080/13562517.2011.590979

Overall, N. C., Deane, K. L., & Peterson, E. R. (2011). Promoting doctoral students' research self-efficacy: Combining academic guidance with autonomy support. *Higher Education Research and Development*, *30*(6), 791-805. https://doi.org/10.1080/07294360.2010.535508

Pearson, M., & Kayrooz, C. (2004). Enabling critical reflection on research supervisory practice. *International Journal for Academic Development*, *9*(1), 99-116. https://doi.org/10.1080/1360144042000296107

Prégent, R. (2001). *L'encadrement des travaux de mémoire et de thèse Conseils pédagogiques aux directeurs de recherche*. Montréal, Québec: Presses internationales Polytechnique.

Royer, C. (1998). *Vers un modèle de direction de recherche doctorale en sciences humaines*. Sainte-Foy, Québec: Presses de l'Université du Québec.

Skakni, I. (2016). Progresser dans la formation doctorale en sciences de l'humain et du social : individus et structure en tension, 244. Retrieved from http://www.theses.ulaval.ca/2016/32639/

Smit, R. (2010). Doctoral supervision : facilitating access to a community of research practice ? *African Journal of Research in Mathematics, Science and Technology Education*, *14*(2), 96-109.

Sverdlik, A., Hall, N. C., McAlpine, L., & Hubbard, K. (2018). The PhD Experience: A Review of the Factors Influencing Doctoral Students' Completion, Achievement, and Well-Being. *International Journal of Doctoral Studies*, *13*, 361-388. https://doi.org/10.28945/4113

Turner, G. (2015). Learning to supervise: four journeys. *Innovations in Education and Teaching International*, *52*(1), 86-98. https://doi.org/10.1080/14703297.2014.981840

Vessey, M. J. K., Davies, M. G., Fraser, S., & Smith, M. B. (2008). Les principes directeurs de l'encadrement des

étudiants des cycles supérieurs, 1-7.

Vilkinas, T. (2008). An exploratory Study of the Supervision of Ph.D./Research Students' Theses. *Innovative Higher Education*, *32*, 297-311. https://doi.org/10.1007/s10755-007-9057-5

Voyer, J.-P. (1992). Improptu sur les thèses et leur supervision. *Recherche et Formation*, *12*(12), 101-115.

Wisker, G., & Kiley, M. (2014). Professional learning: lessons for supervision from doctoral examining. *International Journal for Academic Development*, *19*(2), 125-138. https://doi.org/10.1080/1360144X.2012.727762

Copyrights