

GRADUATE
STUDENT SOCIETY
UBC VANCOUVER

SUPERVISORY EXCELLENCE: A GRADUATE STUDENT PERSPECTIVE

Prepared for:

The Graduate Student Society of the University of British Columbia–Vancouver
(GSS UBCV)

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Executive Summary

Universities play an important role in society by training through undergraduate and postgraduate education and expanding knowledge. Graduate programs exist at the intersection of these two important roles; graduate students learn how to conduct research while contributing knowledge to their field. Graduate students therefore both serve the university and benefit from it.

In graduate education, the university's role is best exemplified by the graduate student supervisor: a faculty member who presides over graduate students, acting as a mentor, guide, and role model. Graduate student supervision is central to the success of graduate students and the mission of universities themselves. Ergo, graduate students, supervisors, and universities must be invested in supervisory excellence.

This White Paper summarizes the research and recommendations of the GSS Supervisory Excellence Sub-Committee, reviews the pedagogical foundations of supervisory excellence and identifies constructive and attainable ways to support supervisory excellence at the University of British Columbia (UBC) and other research-intensive universities. Here, the aim is to advocate for mutually beneficial professional relationships between graduate students and their supervisors and to encourage UBC to become a leader in graduate supervision.

In particular, this review aims to emphasize the importance of excellent supervision and to ask the following questions: What makes an excellent supervisor? How can we foster better supervision? How can we develop positive relationships between students and supervisors? How can we adapt and emphasize supervision in a competitive academic environment?

This research recommends that the University foster and reward excellent supervision in order to become a leader in graduate supervision and best support the University's present and future graduate student communities. Recommendations are provided for data-driven assessments and appropriate resources for both graduate students and their supervisors. These recommendations revolve around the fundamentals of excellent graduate supervision and how supervisory excellence can be identified, fostered, and encouraged at universities.

1. A Vision for Supervisory Excellence

Universities play an integral role in modern society: they expand understanding by conducting cutting-edge research and instill that understanding in future generations by providing high-quality education to students at the undergraduate, graduate, and professional levels. Graduate programs exist at the intersection of these two important roles. Graduate students learn how to conduct research while contributing to the body of knowledge in their chosen field through their research. This allows them to both serve the university and to benefit from it.

In graduate education, the university's role is best exemplified by the graduate student supervisor: a faculty member who presides over graduate students, acting as a mentor, guide, and role model. Excellent supervisors can be mentors, role models, allies, and motivators, orienting graduate students within their chosen field and teaching them how to conduct independent research. Delany (2008) states that excellent supervision helps students reach their full potential, leading to improved research outcomes such as influential research papers and valuable patents (1). In our increasingly knowledge-based economy, these research outputs improve the reputation of the supervisor and the university. This further attracts high-quality students to the institution to push the boundaries of our understanding farther and faster. Increasing high-quality research output also draws more grant funding which, in turn, draws extraordinary, high calibre faculty and students, and drives upwards momentum in global university rankings. Thus, excellent supervision must be prioritized as a driver of this beneficial cycle (1).

Supervisory practices can also have enormous effects on graduate student wellbeing. For students in research-based graduate degrees, including Master's and PhD programs, education revolves around their research supervisor, from whom they are continuously learning how to conduct themselves in their chosen field. It is vital that supervisors set good examples so that PhD and Master's graduates go onto their next steps better prepared for future professional challenges.

Ultimately, excellent supervisory practices foster happy, resilient and productive graduate students. This contributes to the positive reputation of the university, improves the mental health and wellbeing of graduate students and strengthens the campus community in the process.

2. Graduate Supervision at the University of British Columbia

2.1 – A World-Class International Research-Intensive University

UBC is one of the largest universities in Canada, with 54,232 students enrolled at the Point Grey campus as of November 2016 (2). UBC consistently ranks among the top three universities in Canada for medical/doctoral studies (3) and boasts an international reputation for research excellence and high-quality graduate programs (4). UBC offers 250 graduate programs across 11 Faculties, with 2095 potential research supervisors and had 9737 students enrolled in graduate programs as of November 2016, including 6169 (64%) Master's students and 3568 (37%) Doctoral students (5–8).

Times Higher Education recently ranked UBC as North America's most international university, ranking 40th world-wide (9). Of the nearly 10,000 graduate students enrolled at UBC, nearly one-third are international students (10), with the community of UBC graduate students including citizens from >150 different countries (2); in fact, this proportion has increased in the past 25 years from 20% in 1991 to 32% in 2016 (10).

2.2 – Supervision of Graduate Students at UBC

Graduate student success and a continued reputation for research excellence and high-quality research-based graduate programs rely upon a variety of important factors, chief among them supervision. In these programs, students work with their supervisor(s) and supervisory committee throughout their degree as they learn how to conduct research and become independent investigators in their field (11). The UBC Faculty of Graduate and Postdoctoral Studies (FG+PS) Graduate Student Strategy & Operational Plan (2010–2015) states that:

“Effective supervision is of fundamental importance to the success and experience of graduate students and is central to the mandate of a world-class, research-intensive university”

– University of British Columbia, Graduate Student Strategy & Operational Plan (12).

Indeed, good graduate student supervision is essential for the success of graduate students in thesis-based academic programs. The UBC Faculty of Graduate and Postdoctoral Studies describes supervisors as “the key person” in a student's program, and an important determinant for student success:

*“In your role as supervisor, you are the key person in your students’ graduate degree program and have considerable influence in helping them achieve their full potential academically, intellectually, and professionally... The relationship a research graduate student has with his/her supervisor is one of the most important factors in the success of their program, and **the most positive outcomes for supervisors depend on mutually open, committed, and respectful relationships with their students.**”*

– University of British Columbia, Supervising Graduate Students (13)

Graduate students are dependent on their graduate supervisor at every point in their program. Supervisors’ responsibilities include generating projects, reviewing results, and publishing research work (14). Furthermore, the education of graduate students can be substantially impacted by how supervision occurs (i.e. “the nature of supervision”) and the quality of communication between supervisors and their students (15).

Ultimately, graduate student supervision can substantially affect graduate student educational outcomes and the quality of the work produced by the university. Therefore, it is important to provide effective training for graduate student supervisors on how to supervise graduate students and build a productive and mutually beneficial relationship. In addition to training, graduate supervision practices should also be supported by tools and resources, as well as a culture that upholds and rewards high standards of supervision (16).

3. The Graduate Student Society of UBC– Vancouver

The Graduate Student Society of UBC–Vancouver (GSS) is an on–campus organization that advocates on behalf of all UBC Graduate Students to the University, government, and public. The GSS advocates for the well–being and the accommodation of the academic and intellectual needs of all UBC graduate students. Therefore, the GSS is deeply invested in the topic of supervisory excellence for its nearly 10,000 members.

The GSS conducts an annual Student Satisfaction Survey (GSS–SSS) to assess the graduate student experience at UBC. In the 2015 GSS–SSS, 69% of 1091 UBC graduate student respondents reported feeling that they had “appropriate academic supervision” in their graduate studies, 14% disagreed or strongly disagreed, and 17% were neutral (17). Similarly, in the most recent results from the Canadian Association for Graduate Studies’ (CAGS) Canadian Graduate & Professional Student Survey (CGPSS) in 2013, UBC performed significantly below average in student satisfaction with supervisor performance, compared to 47 other universities across Canada: 84% of respondents agreed or strongly agreed when asked, “overall, my advisor performed the role well” (18). Finally, in the 2016 GSS Harassment & Discrimination Climate Survey, many students reported concerns about their supervision or their relationship with their supervisor during their graduate studies at UBC (19).

4. The Modern Understanding of Supervisory Excellence

4.1 – The Fundamentals of Excellent Graduate Supervision

Emilsson and Johnsson believe that supervision is a sophisticated, high-level teaching process in which learning is central (20). Others conceptualize the graduate supervisor as the student's guide through their journey towards the completion of their degree, helping them to make sense of the process and the research they are undertaking (16). Despite the key role that supervisors play in graduate student success and satisfaction, there is currently no widely-understood definition of what constitutes an excellent graduate student supervisor. Several studies in the literature have attempted to provide this, producing profiles and lists of qualities exhibited by good supervisors. One such study, based on interviews with faculty members at a large university in Australia, described doctoral supervision as professional work comprised of five facets:

1. The “learning alliance” between the student and the supervisor working towards the common goal of the thesis;
2. “Habits of mind” that facilitate the supervisor’s interest and reflection on the student’s work;
3. “Scholarly expertise” in the discipline of study;
4. “Technê,” or the knowledge of the appropriate technical skills for the research being conducted; and
5. “Contextual expertise” of the university’s climate towards graduate level education and the policies and procedures required for degree completion (21).

From the student perspective, some of the most critical qualities include accessibility, regular and constructive feedback, academic advice, and a flexible, personal approach to supervision (22). These qualities were repeatedly echoed in interviews with current and former graduate students, as summarized by Lee and colleagues in a report in *Nature* (23). Their list of characteristics of excellent supervisors includes enthusiasm, sensitivity, respect, selflessness, availability, management of the balance of supervisory direction and self-direction, networking and community building, and helping students develop both oral and written communication skills. Lee *et al.* argue that excellent supervision of this nature build fruitful and life-long relationships with their students (23). Good supervisors also aid their students in developing many critical skills necessary for the completion of their theses, while managing and mitigating the risks associated with students’ research (24).

Three common concepts are central in many of these studies. First, that supervision is itself a teachable skillset, requiring pedagogy of its own. Second, that the relationship between the supervisor and the student is one between mentor and mentee, and as such requires open communication and an individualized approach. Third, that the supervisor plays an important role beyond the thesis, into the student’s professional development and training for their subsequent career.

Recommendation 1:

Universities should develop definitions of supervisory excellence that will guide decision-making in areas surrounding graduate student education. Universities should help all faculty and graduate students be aware of this definition.

4.2 – Styles of Supervision

There is no single style of supervision that is effective and appropriate for all students and all situations, across all disciplines. The nature of a student's studies will determine in part their supervisory requirements, and these will also change as they progress through their degree. Thus, effective supervision needs to be an evolving and adaptive process to meet these variable and changing needs (25).

Several styles and models of supervision exist, as outlined by A.M. Lee (26). In the Functional Model, supervisors play the role of the director, guiding students with an emphasis on skill acquisition and development, and the completion of various degree requirements. The Relationship Development Model focuses on the need for emotional intelligence in the supervisor in order to adapt to the learning styles of each of their students. This is often developed as supervisors either mimic or reject the style of their own graduate supervisors. The Emancipation Model emphasizes the role of supervisors as mentors, guiding students towards independence. Some models focus on the supervisor's role in the academic enculturation of the student, where they are the gatekeeper to academic processes and membership in the discipline. Lastly, in the Critical Thinking Model, supervisors actively develop the critical thinking and analytical skills of their students by evaluating and challenging them and their ideas. A truly effective supervisor is capable of drawing from each of these styles and applies them as the student and situation calls for.

Mainhard and colleagues define supervisory styles in terms of interpersonal relationship profiles between supervisor and student (27). These profiles are a composite of eight scales that together comprise a more nuanced look at the style of a given student-supervisor relationship: leadership, helpfulness/friendliness, understanding, student freedom/responsibility, uncertainty, dissatisfaction, admonishment, and strictness. Their work also redefines existing supervisory styles in these terms. Examples of this include: laissez-faire supervisors emphasize the student's freedom and personal responsibility; pastoral supervisors tend towards friendliness and understanding; contractual supervisors display a high degree of leadership and direction, while also being helpful and compassionate towards their students; and directorial supervisors who are strict leaders. This framework also provides a helpful means of assessing supervisors and matching supervisory styles to the needs of individual students through the ability of determine the ideal style, the style experienced by the student, and the self-perceived style of the supervisor.

Recommendation 2:

Universities should provide resources (e.g. workshops) geared towards understanding and developing healthy, personalized, and intentional styles of supervision among faculty.

4.3 – Outcomes of Excellent Supervision

The quality of graduate student supervision can be assessed both subjectively and objectively. One common method is to survey graduate students about their satisfaction with their supervisor, during or after completing their degree. At UBC, this is done through the GSS-SSS and other surveys, as well as nationally through the CGPSS. In these, the overall quality of the institution's supervisors is monitored by the percentage of students reporting that they are satisfied or dissatisfied with the supervision they receive. However, for this type of evaluation, it is important that graduate students are aware of and understand what expectations the university sets for supervisors. This is addressed in greater detail in Section 6.4.

On a more objective and quantitative basis, supervision quality can be measured both for individual professors and the Faculty, department, or institution as a whole through the measurement of student outcomes. These include graduation rates, time to completion, publication quality and quantity, conference presentations, and the receipt of grants and awards, all of which supervisors play an important role in, and are criteria currently in use to assess and reward supervisory excellence. However, this method does not completely capture the valuable aspects of student satisfaction. Other indicators that should be considered for use to assess supervisory excellence are discussed in greater detail in section 6.

Because neither objective nor subjective methods can accurately and comprehensively capture supervisory excellence alone, a combination of the two types of approaches is best when performing assessments.

Recommendation 3:

Universities should develop and implement effective, multi-factorial assessments of supervisory excellence that will be used to assess and reward supervision. Assessments should be developed with continuous feedback from faculty, students, and graduate Faculties.

5. Mentoring Mentors: Fostering Excellent Supervision

Many authors agree that supervision is most effective when supervision is treated as pedagogy (28). This concept has gained prominence over the past decade, especially in relation to doctoral supervision. There are several pedagogical practices that are shown to be effective and are employed by many universities around Canada and the world. All of these practices acknowledge the importance of continual learning in supervisory best practices and often include elements such as training, assessment, and a culture of mentorship.

In 2016, McCulloch and Loeser published a study, “Does research degree supervisor training work? The impact of a professional development induction workshop on supervision practice.” This study examined the effectiveness of a one day workshop for research degree supervisors and showed that 94% of participants understood university policies and procedures better as a result of the workshop, and ~80% of participants understood the “development of doctoral education” better. Following the workshop, between 53–84% of respondents drew upon the different workshop elements in their supervisory practice, including networking, information about online resources, case studies, and tips from senior supervisors. Overall, 72% of respondents agreed or strongly agreed that the workshop was useful (29). This is a promising indicator that supervisor training has long-term benefits for supervisors, allowing them to better support their students.

5.1 – The Importance of Career-Long Training

Like any skill, supervision requires constant practice and ongoing learning (28). By providing educational support, a university empowers their faculty to be effective supervisors. This is important for both impressionable junior supervisors as well as seasoned professors with numerous students. Students are likely to learn and adopt the supervisory principles that their supervisor demonstrates, so it is important that their supervisor incorporates the latest pedagogical methods, as they will in turn pass these on to their own students once they become professors (26).

Graduate student supervisors are typically selected due to excellence in research, but supervisory skills, which are often neglected, are equally important. Many universities are trying to fill this gap by providing formal training for their faculty. Handbooks such as the National Academy for the Integration of Research, Teaching and Learning “Handbook for Graduate Student Supervision” guide the formation of these formal training courses.

In Europe, many institutions are guided by the Ten Salzburg Principles on the Doctorate, which state that, “Providing professional development to supervisors is an institutional responsibility” (30). The government of Sweden has integrated this into its legislation, which requires professors to complete postgraduate supervision training before they are permitted to supervise

doctoral students. Similarly, in the United Kingdom, all new supervisors are required to undergo mandatory training (16).

While the training of junior faculty is extremely important, it is equally important that this training continue throughout supervisors' academic careers. Most learning is slow and experiential, therefore ongoing, continued support in the form of regular, formal training is required to facilitate growth (20). This allows supervisors to remain up to date with the best supervisory practices, as well as changes to the institution and government, such as funding structures, policy changes, supervision models, markets, and topic relevance (28). In 2003, the University of Edinburgh introduced a requirement that staff partake in at least one day of continuing professional development every five years in order to remain in good standing as a supervisor (31).

In Australia, the University of Melbourne requires both incoming and tenured faculty to attend training. In order to supervise graduate students, supervisors are assessed every five years and must be actively researching, ensure their students' degree completion rate is timely (i.e. under five years for a doctorate), and either have attended refresher training courses or have completed the new supervisor training offered by the university within the last five years (32). The University of New South Wales recommends that research faculty supervise no more than six full-time research students at any one time, and conducts a survey of research supervisors to identify areas of strength and interests, as well as the specific needs of the community (33). The University of Sydney requires Foundations of Research Supervision certification to include supervisors in the Registry of Supervisors; supervisors must have completed four modules to be eligible for the certificate (34).

Within Canada, several universities have adopted supervisory training, as well (35). For example, the University of Waterloo requires junior supervisors to partake in the Approved Doctoral Dissertation Supervisor program, comprised of six mandatory workshops, before they can take on graduate students (36). Ryerson University also holds mandatory workshops to drive changes in supervisory culture. At the University of Alberta, this training takes the form of a doctoral policy briefing, which is mandatory for supervisors to attend every five years in order to maintain their supervisory accreditation. Recognizing that supervision is a skill that can be learned, a faculty member is required to co-supervise a student with the help of a mentor before they are allowed students of their own. Finally, the Dean of the graduate Faculty meets with other Faculty Deans on an annual basis to discuss doctoral matters, including supervision. If 10 or more candidates from a particular department or school complete a doctoral exit survey in any given year, the Dean meets with the head of that unit to discuss the exit survey and other matters related to supervision (37).

At UBC, supervisor training and mentorship is also a concern. The UBC-Vancouver Senate Ad Hoc Committee on Student Mental Health and Wellbeing suggested creating a supervisory training program as well as guidelines to develop positive student-supervisor relationships, especially because improving student-supervisor relationships improves student mental health (38). A large number (23%) of graduate students report mental health concerns including depression and anxiety, which is correlated with whether or not they feel like valued members

of the university community (38). Great mentors can provide empowerment and confirmation that the student's work is worthwhile, which will aid in improving student mental health (26).

Various voluntary workshops have been developed at UBC, such as the Supporting Excellence in Graduate Student Supervision workshop series in 2014 and 2015 (39,40). The UBC-Vancouver Senate Ad Hoc Committee on Student Mental Health and Wellbeing recommended that the institution consider making supervision training mandatory, and adopt stronger guidelines or requirements around effective supervision. The committee also suggested that, as a governing representative body consisting largely of faculty, it would be beneficial if the UBC-Vancouver Senate took on a leadership role in setting standards and requirements, and developing support resources to promote supervisory excellence (38).

Recommendation 4:

Universities should actively foster a culture of graduate student supervision as pedagogy and promote university-wide development and adoption of supervisory best practices by implementing (i) high quality and mandatory entry-level training for graduate student supervisors as well as (ii) workshops available for the ongoing development of supervisor proficiencies in the spirit of continuous learning.

5.2 – The Importance of Peer–Evaluation and Community Building

The ongoing assessment of supervisory skills – by self, peers, and students – is essential for the continuous improvement of graduate student supervision. Lawson *et al.* found that new supervisors need support from senior faculty, especially in the areas of giving feedback and developing student relationships (41). However, meetings between faculty supervisors should be arranged so that they are constructive, trust–building, and encouraging of self–reflection and learning (20). Peer supervision raised supervisors’ self–awareness, but also gave rise to insecurities and anxieties. It is therefore important that this not be a graded assessment per se, but rather an intellectual opportunity to discuss methods among colleagues (16). This can also provide faculty with the opportunity to comment on potential misconduct or conflicts of interest, as is their responsibility, without appearing confrontational or putting relationships at risk, which is a current fear among faculty (42).

The practice of peer–assessment is commonplace in Sweden, where peer observation of supervision and group mentorship for supervisors are incorporated into their two–day supervision course (43). Though a workshop can provide formal instruction, it is also important that peer observations occur over a long period of time to encourage the adoption of learning (20).

Feedback from students regarding their supervisor’s performance can also be useful to sustain continuous growth:

“Students in many fields would greatly benefit from an alternative model of doctoral education in which apprenticeship is a shared function, and a reciprocal one, that fosters learning for both professor and student”

– Walker *et al.*, 2007 (44)

Recommendation 5:

Universities should develop and support peer mentorship programs and communities of practice around graduate student supervision, including methods of assessment that consider feedback from peers.

5.3 – Building a University–Wide Culture of Mentorship

Historically, graduate studies have been treated as a form of apprenticeship. Each student is appointed an advisor that is experienced in research. In this role, the supervisor guides the student, thereby acting as a mentor in their education. According to Blass (2012), the purpose of graduate studies is to learn how to think critically and question the world. A supervisor is meant to help the student make sense of the journey. In this context, a healthy supervisor/student relationship is essential to success (16).

Research shows that students who have mentoring relationships with their supervisors have higher productivity levels, a higher level of involvement with their departments, and greater satisfaction with their programs (45). Both the Massachusetts Institute of Technology and the University of Michigan have well-regarded handbooks for supervisors that detail best practices in mentoring graduate students (46). Training to become a mentor is important and usually involves a high level of self-awareness and introspection (26).

Supervisory culture is as important to mentorship as formal training. A key component of the Salzburg Principles states that, “Developing a common supervision culture shared by supervisors, doctoral school leaders and doctoral candidates must be a priority for doctoral schools” (30). Without an institutional culture that embraces and rewards good mentorship, efforts to develop better methods will likely not manifest in improved relationships (47). As Lee and colleagues note,

“Those who are good mentors get incalculably more out of it than they put into it.”

– Lee *et al.*, 2007 (23)

Recommendation 6:

Universities should actively foster a culture of graduate student supervision as pedagogy by explicitly considering graduate student supervision philosophies and proficiencies in the criteria for hiring and promotion decisions.

6. Indicators of Supervisory Excellence

6.1 – Positive Student–Supervisor Relationships

Developing a positive student–supervisor relationship is critical for student success. Literature suggests that one of the most powerful influences on student success and persistence in their degree is the relationship students develop with their supervisors (48). However, good supervision needs to be tailored to the supervisor and to the student; one size does not fit all.

There are many qualities that can exemplify good supervisors, as outlined in an earlier section of this document, however a central idea is that effective supervisors are flexible and can adjust their approach to suit the needs of the specific situation and the specific student (1). Excellent mentors have the ability to appreciate individual differences. Different students have different needs and preferences, and each student will have their own specific career goals (23). A graduate student who is a parent, for example, may have to leave work earlier than their colleagues due to daycare constraints. This need for flexibility can extend to different programs/disciplines that require different styles of supervision. Professional graduate programs have their own challenges, as students may also be working professionals. Supervisors of these students require additional skills, including the ability to work with external employers (26).

“There is no gold standard model of graduate supervision which can be applied in all situations, across all disciplines. For supervision to be effective, it must be an evolving process that concentrates on meeting the needs of different students, programmes and administrative structures”

– Egan *et al.*, 2009 (47)

Effective communication strategies are important components of the student–supervisor relationship, and can help to facilitate discussion on difficult topics, frequent meetings with constructive feedback, the setting of clear expectations, and the cultivation of intercultural fluency.

Recommendation 7:

Universities should incorporate the value of and need for flexibility and different supervisory styles, as well as the importance of the relationship between student and supervisor in supervisor training, resources, and evaluation. Universities should consider feedback from students in supervisory assessments.

6.2 – Regular, Open, and Effective Communication

As with any relationship, effective communication is essential to build rapport and to navigate challenging topics, periods of stress and confusion, and conflict resolution. When most graduate students are experiencing supervisor–student relationships for the first time, it is an inevitable challenge and opportunity for learning that graduate students feel uncomfortable approaching certain topics. Indeed, many graduate students struggle to establish and maintain open lines of communication with their graduate supervisors. Feeling uncomfortable approaching certain topics is a common challenge, and the GSS–SSS has pointed out that such challenges remain a barrier to success among a sizable fraction of the graduate student population: In 2015, 34% of participants felt uncomfortable discussing personal issues that affect their graduate work with their supervisor; 11% of participants felt uncomfortable discussing graduation timelines and the direction of their academic work with their supervisor; 28% felt uncomfortable discussing issues related to their stipend and pay with their supervisors; and 16% felt uncomfortable discussing scholarships and funding (17).

Even while maintaining a professional relationship, it is important to remember that the student’s personal, cultural and socio–economical background may cause embarrassment and stress surrounding certain topics. As such, students reluctant to approach supervisors may make no mention of personal events and circumstance, even though there is a noticeable difference in the student’s behavior or productivity (49,50).

Other Canadian universities make note of communication as an equal responsibility of students and supervisors for making sure that progress, results, and plans are discussed. In the best supervisory relationships, there is adequate opportunity to discuss more than the week’s work (51,52).

Our research strongly suggests that the power of communication can positively affect the work environment and is best achieved through preparatory training and resources to set the stage for such important conversations. If these conversations are anticipated by supervisors, and resources are pre–emptively provided for students, the stress surrounding certain topics can be greatly ameliorated and the resulting conversations can be far more productive.

Recommendation 8:

Universities should foster a culture of open, continuous, two–way communication between graduate students and supervisors and provide training and resources for both students and supervisors surrounding common topics and themes. Graduate student representatives and graduate faculties should empower graduate students by providing resources and clear institutional standards.

6.3 – Setting Clear Expectations

One of the strongest predictors of degree completion is having clear supervisor–student expectations that are monitored and met throughout the doctoral degree program (53). However, mutual expectations are not always explicitly discussed and this can lead to unclear and unmet expectations. Having different or unarticulated expectations is one of the most common causes of troubled supervisory relationships, which is aptly stated in the University of Western Ontario Graduate Handbook:

“Explicit discussions with new and continuing graduate students and graduate faculty involving issues of authorship, intellectual property ownership, and clear expectations regarding academic performance and timelines for thesis progress and completion, may prove highly beneficial in minimizing the subsequent occurrence of conflict situations”
– Graduate Supervision Handbook, University of Western Ontario (54)

An important professional role of a supervisor is the development of a ‘learning alliance’, an agreement between supervisor and student to work towards the common goal of producing a high-quality thesis. Key features of the learning alliance are mutual respect, clear communication, flexibility in accommodating each other's personal and professional circumstances, a firm commitment to collaborate, and explicit strategies for progressing towards the common goal of thesis completion (21). Developing such an alliance and having clear guidelines and expectations will help facilitate a positive working relationship between the supervisor and student. This will further provide the feeling of support, productivity and value to the student's work, ensuring a sense of wellbeing (38).

For this reason, it is recommended that students and supervisors communicate their expectations in writing so that they can be clarified and discussed prior to commencing the degree. A documented mutual agreement made between a graduate student and their supervisor can help establish clear expectations and open up dialogue early on, setting the stage for constructive conversation and ongoing dialogue. Some faculties and schools of graduate studies recommend that a written agreement be signed by supervisors and graduate students on such issues, such as the University of Western Ontario, the University of Toronto, and UBC. In these cases, it is important that students provide informed consent and are not coerced into signing contracts they disagree with. Alternatively, Lee *et al.* suggest the use of ‘discussion documents’ that can guide the supervisor–student discussion for managing expectations and allocating responsibilities. Such documents can also be useful for establishing best practices (26).

Additionally, a clear and accessible document highlighting the standards and guidelines of supervision is a useful resource for both students and supervisors. University-wide expectations, as well as roles and responsibilities of graduate students and supervisors should be made clear and accessible. The University should provide guidelines on the roles of the supervisor and the graduate student, and should provide resources and workshops for supervisors and graduate students where the roles of students and supervisors can be discussed (55).

Across Canada, many universities have developed resources to help supervisors and students discuss and clarify their expectations. The University of Toronto and the University of Western Ontario provide good examples of student-supervisor agreements, outlining specific areas of discussion, as well as the roles and responsibilities of each party (56,57). Several documents/handbooks, policies, and online resources have been made available to further assist in defining the roles and responsibilities of supervisors and graduate students during the duration of the degree, including:

- University of Toronto Supervision Guidelines (52)
- University of Western Ontario Graduate Supervision Handbook (54)
- McMaster University Supervision Guidelines (58)
- McMaster University policy (59)
- McMaster University Good Practice in the Supervision & Mentoring of Postgraduate Students Document (51)

At UBC, similar documents exist that outline the roles and responsibilities of supervisors and graduate students, such as the Handbook on Graduate Supervision, the Graduate Student/Supervisor Expectations document, and a template letter to facilitate supervisors' communication with their students (15,60,61). Despite the existence of these documents, there is no University-wide policy to ensure that all Faculties and departments use them or that all students are aware of them. It is usually up to the discretion of the Faculty/department and/or supervisor to initiate a discussion between a supervisor and a newly recruited student.

Recommendation 9:

Universities and graduate student societies should familiarize incoming graduate students with the resources available to support positive working relationships with their supervisor at student orientations, including the setting of clear expectations and regular meetings. Universities may also develop policies to ensure that students and supervisors hold important conversations on mutual expectations, such as a written document or template.

6.4 – Hosting Regular Meetings to Facilitate Constructive Feedback

As graduate students learn and become more independent, it remains important to have regular, constructive communication with, and feedback from, their supervisors in order to continuously progress in their degree and quickly correct any missteps or miscommunications. In-person meetings between students and their supervisors are key in supporting communication throughout the degree. In fact, meeting frequency is strongly correlated with student satisfaction in their graduate degree, as well as a successful and timely completion of a PhD, highlighting the importance of supervisor accessibility as well as the value of the opportunity for regular feedback (1).

There may not be a single ideal meeting frequency for all students, supervisors, and disciplines of research. Therefore, two-way communication and clear expectations are of paramount importance in establishing a helpful system for graduate students and their supervisors to meet. At UBC, there is a noticeable difference in meeting frequency across Faculties, from the 2015 GSS–SSS (17). Noticeably, graduate students in the Sciences meet most frequently with their supervisors, whereas those in Education meet least frequently (Figure 1). Differences in what is needed and beneficial will differ across faculties, and to improve in this area will require the thorough consultation of representatives from all Faculties at a university, as well as effective conversation between students and supervisors.

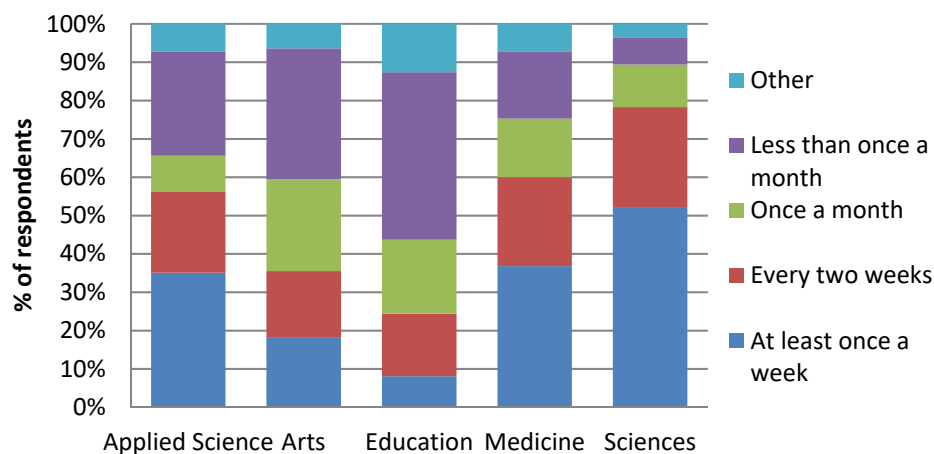


Figure 1. Supervisory meeting frequency across UBC Faculties. The reported frequency of meetings with supervisors broken out by Faculty of study. (“I generally meet with my supervisor/advisor At least once a week/Every two weeks/Once a month/Less than once a month/Other”) (955 responses).

In 2015, 24% of UBC graduate students in the GSS–SSS reported meeting less than once a month with their supervisor, and 16% met only once a month (17). Similarly, in the 2014 GSS–SSS, 23% of participants reported meeting with their supervisor once a month and 20% reported “Other.” When meeting frequency is analyzed alongside student supervisor

satisfaction, there is a strong correlation that students who meet less often with their supervisors are more likely to disagree with ‘receiving appropriate academic supervision’ (62,63) (Figure 2).

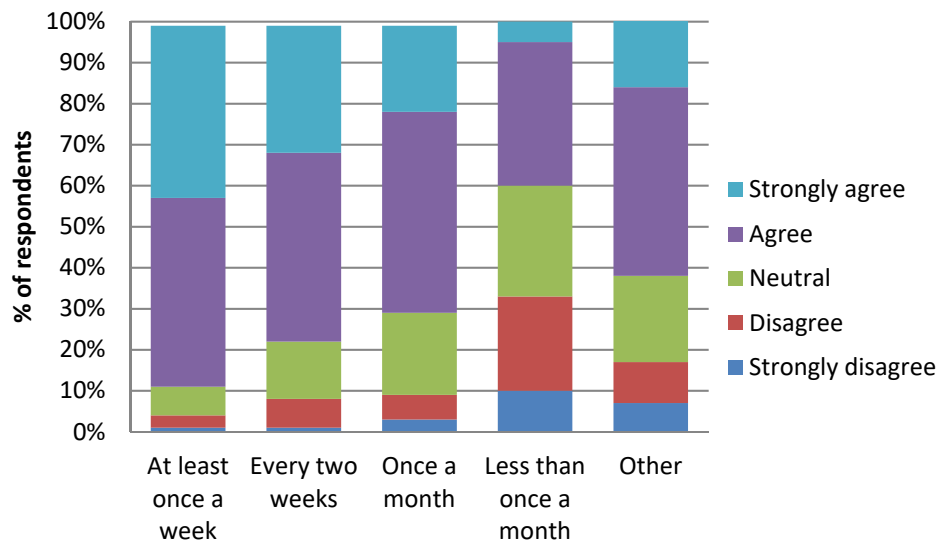


Figure 2. Reported appropriateness of academic supervision is positively correlated with meeting frequency. The student-reported appropriateness of academic supervision is shown categorized according to student-reported frequency of meetings with their supervisor. Results are taken from two questions on the 2015 GSS Student Satisfaction Survey: UBC graduate students were asked to what extent they agreed with the sentence, “I feel that I have received appropriate academic supervision while carrying out research activities related to my graduate degree at UBC” (1091 responses) and frequency of meetings with their supervisor (“I generally meet with my supervisor/advisor At least once a week/Every two weeks/Once a month/Less than once a month/Other”) (955 responses).

It should be noted that both the GSS-SSS and the CGPSS do not explicitly ask students specifically whether these meetings are one-on-one with their supervisor directly pertaining to their research, and – as identified by the UBC Faculty of Graduate and Postdoctoral Studies – very few, if any, surveys ask about happiness, independence, the relationship between the student and supervisor, and the quality of the advice and guidance itself. Finally, all the surveys we have examined depend heavily on the students’ own expectations from their supervisor and in their graduate program. These may not match with university expectations, to which students can understandably be naïve and where supervisors, graduate programs, and graduate Faculties should together play an important role. Altogether, this highlights some substantial gaps in how graduate student satisfaction is currently assessed, which represents a rich area of data to be discovered to improve student satisfaction and continuously improve supervision pedagogy, accordingly, to the benefit of the student, supervisor, and university.

Recommendation 10:

Universities and supervisors should set, clarify, and promote policies where students and their supervisors meet a minimum of once per month, ideally encouraging and considering a two-way conversation between students and supervisors on precisely how meetings can best serve both parties, including meeting frequency and format.

Recommendation 11:

Universities, graduate Faculties and programs, graduate student societies, and national graduate associations should develop more useful metrics and qualitative measures with which to more effectively assess student satisfaction with their program and supervision.

6.5 – Acknowledging and Adapting to Intercultural Differences

Each graduate student is different and highly individual, with different preferences, expectations of teaching and learning, approaches to study and work, and professional goals. Some of these differences may stem from their cultural background and previous experiences. Good supervisors recognize and value this diversity and adjust the way they manage and interact with each student accordingly (64).

Due to the rich cultural diversity of the Canadian population as a whole and also that of Canadian universities, Canadian universities are striving to identify the best ways to support students from different cultural backgrounds. For example, as North America's most international university (9), nearly one-third of UBC graduate students are international students (10) who are citizens of >150 different countries (2). Consequently, the cultural background of many graduate students can be very different from the institutional norms. Understanding cultural differences, expectations, and assumptions can help all students thrive and minimize miscommunication and misunderstanding between supervisors and their students. According to the Western Guide to Mentoring Graduate Students Across Cultures:

“Challenges in supervising and mentoring graduate students across cultures revolve around five main themes: (1) assumptions about the nature of research and knowledge production; (2) cultural differences in power and status; (3) differing needs for saving face; (4) cultural differences in communication styles; and (5) expectations about following rules.”

– Vessey *et al.*, 2008 (55)

In the case of international students, the need for supervisors to adapt their practices and mentoring approach is even greater, as international students often have unique needs. International students enhance their host university by bringing their own cultural elements and creating an enriched social learning environment that can greatly benefit all students of the university. The host university stands to gain both through increased financial influx, increased international exposure, and strengthened relationships with partnering countries (65). The international students, on the other hand, face the demands of adapting to the research and university culture, which may be further intensified by new social and cultural norms. Homesickness and loneliness often contribute to the struggle that international students face while trying to adapt to the unvoiced norms of a different country.

International graduate students tend to have fewer social support systems to help them face and cope with the challenges of studying abroad, resulting in the supervisor being “the central figure in the lives of these students” (66). According to Egan *et al.*, “students, especially international students and those in soft disciplines, require a personal and holistic style of supervision to obtain maximum benefit from their graduate studies” (47). Higher tuition rates and immigration issues such as the need for student visas add additional stress to international students, particularly for time to completion and extension of the degree program. Supervisors should be aware of important cultural differences and the challenging situation faced by international students.

Learning styles of international students can be very different from Canadian standards, with varying emphasis on memorization, testing, and critical thinking. Issues can also arise from different cultural norms surrounding the relationship between student and teacher (26). In some cultures, it is considered insulting to argue or disagree with elders or persons of authority; this can limit the student's familiarity with and willingness for academic debate, which is encouraged, expected, and valued at Canadian universities. Supervisors need to be aware of the above issues and encourage their students to make use of university resources such as peer tutoring programs, orientation, and one-on-one meetings that enable students to better understand the Canadian academic environment (67).

An additional layer of complexity comes with the different perspective on sources of conflict between students and their supervisors. Students report that the most prevalent sources of conflict involve differences in communication and expectations, and a lack of feedback and support, while supervisors report that the sources of conflict arise from insufficient research training, too much dependence, and inadequate language skills (66). Previous investigations have found that international students can benefit from having additional supervision and guidance on the western standards of academic integrity and plagiarism. Students found to have plagiarized often cite a lack of understanding of these standards as the reason why it occurred (68).

Universities across Canada and the world recognize how internationalization and collaboration with diverse teams can help students acquire valuable skills, and therefore embrace fostering environments with a multitude of cultural and personal identities. However, very little is currently known on how to practically facilitate pedagogy and learning in such multicultural environments, especially in relation to graduate student supervision. Utilizing additional sources of information or developing further university resources can be beneficial for both supervisors and students (e.g. books on cross-cultural learning (69)).

Canadian universities such as the University of Western Ontario, Simon Fraser University, and Memorial University have employed different strategies to bridge the cross-cultural gap in graduate student supervision. The University of Western Ontario has developed the Guide to Mentoring Graduate Students Across Cultures (70), which details the challenges of cross-cultural student supervision, strategies to overcome these challenges, best practices, testimonials, and case-studies. Simon Fraser University offers the Graduate Supervision and Mentorship across Cultures Professional Development Workshop to staff and faculty to help “facilitate dialogue about cultural differences in the context of graduate education” (71). The Memorial University Program in Graduate Student Supervision includes topics on cross-cultural supervision and is offered to faculty in a 12-4 hour blended course over several weeks (72).

Universities outside Canada, such as the University of Adelaide and Macquarie University, have also examined how to navigate and support intercultural differences (43). The University of Adelaide offers cultural supervision workshops that focus on dialogue and building common understanding through role play. At Macquarie University, the Cross Cultural Supervision Project portrays both students' and supervisors' perspectives in video case studies, which provide resources for addressing the misconceptions around candidature and supervision (73).

Recommendation 12:

Universities should provide resources and workshops that educate supervisors on the unique challenges of supervising international graduate students, and facilitate dialogue on cultural differences, including differences in learning and mentoring styles, and the challenges of adapting to unfamiliar cultural norms.

6.6 – Investing in Broader Student Career Development

As those in many professions – including graduate supervisors – benefit from career-long training, graduate students also benefit from career-long training. It is important that this begin in graduate school. Graduate studies are generally undertaken as a prerequisite for later employment, whether in academia or – increasingly – elsewhere. Therefore, students are concerned with developing the skills, networks, and training required for their competitiveness, employability, and careers, in addition to the completion of their research and dissertation. These skills can be obtained in many ways, including, but not limited to, attending conferences, conducting internships, and attending workshops. There is currently a wide variety of personal and professional development workshops provided through the Graduate Pathways to Success program within the UBC Faculty of Graduate and Postdoctoral Studies (74), through Mitacs programs (75) and through other components of the university such as the UBC Public Scholars Initiative (76). Support from supervisors greatly encourages participation in these programs, so it is important that supervisors acknowledge and support these development opportunities.

Recommendation 13:

Universities and graduate Faculties should create and advertise personal and professional development opportunities specifically for graduate students, and encourage a culture of career-long training for both graduate students and supervisors.

6.7 – Engagement with the Supervisory Committee

Supervisory committee members can form the early stages of a student's network of potential mentors and collaborators. Committee members can play an important role during a student's degree, acting as mentors, providing expertise outside of the student's typical experience, and often outside of the supervisor's area of study. Therefore, committee members represent an important area of potential in a graduate student's development. Ideally, both supervisors and committee members are responsible for the supervision and progression of the student they supervise. In turn, these efforts help to create mutually beneficial relationships and potential collaborations across the university.

Committee members are chosen with the help and approval of the primary supervisor, so it is critical that supervisors approach this process with the student's best interests in mind. UBC graduate students prefer selecting committee members based on their research interests and goals, and have experienced conflicts when they are selected primarily based on the potential committee member's relationship with their supervisor (19).

There is also a need to maintain appropriate advising and conflict resolution channels for students. An important part of this system at UBC is a program's designated graduate advisor. Thus, it is important to recognize that potential conflicts can arise when these faculty members also sit on a student's supervisory committee and to provide alternatives in these cases (19).

Recommendation 14:

Universities should create a culture that emphasizes the role of the supervisory committee as an important resource for students, and endeavour to ensure that committee members are aware, prepared, and available to engage actively with the student.

6.8 – Timely Completion of Degree Milestones

The expedient completion of thesis requirements is central to student satisfaction and should be prioritized by both the student and the supervisor. This is particularly critical on the supervisor's part, as they are the gatekeepers to academic culture and to the progression and completion of degree requirements, which creates opportunities for conflict (26). Delays in graduation can arise through several circumstances, which are common complaints from graduate students, such as: the lack of a clear, consistent thesis direction, frequent changes to the thesis topic, long wait times for feedback on written work, and students being asked to do considerable amounts of work outside the bounds of their thesis project. It is important for supervisors to recognize that – while this is a subject of much concern for their students – discussions surrounding the topic of direction and completion can be uncomfortable for students to raise. In the most recent GSS-SSS, 11% of UBC graduate students reported discomfort discussing their thesis direction with their supervisors, and 11% of participants felt uncomfortable discussing time to completion (17). Furthermore, in any position where one party holds more authority than another, it is important to consider power dynamics, where students are vulnerable to their supervisor, colleagues, and collaborators, particularly when it comes to work outside the bounds of the thesis. The supervisor should work to defend their students from this potential exploitation (77).

An important balance of academic freedom and direction needs to be struck between the student and the supervisor when deciding on the thesis topic. Academic freedom is entrenched in UBC academic policy, which extends this right to “all who are invited to participate in its forum,” including both faculty members and students (78), and the GSS is committed to its preservation. Graduate students can be seen as researchers-in-training, where students benefit from space to explore ideas that interest and motivate them, while supervisors provide needed advice, support, and direction. Of note, in the 2013 CGPSS, UBC scored 3.2 / 5.0 in the quality of support and opportunities for faculty guidance in formulating a research topic. Similarly, 41% of UBC graduate student participants “meet or communicate with [their] dissertation advisor about [their] ongoing writing of the dissertation draft” less than once a month, and 21% of UBC participants meet with their supervisor about their “ongoing research and results” less than once a month (18). As mentioned earlier in this paper, a similar trend is observed in the 2014 and 2015 GSS-SSS, where the frequency of meetings between students and their supervisors is positively correlated with student satisfaction with their supervisor (17,62,63). Meetings between supervisors and students should be prioritized in order to support timely project development and graduation.

Recommendation 15:

Universities should investigate barriers to timely program completion, monitor barriers preventing timely completion, and identify effective measures to decrease average graduate student time to completion across each Faculty and program.

6.9 – Participation in Learning Experiences Beyond the Thesis

Great mentors help to build their mentee's careers, allowing them to become mentors for life whose advice and friendship are valued and maintained long after graduation (23). According to the Canadian Association for Graduate Studies, supervisors should be responsible for mentoring students in areas such as, but not limited to: the development of appropriate professional skills; applications for funding; networking opportunities with colleagues in academia and beyond; assistance with publications; and career development (55). This is in line with the concept of graduate studies as a form of career training, where additional skills apart from those directly involved in the preparation of the thesis are expected to be acquired. Many of these skills are acquired through teaching, volunteering, and other extracurricular activities. In addition to being great learning opportunities, these activities can also have a positive effect on student wellbeing, from a sense of purpose gained from volunteer work, to physical and mental health from participation in recreational sports, and a cultivated balance between work and downtime.

Over the course of doctoral studies, students take on many roles in addition to their thesis research, including teaching duties and the supervision of junior students, which can all contribute to their development as an academic, but which can also cause conflict and friction (77). In the 2015 GSS-SSS, 9% of participants reported that discouragement from their supervisor prevents them from participating in extracurricular activities (17). While graduate student supervisors have the ability to both encourage or discourage and inhibit learning outside the bounds of the thesis, it is important for supervisors to recognize the importance of learning beyond the thesis and activities that support student wellbeing during a challenging postgraduate degree, and accordingly support reasonable pursuance of these activities for the benefit of the student, their research, and their career development, as well as the increased productivity for the benefit of the supervisor's research and the university. Similarly, it is important for students to recognize that these activities are worthwhile and encouraged.

Recommendation 16:

Universities should foster a culture where all graduate student supervisors are supportive of their students' reasonable pursuit of learning and teaching activities outside the bounds of the thesis.

Conclusions

Excellence in graduate student supervision works to the benefit of the student, the supervisor, and the university and therefore should be a priority for all those involved. To accomplish this, 'supervisory excellence' must be holistically defined and actively fostered. It is important to develop a university culture that values supervisory excellence. It is important to recognize that supervisory skills must be developed and honed through training, assessment, and continuous learning. Different universities have approached this in different ways, with some creating mandatory workshops and training, and others conducting regular recertification of supervisors.

Setting clear expectations and having open, two-way communication in meetings and including feedback can positively affect the student-supervisor relationship and is critical for student success.

Ultimately, good supervision needs to be tailored to the supervisor and to the student; one size does not fit all. This is particularly true for the high proportion of international students: Intercultural fluency is a necessary skill in the multicultural Canadian university setting, and sociocultural backgrounds define students' and supervisors' attitudes and approaches towards teaching and research. Culturally fluent supervisors can navigate their relationships with international students and enhance their academic performance.

Finally, because graduate studies are often a prerequisite for later employment, personal and professional development, networking, and timely degree completion are matters of concern for students that warrant support and encouragement from their supervisors and supervisory committees.

The above research resulted in the following recommendations for those involved in graduate student supervision at universities:

Recommendations

1. Universities should develop definitions of supervisory excellence that will guide decision-making in areas surrounding graduate student education. Universities should help all faculty and graduate students be aware of this definition.
2. Universities should provide resources (e.g. workshops) geared towards understanding and developing healthy, personalized, and intentional styles of supervision among faculty.
3. Universities should develop and implement effective, multi-factorial assessments of supervisory excellence that will be used to assess and reward supervision. Assessments should be developed with continuous feedback from faculty, students, and graduate Faculties.
4. Universities should actively foster a culture of graduate student supervision as pedagogy and promote university-wide development and adoption of supervisory best practices by implementing (i) high quality and mandatory entry-level training for graduate student

supervisors as well as (ii) workshops available for the ongoing development of supervisor proficiencies in the spirit of continuous learning.

5. Universities should develop and support peer mentorship programs and communities of practice around graduate student supervision, including methods of assessment that consider feedback from peers.
6. Universities should actively foster a culture of graduate student supervision as pedagogy by explicitly considering graduate student supervision philosophies and proficiencies in the criteria for hiring and promotion decisions.
7. Universities should incorporate the value of and need for flexibility and different supervisory styles, as well as the importance of the relationship between student and supervisor in supervisor training, resources, and evaluation. Universities should consider feedback from students in supervisory assessments.
8. Universities should foster a culture of open, continuous, two-way communication between graduate students and supervisors and also provide training and resources for both students and supervisors surrounding common topics and themes, including the setting of clear expectations, and regular meetings. Graduate student societies and graduate Faculties should empower graduate students by providing resources and clear institutional expectations.
9. Universities and graduate student societies should familiarize incoming graduate students with the resources available to support positive working relationships with their supervisor at student orientations, including the setting of clear expectations and regular meetings. Universities may also develop policies to ensure that students and supervisors hold important conversations on mutual expectations, such as a written document or template.
10. Universities and supervisors should set, clarify, and promote policies where students and their supervisors meet a minimum of once per month, ideally encouraging and considering a two-way conversation between students and supervisors on precisely how meetings can best serve both parties, including meeting frequency and format.
11. Universities, graduate Faculties and programs, graduate student societies, and national graduate associations should develop more useful metrics and qualitative measures with which to more effectively assess student satisfaction with their program and supervision.
12. Universities should provide resources and workshops that educate supervisors on the unique challenges of conducting international graduate studies, and facilitate dialogue on cultural differences, including different learning, and mentoring styles and the challenges of adapting to unfamiliar cultural norms.
13. Universities and graduate Faculties should create and advertise personal and professional development opportunities specifically for graduate students, and encourage a culture of career-long training for both graduate students and supervisors.

14. Universities should create a culture that emphasizes the role of the supervisory committee as an important resource for students, and endeavour to ensure that committee members are aware, prepared, and available to engage actively with the student.
15. Universities should investigate barriers to timely program completion, monitor barriers preventing timely completion, and identify effective measures to decrease average graduate student time to completion across different faculties and programs.
16. Universities should foster a culture where all graduate student supervisors are supportive of their students' reasonable pursuit of learning and teaching activities outside the bounds of the thesis.

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