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Students Weigh In: National Analysis of Results from the 2013 Canadian Graduate and Professional Student Survey

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Executive Summary

The Canadian Graduate and Professional Student Survey (CGPSS) is a national survey that was completed by over 51,000 students across 48 universities in 2013. This comprehensive survey includes questions covering a broad array of topics including students' satisfaction with their departments, programs and advisors, availability of funding, use and quality of university services, and satisfaction with professional development supports (CAGS, 2010). This report uses data and opinions collected from graduate students through the CGPSS in an effort to contribute to the conversation on graduate student education in Canada.

We evaluate three areas of the graduate student experience: 1) satisfaction with general aspects of their program and academics, 2) how students financed their studies and their expected levels of debt, and 3) their assessment of supports and training offered in the area of professional skills development. Additionally, we compare the 2010 and 2013 survey results for Ontario only. Where appropriate we report separately on doctoral, research master's and professional master's students to assess differences associated with type/level of program. And finally we investigate whether results vary by region, university size, year of study, discipline of study, international status or gender.

General Assessment Measures

A large majority of graduate students in Canada report being satisfied with the general aspects of their program and academic experience. This satisfaction holds for specific groupings of students by region, university size, discipline of study, international status and gender.

Financial Picture

Financial support comes in all shapes and sizes: some sources involve repayment requirements (loans), some no repayment requirements (scholarships, bursaries and savings), and some come with time commitments (RA/TA work and employment). Not all students have access to all of these sources of income, although many students use a variety of supports over the course of their academic career.

Students in professional programs reported a variety of income supports, with no single source dominant or accessed by more than 40% of the students. The majority of students in research programs reported access to TA/RA work and scholarships, particularly doctoral students, with 80% reporting scholarships and 72% reporting TA/RA work. There are also differences in funding for research and professional students associated with discipline of study, region and university size, indicating that how students fund their graduate studies is at least partly conditioned by their program choice and location of study.

The expectation of funding studies without accumulating debt varies by type/level of program. Students in professional programs are least likely to anticipate graduating without graduate-level debt (40%), followed by research master's (49%) and finally doctoral (56%) students.

Professional Development

Advice and/or workshops related to professional development and future career options are an area where students expressed their dissatisfaction.

Students in research programs were particularly likely to be dissatisfied with advice/workshops on careers outside academia and research positions. Additionally there were poor satisfaction ratings for workshops/advice on careers within academia, arguably an area where institutions and individual departments should have the expertise to provide a breadth of supports. The proportion of students giving positive ratings varied considerably among disciplines, with a general trend of STEM and health science students more likely to be satisfied than students in social sciences and humanities.

Master's students in professional programs were more likely to rate their professional skills development positively than were their peers in the research streams. About two-thirds of professional students positively rated workshops/advice on career options, workshops/advice on job preparation and professional practice, or their opportunities for internships and practicum. Again there was variation associated with discipline, but the pattern is scattered and there are no clear patterns common to all three professional development measures.

We conclude the report with the following recommendations:

The considerable variation associated with discipline of study for many of the measures evaluated in this report suggests that graduate schools and individual departments should implement policy and program changes targeted to specific student groups. In particular there needs to be greater alignment between student expectations of professional skills development and what departments deliver to prepare students for employment after graduation.

Students without access to scholarships and TA/RA work are more likely to find money to be a major obstacle to their academic progress, which could arguably disadvantage students from low-income backgrounds who are studying in high-cost programs. Increasing scholarship support or bursary options would help alleviate this potential inequity.

Given the recent and continuing increase in the enrolment numbers of international graduate students and the variation in many satisfaction measures associated with international status, universities should ensure that financial supports and professional skills development programming are flexible enough to accommodate international students' unique needs.

Universities should determine which graduate student needs are not being met by career services and financial aid offices. Services should be adjusted or expanded to provide better support for graduate students while ensuring that the graduate student body is aware of their benefits.

CAGS should continue to encourage universities to participate in the CGPSS survey. Its current strengths include the large sample size, the breadth of data collected and the national distribution. An increase in the number of participating universities would make possible additional analyses of the data. For example, descriptive analysis of the experience of underrepresented groups, such as students identifying as aboriginal, would be possible with a larger sample. Comparisons between waves at the national level would also become possible and over time this would give a much more complete picture of the Canadian graduate student experience.

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Section 1: Introduction

This report is about Canadian graduate students and how satisfied they are with both general and specific aspects of their graduate education. The reasons that students apply to, enrol in and subsequently withdraw from or complete graduate programs are as varied as the students themselves. It is our belief that the recent expansion of graduate enrolments across Canada; the pressures that students feel to obtain graduate credentials in a time of labour market uncertainty; the financial and time commitments of graduate study, particularly in fields with long times to completion and/or low completion rates; and the pressures institutions and departments are under to control costs in a time of expansion highlight the need for a greater understanding of the graduate experience and what influences it. Do gender, year of study or discipline of study matter? Do institutional size or region matter? Do international students have different experiences than domestic students?

Institutions of higher education must adapt continually to accommodate changes in labour market demands, an expanding knowledge economy, funding constraints, new technologies, as well as student expectations. Recent responses to these external and internal pressures have included increases in graduate enrolments and tuition, as well as changes to the types of programs available for study and the internal and external funding opportunities associated with them. These in turn can affect important metrics such as time to completion, completion rates, program sizes and labour market outcomes, which may ultimately influence student satisfaction, engagement, and financial costs and debt burdens.

Graduate enrolment in Canada grew from just over 122,000 in 2003 to more than 161,000 in 2010. This growth varied by level of study, field of study and student demographic (Hall & Arnold, 2013). Government funding directed towards expanding enrolment is often justified by the rhetoric of increasing competitiveness (i.e., global, provincial or within sectors) and by a perceived need to continue growing the number of ‘highly trained individuals.’ Students themselves may feel the increased competition on the labour market from two directions. The skills needed in the new knowledge economy may in fact be those that are acquired through a graduate-level education. Additionally, as more people acquire graduate degrees, job seekers are more likely competing against others who hold graduate-level credentials, even for jobs that may not specifically require them. It is reasonable to expect some employers to use credential level in their initial screening of applicants.

Student satisfaction is an important metric for universities. It can be used to inform decision making related to specific graduate student programs or generic student services that contribute to the graduate student experience and to success after graduation. We also suggest in this report that the current media discussion, with much of the debate centred on student debt and labour market outcomes, may influence student expectations and how they rate various aspects of their experience.

"Thousands of qualified trained, energetic, and underemployed Ph.D.s are struggling to find stable teaching jobs." - Robbins, 2014

"The data also show that earnings of young workers with advanced degrees have grown even more than the earnings of those with bachelor's degrees" - Fry, 2014

"…there are legitimate questions about the extent to which the economy can continue to produce high-quality jobs for new PhDs. " - Herbert-Copley, 2013

"Student debt is more affordable than ever – half of all students graduate with none at all." - Wente, 2014

"30% of post-grad students … accumulate more debt than they expected…40% said they find it difficult to meet minimum repayments …" - Freeman, 2013

"… the burden of paying off student loans on a relatively modest salary means a life of poverty, however genteel." - Cassuto, 2011

This report uses data and opinions collected from graduate students themselves in an effort to contribute to the conversation on graduate student education in Canada. The Canadian Graduate and Professional Student Survey (CGPSS) is a national survey that was completed by over 51,000 students across 48 universities in 2013. This comprehensive survey includes questions covering a broad array of topics including students' satisfaction with their departments, programs and advisors, availability of funding, use and quality of university services, and satisfaction with professional development supports (CAGS, 2010). We use a subset of these survey results to comment generally on how satisfied graduate students are with their programs and overall academic experiences, as well as how they manage their financial obligations and how they rate the workshops, advice, courses and services that are offered relating to preparation for employment.

To some extent this paper expands on the work of two previous HEQCO publications. Spence (2009) analyzed the 2007 University of Western Ontario CGPSS results, anticipating that the identification of specific processes and relationships that influence graduate satisfaction could be used to increase retention and graduation rates. His report focused on general assessment questions and on satisfaction with the advisor role as outcome measures. He found the advisor role, advice/workshops on career opportunities, coursework quality and course availability all to be important, with degree type (research or professional) playing a role in some instances as well.

Zhao (2012) reported on the Ontario CGPSS results with a focus on general assessment questions and four benchmarks, finding statistically significant but minimal differences between the 2007 and 2010 results. Zhao also found student satisfaction to be associated with numerous student and program characteristics including registration status, educational debt levels, financial support, degree type, year of study and program of study.

Specifically we address the following research questions:

1. Are graduate students at Canadian universities satisfied with their experience in professional master's, research master's and doctoral programs of study? How do they rate their program and academic life when asked general assessment questions?

2. How do graduate students at Canadian universities in professional master's, research master's and doctoral programs manage their financial needs? What forms of support do they access, what level of

graduate debt do they anticipate accruing and what is their assessment of financial services offices and programs?

3. Are various programs of graduate study at Canadian universities meeting student expectations with respect to the skills needed to enter or succeed in the labour market? Are students satisfied with the workshops and advice they receive on career options both within and outside academia?

4. How did graduate students' satisfaction measures at Ontario universities change between 2010 and 2013?

We begin the paper with a short review of some relevant literature and follow with a report on the methodology and respondent profile of the CGPSS. The bulk of the paper reports on the Canada-wide survey results, starting with the general assessment measures, followed by financial measures and career support ratings, and finishing with a comparison between the 2010 and 2013 Ontario results.[1]

Rather than including the result graphs and chart details in the body of the report, we have relegated this large volume of data to a companion publication to help the flow of the text. We anticipate that the details in this additional publication, *Students Weigh In: CGPSS 2013 – Supplementary Figures and Tables,* will be of interest to graduate students themselves as well as to universities with graduate programs. Universities that participated in the 2013 survey may consider comparing their institutional survey results with those presented in this national report. This could be done according to any of the student and/or institutional characteristics that we use to present the data and the customized national anonymized dataset delivered to each university is particularly useful in that regard. Universities with graduate programs that did not participate in the 2013 iteration of the CGPSS may still find this information useful as a reflection of the national state of affairs and may consider participating in the next CGPSS survey planned for 2016.

[1] Institutional participation was fairly consistent between 2010 and 2013 for the province of Ontario. In the other provinces, many universities joined for the first time in 2013. Future waves of the CGPSS should allow for longitudinal comparisons across Canada.

Section 2: Literature Review

Surveys that measure overall satisfaction (e.g., "On a scale of 1-5, how do you rate your program?") are commonly used to assess how students perceive their postsecondary education experience. Predictors of satisfaction that have emerged from past satisfaction surveys in Canada, the US and elsewhere include the quality of teaching and faculty, level of faculty contact with students, the level of emphasis on research, student sense of belonging and student perceptions of how well institutions respond to their needs (Gibson, 2010; Umbach & Porter, 2002). At the doctoral level, students who are active in selecting their dissertation advisor and do not undergo a change in advisor are also more likely to be satisfied with their graduate program (Barnes, Williams & Stassen, 2012). Although satisfaction surveys asking global questions are useful to provide a generalized perspective on whether or not a graduate program is meeting its goals, there are limitations to the information they can provide. In addition to measuring general experience, it is also useful to ask questions that relate more specifically to individual factors that may influence student satisfaction (Elliott & Shin, 2002).

Interestingly, while the majority of Canadian graduate students report being satisfied with their graduate program (CAGS, 2004; Zhao, 2012), completion rates vary considerably by level of study and program of study and many students take longer to complete their program than expected. National data on completion rates for graduate students are difficult to find, but Hall and Arnold (2013) reported results using the original group (10 institutions) of U15 universities. They report 2005 completion rates ranging from 78% (social sciences) to 88% (physical sciences and engineering) for master's students. The picture is different for doctoral students, with 2001 completion rates ranging from 56% (humanities) to 78% (health sciences).

One purpose of satisfaction surveys might be to measure and report on student satisfaction with factors that have been associated with graduate student attrition and retention, such as a mismatch between student expectations and the reality of graduate school, financial concerns, labour market concerns or a poor advisory relationship (Golde, 2005; Ferrer de Valero, 2001).

Past research also suggests that graduate students' ability to fund their education impacts both program satisfaction, persistence and the likelihood of completing their degree on time, as well as the time to completion for those who do. In a U.S. study students with large loans (undergraduate and graduate combined) tended to complete their graduate degrees more quickly than those without loans, although this relationship did not hold for students in the social sciences (Kim & Otts, 2010). Students who repeatedly hold teaching assistantships take longer to complete than their peers with research assistantships or fellowships (Baird, 1990; Ferrer de Valero, 2001), with research by Ampaw and Jaeger (2012) indicating that the benefits of research assistantships go beyond financial support by contributing to social integration through contact with faculty and peers. A better understanding of graduate students' sources of funding will allow universities to gain insight into what appears to be an important factor associated with graduate student retention and time to completion.

Finding employment is an important outcome for many graduate students. Anecdotally, the master's degree is often referred to as 'the new undergrad,' as students graduating into an increasingly competitive labour market often feel the need to pursue a graduate education in order to attain career goals that previously may only have required an undergraduate degree. As graduate enrolments increase the number of doctoral graduates in a given year is much greater than the number of tenure-track postings (Maldonado et al., 2013). In Canada, less than 20% of PhDs are employed as full-time university professors, and a similar situation exists in the United States (Munro, 2015; Golde & Dore, 2001).Few graduate students consider a career outside of academia as an option, at least in the early years of their studies, and their graduate programs

often do little to prepare them for work outside of academia (Golde & Dore, 2001; McAlpine & Turner, 2012). As labour market opportunities change both within and outside academia, students in graduate programs may revise their career goals, leading to changes in expectations from the job-related workshops and programming associated with their program of study. Understanding how students rate the supports offered in these areas will provide insight into how well universities are responding to these challenges.

Characteristics related to a student's institution, discipline or demographic profile may also influence their satisfaction ratings. A student's chosen field of study may affect their advisor relationship, the type of financial support they receive and their time to degree completion (Barnes & Randall, 2012; CAGS, 2004; Zhao, Golde & McCormick, 2007). Financial and career concerns are still significant barriers to satisfaction for international students (CBIE, 2009), an important group to consider given the current focus on international student recruitment. Considering factors related to institution, program of study and personal demographics adds a dimension to student satisfaction surveys that will support universities in their efforts to develop targeted and effective graduate education programming.

Section 3: Data and Methods

3.1 The CGPSS data

The Canadian Graduate and Professional Student Survey (CGPSS) was developed to better understand the many facets of the graduate student experience. This comprehensive survey includes questions covering a broad array of topics including students' satisfaction with their departments, programs and advisors, availability of funding, use and quality of university services, and satisfaction with professional development supports (CAGS, 2010).

Two versions of the CGPSS have been developed to address different types of graduate programs. The "instrument for students in professional programs" is intended for master's students enrolled in professional or primarily course-based degrees. This version of the survey omits some research-focused questions in favour of items related to professional skills development. The "instrument for students in doctoral stream/research programs" version of the CGPSS is intended for PhD and master's students who are completing supervised thesis-based programs. In order to simplify distribution protocols for the 2013 cycle most universities disseminated a single link to their graduate student body and the version presented was determined by the answers to preliminary questions, although as in previous years some universities chose to override this feature and deliver a preselected version instead. The universities sent invitations to participate to every registered graduate student, with the exception of those enrolled in executive MBA programs.[2] The member institutions also supplied limited demographic (e.g., gender, immigration status) and program information from student administrative records. Finally the 2010 and 2013 data were consolidated, individual survey records were de-identified, institutional identifiers were removed and the resulting anonymized dataset deposited at the Canadian Association for Graduate Studies (CAGS), prior to transmission to HEQCO for analysis.

The CGPSS was distributed at 28 Canadian universities in 2007 and 38 institutions in 2010. In its most recent cycle the CGPSS was distributed to graduate students enrolled in 48 Canadian universities between September 2012 and April 2013.[3] Notably, in the 2013 cycle two institutions from British Columbia and one from each of Manitoba, Newfoundland, Saskatchewan, Alberta and New Brunswick joined data collection

[2] These programs were considered to be sufficiently distinct in nature to warrant exclusion.
[3] See the appendix for a list of participating institutions.

efforts, making this the most comprehensive national graduate students survey conducted to date in Canada.

The reader should note some limitations of the CGPSS data:

- Though institutional participation has improved steadily with each successive cycle, as of 2013 there were too few universities outside of Ontario and Quebec to subcategorize the 'rest of Canada' while preserving the anonymity of participating institutions.
- Three relatively small Ontario institutions joined data collection efforts in 2013 but for the most part participation in this province was fairly stable, which allowed for comparison of the 2010 and 2013 data for this province. Future iterations of the CGPSS should allow for national analysis of changes over time as participation stabilizes.
- As noted above, distribution of instrument versions changed between 2010 and 2013. This should be kept in mind as a limitation in the comparison of the data from the two cycles.

3.2 Methodology

3.2.1 Dependent Variables

We highlighted three topics as outcomes of interest for the purposes of this analysis: general assessment of student satisfaction, financial health and career/academic supports. Survey items that were especially relevant to each of these areas research were selected as dependent variables.

General assessment

General assessment items provided opportunities for students to express their overall satisfaction with their graduate experience (Table 1). These questions were considered important in evaluating whether respondents were, by and large, happy with their programs and institutions.

Table 1: General Assessment Items

Report Shorthand	Question Phrasing	CGPSS 2013 Code
Program	Overall, how would you rate the quality of… your graduate/ professional program at this university?	Section 11, Q24-3
Academic experience	Overall, how would you rate the quality of… your academic experience at this university?	Section 11, Q24-1
Student life	Overall, how would you rate the quality of… your student life experience at this university?	Section 11, Q24-2
Overall experience	Overall, how would you rate the quality of… your overall experience at this university?	Section 11, Q24-4

5-point Likert-scale items. Excellent, Very good or Good coded as positive responses. Fair or Poor coded as negative responses.

Financial measures

Four items were selected to evaluate the financial circumstances of the graduate student population (Table

2). Graduate students were asked to estimate the amount of graduate debt they expected to accrue and indicate whether they felt that money represented a major obstacle to their progress. In addition to this, it was thought that if students were experiencing significant financial hardship they would be more likely to make considerable use of financial aid services on campus.

Table 2: Financial Measure Items

Report Shorthand	Question Phrasing	CGPSS 2013 Code
Graduate student debt[a]	Please estimate the amount of graduate educational debt, if any, you will have to repay when you have completed your degree here.	Section 8, Q20
Money as an major obstacle[b]	Rate the extent to which the following factors are an obstacle to your academic progress… work/financial commitments.	Section 11, Q25-1
Rating of financial aid office / Use of financial aid office[c]	Please rate the following university resources based on the quality you have experienced while using them… financial aid office.	Section 9, Q21-6

[a] Dollar range: $0, $1-$9,999, $10,000-$19,999….$80,000 or more
[b] 3-point scale: Not an obstacle, Minor obstacle, Major obstacle
[c] 5-point Likert-scale items. Excellent, Very good or Good coded as positive responses. Fair or Poor coded as negative responses.

The forms of financial support being accessed by Canadian graduate students were also of interest. The survey listed 17 potential sources of funding and respondents were instructed to check all of the forms of support they received while enrolled in their programs (Section 8, Q18). These items were grouped into five classes of funding as per Table 3. The distinction between scholarship and bursary is somewhat blurred partly because need-based support is often provided by a provincial program, particularly in Quebec, where many respondents checked ‘Bourse d’un organisme subventionnaire provincial’ since the French term ‘bourse’ is more generic than the English ‘scholarship’ and applies both to need-based and merit-based support.

Table 3: Sources of Funding

Source of Funding	Coded yes to source of funding if student selected one or more of following survey items
Scholarship	Federal granting council scholarship/fellowship Provincial government scholarship/fellowship Support from a foreign government External (to university) non-government fellowship University funded fellowships Full tuition scholarships or waivers Partial tuition scholarships or waivers
TA/RA	Graduate research assistantship Graduate teaching assistantship
Employment	Other part-time research employment Other part-time teaching employment Residence donship Other campus employment Off-campus employment Employee benefit or employer funding
Loans, savings or family assistance	Loans, savings or family assistance
Bursary	University-funded bursary

Career and academic supports

Benchmarks. Four benchmark measures were established by the survey developers using component factor analysis based on 29 items from survey sections 3 to 7 (Mercier, Meunier, Jacques, Simon & DiGenova, 2010; Zhao, 2012). The benchmarks are: Quality of Teaching, Research Training & Career Orientation, Opportunities to Present & Publish, and Supportive Dissertation Advisor. The advisor benchmark applies only to students who completed the research-focused version of the CGPSS. See Appendix Tables 12-15 for more details regarding the items included in each benchmark.

Workshops and supports for labour market success. Respondents were also asked to rate the quality of advice and workshops they received relating to career preparation, as well as their use and satisfaction with institutional career services offices. Questions presented to professional master's students are summarized in Table 4 and items presented to research-focused students are summarized in 5-point Likert-scale items. Excellent, Very good or Good were coded as positive responses, while Fair or Poor were coded as negative responses.

Table 4: Master's Professional Workshops and Support for Labour Market Success Items

Report Shorthand	Question Phrasing	CGPSS 2013 Code
Career options	How would you rate the quality of the support and training you received in these areas… advice/workshops on career options?	Section 4, Q10-2
Job preparation	How would you rate the quality of the support and training you received in these areas… advice/workshops on job preparation and professional practice?	Section 4, Q10-4
Opportunities for experiential learning	How would you rate the quality of the support and training you received in these areas… opportunities for internships, practicum, and experiential learning as part of the program?	Section 4, Q11-5
Rating of career services office/Use of career services office	Please rate the following university resources based on the quality you have experienced while using them… career services.	Section 9, Q21-7

5-point Likert-scale items. Excellent, Very good or Good coded as positive responses. Fair or Poor coded as negative responses.

Table 5: Doctoral and Research Master's Workshops and Support for Labour Market Success Items

Report Shorthand	Question Phrasing	CGPSS 2013 Code
Teaching	How would you rate the quality of the support and training you received in these areas… courses, workshops, or orientation on teaching?	Section 4, Q9-1
Careers within academia	How would you rate the quality of the support and training you received in these areas… advice/workshops on career options within academia?	Section 4, Q10-1
Careers outside academia	How would you rate the quality of the support and training you received in these areas… advice/workshops on career options outside academia?	Section 4, Q10-2
Research positions	How would you rate the quality of the support and training you received in these areas… advice/workshops about research positions?	Section 4, Q10-3
Rating of career services office/Use of career services office	Please rate the following university resources based on the quality you have experienced while using them… career services.	Section 9, Q21-7

5-point Likert-scale items. Excellent, Very good or Good coded as positive responses. Fair or Poor coded as negative responses.

3.2.2 Independent Variables

Comparisons were made for each dependent measure across each of the demographic variables selected (Table 6). Additionally, differences were assessed between 2010 and 2013 for the province of Ontario only.

Generally comparisons are only discussed in the report if they evidenced at minimum a 'small' effect by Cohen's guidelines (Cohen, 1992), which corresponds to a difference of approximately 10 percentage points in positive ratings between groups. As such, a convention of 10% representing a 'meaningful' difference was adopted in interpreting results. Statistical significance at the $\alpha = .05$ level of all differences discussed in this report was confirmed using X^2 or t-tests (as appropriate). Cross-tabs and graphs for every comparison are available in the companion publications *Students Weigh In: CGPSS 2013 – Supplementary Figures and Tables* for the interested reader.

Regression/logistic regression analyses were conducted to ensure that group differences discussed were present when controlling for the other independent measures. For ease of interpretation simple cross-tabulations are reported, as regression/logistic regressions did not alter any conclusions.

Table 6: Summary of Independent Variables

Independent Measure	Subgroups		Details
Region	Quebec (PQ) Ontario (ON) Rest of Canada (RoC)		14 institutions from Quebec 20 institutions from Ontario 14 institutions from the rest of Canada
University size	Small Medium Large		Fewer than 1,000 enrolled graduate students 1,000-2,000 enrolled graduate students More than 2,000 enrolled graduate students
Year of study	PhD: Years 1 & 2 Years 3 & 4 Years 5+	Master's Year 1 Year 2 Year 3+	Year of study was provided by linking to student administrative records. As graduate funding often ends at approximately year 5 for PhD students and year 3 for master's degree students, comparison between these groups and earlier degree phases were considered to be of particular interest.
Gender	Female Male		
Discipline	Engineering Sciences Health sciences Business/Management Non-health professions[4] Education Social sciences Humanities		Discipline of study was determined by the program's Classification of Instructional Programs (CIP) code, the taxonomy established by the Department of Education's National Center for Educational Statistics (NCES, 2010).

[4] Non-health professions include Legal Studies, Library/Info Studies, Media/Communications, Planning/Architecture, Religious Vocations, Social Work and Other professions.

Section 4: Results: General

4.1 Respondent Profile

The 2013 cycle of the CGPSS was completed by 51,682 graduate students nationwide. Participating institutions distributed web-links to the survey to all enrolled graduate students (with the exception of executive MBA students) between September 2012 and April 2013. The distribution of demographics within the sample for the three degree categories (doctoral, master's research and master's professional) is available in Table 7.

Table 7: Respondent Profile for the 2013 CGPSS[5]

	Doctoral		Master's Research		Master's Professional		All Master's	
	N	%	N	%	N	%	N	%
Total	18,377	100%	17,546	100%	15,741	100%	33,287	100%
Gender								
Female	9,560	52%	10,248	58%	9,821	62%	20,069	60%
Male	8,816	48%	7,298	42%	5,915	38%	13,213	40%
Age								
<=30	9,043	49%	12,104	69%	8,959	57%	21,063	63%
>30	7,774	42%	3,814	22%	5,795	37%	9,609	29%
Immigration Status								
International	4,887	27%	3,487	20%	2,373	15%	5,860	18%
Domestic	12,994	71%	13,654	78%	13,043	83%	26,697	80%
Aboriginal								
No	16,183	88%	15,298	87%	14,137	90%	29,435	88%
Yes	433	2%	497	3%	485	3%	982	3%
Visible Minority								
No	9,631	52%	9,713	55%	8,978	57%	18,691	56%
Yes	6,207	34%	5,327	30%	5,039	32%	10,366	31%
Registration Status								
Part-time	785	4%	2,004	11%	4,910	31%	6,914	21%
Full-time	17,289	94%	15,212	87%	10,612	67%	25,824	78%

[5] Percentages represent the proportion of the full sample. For groupings that do not sum to 100%, the balance represents missing values/responses.

	Doctoral		Master's Research		Master's Professional		All Master's	
	N	%	N	%	N	%	N	%
Year of Study								
1	3,750	20%	7,658	44%	8,179	52%	15,837	48%
2	3,520	19%	5,651	32%	4,721	30%	10,372	31%
3	3,394	18%	2,174	12%	1,144	7%	3,318	10%
4	2,851	16%	654	4%	436	3%	1,090	3%
5	1,979	11%	217	1%	159	1%	376	1%
6 or above	2,192	12%	140	1%	128	1%	268	1%
Discipline								
Engineering	2,925	16%	2,568	15%	1,665	11%	4,233	13%
Sciences	4,789	26%	4,414	25%	1,235	8%	5,649	17%
Health Sciences	2,314	13%	2,565	15%	2,292	15%	4,857	15%
Business/Management	410	2%	613	3%	3,817	24%	4,430	13%
Non-Health Professions	765	4%	1,318	8%	2,364	15%	3,682	11%
Social Sciences	3,818	21%	3,151	18%	1,515	10%	4,666	14%
Education	1,182	6%	931	5%	2,237	14%	3,168	10%
Humanities	2,172	12%	1,979	11%	615	4%	2,594	8%
University Size								
Small	900	5%	1,493	9%	725	5%	2,218	7%
Medium	1,404	8%	2,009	11%	2,549	16%	4,558	14%
Large	16,073	87%	14,044	80%	12,467	79%	26,511	80%
Region								
Ontario	8,266	45%	7,798	44%	7,449	47%	15,247	46%
Quebec	4,948	27%	4,804	27%	3,878	25%	8,682	26%
Rest of Canada	5,163	28%	4,944	28%	4,414	28%	9,358	28%

4.2 General Assessment

For the balance of the paper all Figures refer to those in the companion piece *Students Weigh In: CGPSS 2013 – Supplementary Figures and Tables.*

The general assessment measures are intended to quantify graduate students' overall satisfaction and reveal any differences in satisfaction related to their graduate program, their academic experience and their student life. Although they may give insight into how satisfied graduate students are, it is also possible for broad and general questions to be interpreted differently by different students or, alternatively, for a single particularly

good or bad experience to influence their response. Elliott and Shin (2002) argue that when faced with 'overall' rating questions on a satisfaction survey, students may consider only their most recent answers and not reflect thoroughly on their overall experience. The general assessment results show considerable similarities between groups, giving support for consistency in interpretation among students, but there are also some unexpected results worth noting.

If we take the results at face value, it is clear that most graduate students in Canada are satisfied with all four aspects of their graduate experience covered in these general assessment measures (Figure 1). The results are surprisingly consistent between masters' and doctoral students. All measures except student life are above 80%, meaning that more than 80% of students in both levels of study rate their academic experience, their graduate program and their overall experience as excellent, very good or good. The measures of student life experience are only slightly lower at 79% for master's students and 78% for doctoral students.

To get a more complete understanding of what might influence student satisfaction, the measures for each question within each level of study are compared by dividing them into groups based on the personal and institutional characteristics described above.

Master's. We explored differences in the proportion of satisfied students on the four general assessment measures (program, academic experience, student life and overall satisfaction) for the research master's and professional master's students combined. Trivial differences in satisfaction were evident when comparing across the six independent measures (region, university size, year of study, discipline, international status and gender; Figure 2). Proportionally more Quebec students report satisfaction than those from Ontario and the RoC, but the differences are less than 10%. Although the Quebec student protests in 2012 were mainly centred on undergraduate tuition hikes, it is surprising that this did not spill over to graduate students' overall assessment of their student experience. Students in all regions are least satisfied with student life, possibly because this measure would be impacted by a wide variety of pressures and events external to actual school experience.

Although not reaching the 10% difference, the proportion of students satisfied declines with each year of study regardless of the measure – an expected trend for PhD students and perhaps master's research students as well (Figure 2c). Initially students would be excited and positive about commencing graduate school, but at least some will experience unexpected difficulties as they progress through their programs, or personal challenges external to their studies may arise. These challenges and the increasing complexity of graduate studies over time likely contribute to a general decrease in satisfaction scores. Gender, international student status and university size have little effect on satisfaction levels. These general assessment measures do not vary greatly by discipline of study, with no difference exceeding 8%.

Doctoral. Doctoral studies have lower completion rates, greater variation in time to completion associated with discipline of study, and overall require a much greater time and financial commitment than master's-level studies. Despite these differences the doctoral general assessment results are remarkably similar to the master's results (Figure 3).

Few notable differences were found on the general assessment ratings for doctoral students (Figure 3). Doctoral students are consistently least satisfied with student life relative to the other general assessment measures, again possibly because this measure would be impacted by a wide variety of pressures and events external to actual school experience. Limiting our discussion to those that differ by 10% or more, the results do not vary by university size, international status, gender or region (although again a similar pattern is observed, with proportionally more Quebec students satisfied). There is remarkable consistency among the patterns of general assessment measures given the differences among disciplines in the structure of doctoral

studies, the completion rates and the times to completion. Similar to the master's results students are least likely to rate their student life experience as positive and most likely to rate their academic experience as positive regardless of their program of study (Figure 3d).

Another similarity to the master's students' general assessment results is the decrease in satisfaction associated with year of study. For the doctoral group, 89% of first- and second-year students were generally satisfied with the quality of their programs, while 78% of those in year 5 or above rated their programs positively, representing a drop of over 10% in satisfied respondents (Figure 3c). Doctoral studies generally progress from course work, through comprehensive exams and then to research proposal, data collection and dissertation writing. Self-selection may be one driver, with better students often graduating on time. Students who take longer to complete may include a large proportion of students who struggled with their program in earlier years and this, combined with the increasing challenge of funding their studies while writing their dissertation, may explain much of the decrease in general satisfaction associated with year of study.

Section 5: Results: Financial Measures

5.1 Money as an Obstacle

Understanding how graduate students manage to support themselves financially during their years of study begins with a measure of whether they find their financial commitments difficult to meet and whether work commitments interfere with their progress. The survey question asked students if work/financial commitments constitute a major or minor obstacle to their academic progress; we refer to this measure simply as 'money as an obstacle' in the rest of the paper. Both master's and doctoral students were most likely to report that money was only a *minor* obstacle to their academic progress, though they were also least likely to report that money was *not an* obstacle at all to their academic progress (Figure 4a). In fact, approximately one-third of respondents indicated that money was a major barrier to their success. In the following section we focus on the proportion of students who indicated that money was a major obstacle and explore characteristics that might influence the number of students who were experiencing financial pressure.

We report results separately for three groups of students: professional master's, research master's and doctoral. In some cases professional and research master's students were asked different questions, but it is also reasonable to expect that these three groups have a somewhat different graduate experience.

Professional master's. There were no important differences in the proportion of professional master's students reporting money as a major obstacle related to region, university size, year of study, immigration status or gender (Figure 5). A higher proportion of students in professional programs study part-time relative to students in research master's programs and this difference increases as students move into third year and beyond (data not shown). Part-time status would allow students more time to pursue employment to fund their studies, explaining why professional students who go beyond year two are only slightly more likely to find money or work commitments a major obstacle.

The proportion reporting money as a major obstacle by discipline almost reached our 10% threshold and ranged from 30% for students in business to 39% and 38% for students in non-health professions and education respectively. Looking at the part-time status by discipline did not explain these differences, at least for students in education. This group was the only discipline reporting more than 50% studying part-time (data not shown), but despite this they are at the high end of the proportion finding money/work commitments a major obstacle to their progress. Looking at age, though, this group is also generally older than their colleagues in the other professional programs (data not shown) and older students may have greater family

and financial commitments. These details highlight the complexity of experience for graduate students. Not only does level of study and discipline contribute to a different environment, but also the personal characteristics of students and the choices they make contribute to differences in how they interpret their educational experience.

Research master's: There were no important differences in the proportion of master's students reporting money as a major obstacle related to region, university size, immigration status or gender (Figure 5). Although not reaching our 10% level of difference, students in year three and beyond are 9% more likely to report money as a major obstacle. Master's programs have expected completion times of 12 to 24 months and generally fewer funding opportunities available after the second year of study.

The largest variability on this measure was associated with discipline. The proportion of students reporting money as a major obstacle ranged from 25% to 46% (Figure 5d). Respondents from science, engineering and health sciences were least likely to report money as a major obstacle, suggesting that STEM (engineering and science) and health science students are best able to meet their financial needs. The research master's students in education were most likely to indicate that money is a major barrier to their academic progress (46%).

Doctoral. Despite considerably longer programs, doctoral responses were quite similar to those of master's students, with 33% reporting money as a major obstacle (Figure 4a). Again, the characteristics of region, university size, immigration status and gender did not contribute important differences to patterns of student response. The lack of difference by international status is of note considering the increased tuition burden these students face in some provinces and we therefore looked at the results by region and international status (data not shown). Although international students in Ontario and the RoC were slightly less likely than domestic students to report money as a major obstacle, while international students in Quebec were slightly more likely than domestic students to report money as a major obstacle, none of these differences reached 10%.

Comparing across disciplines shows a very similar picture to that of master's students (Figure 5d). Again, students in education were most likely to find funding their studies a challenge (45%), while students in sciences were least likely (25%). Overall, doctoral students in business, social science, health science and the STEM disciplines were less likely to report money as a major obstacle to their academic progress than were students in the humanities, non-health professions and education.

Doctoral students in year 5+ (40%) were more likely to find money to be a major obstacle than students in years 1 and 2 (31%) or years 3 and 4 (30%). Doctoral programs are long and although taking more than four years to complete is not unusual in many disciplines, many department and external scholarships are not available beyond year 4. Additionally, financial needs can increase for doctoral students through changes in personal circumstance.

Is it acceptable that approximately one-third of graduate students report money to be a major obstacle? Most people experience major financial barriers to their goals at some point in their lives, whether those goals are academic progress, making student loan or mortgage payments, or saving for retirement. Few enjoy a life free of financial challenges and obligations. As students move from undergraduate to master's and doctoral studies they likely have higher living and education costs, while at the same time becoming independent of any parental financial support, depleting their savings and possibly increasing their own family responsibilities. What is perhaps most surprising about these data is that 29% of doctoral, 29% of master's research students and 24% of master's professional students report that money is *not an obstacle at all* to their academic progress (Figure 4a). The next section summarizes data on the types of income supports students access,

giving us insight into why money might present a major obstacle for some students while not being an obstacle for others.

5.2 Access to Income

Financial support comes in all shapes and sizes: some sources involve repayment requirements (loans), some no repayment requirements (scholarships, bursaries and savings) and some come with time commitments (RA/TA and employment). Not all students have access to all of these sources of income and students generally use a variety of supports over the course of their academic career.

Professional master's: No single source of income was dominant for professional master's students and no single source was accessed by more than 40% of the students. Students were asked to identify every financial support they had accessed with the result that each of scholarships, employment and loan/savings was selected by between 30% and 38% of students (Figure 4b). Somewhat fewer students reported having received a bursary or TA/RA work while enrolled in their program (14%). There is considerable variation associated with our variables of interest with the exception of gender (Figure 6).

Students in Ontario were more likely to report bursaries and less likely to report employment than students in Quebec or the RoC, while students in Quebec were less likely to report loans/savings (Figure 6a).

University size seems to affect financial support, with students at large universities more likely to report scholarships, perhaps related to the concentration of research at these institutions. But this same group is also more likely to report the use of loans/savings, perhaps reflecting an increase in cost of living that can be associated with larger urban centres.

The results for year of study do not reach our 10% threshold except in the measures of loan/savings. Students in year 3+ are considerably less likely to access these forms of support, likely because loan opportunities may be limited in year 3+ and savings may be depleted.

Differences associated with discipline are greatest in students' reporting of scholarship and RA/TA work, with no clear pattern discernable, although for both these forms of support humanities students (representing only 4% of the master's professional sample) are an outlier with a much greater proportion reporting scholarships and RA/TA work. Although engineering students are among the least likely to access every type of financial support measured, there is no pattern of access associated with the STEM disciplines as a group.

Domestic students are much more likely to access employment to fund their academic career and also report greater reliance on loans/savings.

Research master's. More than 55% of master's students in research programs use scholarships and RA/TA work to support their academic career, two funding options that are linked to research intensity and programs with large traditional undergraduate classes. Thirty-two per cent report employment or loan/savings and only 16% report access to bursaries (Figure 4b).

The proportion of students who reported various types of financial support varied by at least 10% when comparing by region, university size, year of study, discipline and international status (Figure 7). There were no differences in financial support sources by gender (Figure 7f).

First considering region, the largest differences were between Ontario and Quebec, with the RoC typically falling between the two (Figure 7a). Proportionally more Ontario than Quebec students accessed bursaries

(21% vs. 9%), although this could be an artifact related to questionnaire wording. The survey specified 'University funded bursary', whereas in Quebec this needs-based support is mostly administered by the province, and TA/RA work (65% vs. 44%). Quebec students were more likely to report employment than Ontario students (41% vs. 25%), while access to scholarships and the use of loan/savings did not vary by region.

Discipline of study is clearly linked to the likelihood of access to scholarships, access to TA/RA work and the use of employment to meet financial needs (Figure 7d). There are some notable groupings.

At least 50% of students in each discipline group reported scholarships, with the exception of students in business/management (39%) and education (30%). TA/RA work is most likely for engineering, science, social science and humanities students, with more than 60% of students in these disciplines reporting access. Students in STEM disciplines, along with health science, business and education, are less likely to report the use of loans/savings compared to students in non-health professions, social sciences and humanities. Employment also varied by field of study, with the STEM disciplines grouped with health science and business students as less likely to report employment than students in the other disciplines.

Only access to TA/RA work varied by university size, with 64% of students from medium-sized institutions reporting TA/RA work compared to 53% at small and 56% at large (Figure 7b). There is no obvious reason for this apparent advantage for students attending medium-sized universities. One hypothesis is that medium-sized universities have a better proportion of graduate students to TA/RA needs – not too many graduate students but enough research activity and large undergraduate courses to have significant TA/RA needs.

The relationship between international status and access to loans/savings and employment was as expected. Domestic students are more likely to report employment (35% vs. 18%) and more likely to report loan/savings (36% vs. 16%) (Figure 7e).

Doctoral. Unlike master's students, doctoral students depend far more heavily on scholarships and TA/RA work to meet their financial needs (Figure 4b). Over 70% of PhD students indicated having received TA/RA work at some point over the course of their studies and 80% reported scholarships. Employment and loan/savings were reported by 34% and 27% of students, respectively. Bursaries were the least common type of funding at 18%.

Funding was generally consistent across regions, with the exception of TA/RA work. Over 80% of Ontario students reported TA/RA work compared with less than 60% of Quebec students. University size only influenced TA/RA work, with less than 50% of students at small universities reporting this form of income but more than 70% of students at medium or large schools doing so. With the lack of variation in the other forms of support it is not clear how students from Quebec and small universities compensate for their lack of access to TA/RA work, although students at smaller universities are often in smaller urban centres with lower costs of living and Quebec students have generally lower tuition costs.

Access to all forms of financial support increased with year of study (Figure 8c). The largest increase was in employment, with 25% of first- and second-year doctoral students indicating employment income, while 48% of those in year 5 and above reported the same.

The greatest variation related to discipline of study was in access to TA/RA work and employment (Figure 8d). Humanities and social science doctoral students were most likely to report access to TA/RA work (83% and 80%), while education and health sciences were the least likely (58% and 53%). Given the limited TA/RA work and scholarship support reported by education students, it is not surprising that this group is more likely

to report employment as a form of financial support than their peers. This may be related to the greater proportion of education students studying part time, which would limit their access to both TA/RA work and scholarships.

Students in humanities stand out as most likely to report scholarships, TA/RA work and bursaries, while also sitting near the top in the proportion reporting employment and the use of loan/savings. This could be related to time to complete, as humanities students take longest on average to complete their programs and are therefore most likely to exhaust university-linked sources of income. Conversely only 23% of science students report employment and 21% report accessing loans/savings. Science students may be able to avoid taking additional jobs or accessing loans because of extensive access to TA/RA work and scholarships (72% and 81% respectively), combined with lower times to degree completion.

The pattern of response by doctoral international status was similar to the master's student results discussed above. Domestic students were more likely to report employment and loans/savings (Figure 8e). Female students were also more likely than their male peers to report employment (Figure 8f).

We also explored whether income source was related to identifying money as a major obstacle (data not shown). As expected, students who had received scholarships or TA/RA work were less likely to indicate that money was a major obstacle to their progress, suggesting that these supports are effective at reducing financial pressure. Conversely students who received bursaries, used loans/savings or were employed were more likely to report money as a major obstacle.

5.3 Accumulation of Debt

The CGPSS asked graduate students to estimate how much debt they expected to accrue by the time of graduation. One might reasonably question the accuracy with which students are able to predict this, particularly over the course of a doctoral degree whose length may be uncertain. Do they underestimate their time to completion? Do they overestimate their access to scholarships and RA/TA work? Do they underestimate their cost of living or overestimate their ability to keep to a budget? For many students the answer to at least one of these questions would be yes – leading to what are likely conservative estimates of accumulated debt.

Though perhaps overly optimistic, 40% of professional master's, 49% of research master's and 56% of doctoral students reported that they expect to have no graduate-level educational debt to repay at graduation (Figure 4c). Said differently, they expect to accrue no new debt in the pursuit of their graduate degree, suggesting that slightly less than half of master's students and more than half of PhD students can afford to live entirely on their savings along with the funding/income they acquire during their studies. Given the cumulative nature of this measure (doctoral students are reporting all graduate debt), it is apparent that at least some doctoral students either paid off their master's-level graduate debt before moving on to doctoral studies, paid off master's-level debt while pursuing their doctorate, or that students with master's-level debt are less likely to pursue doctoral studies. The data do not tell us which scenario(s) are correct but common sense would suggest that the first and the third are the most likely explanations.

Only a small proportion of students expect to graduate with very high levels of debt. Specifically, 5% of professional master's, 2% of research master's and 5% of doctoral students estimated that their graduate educational debt would exceed $50,000. This would appear to conflict with the media portrayal of large proportions of graduate students accumulating unmanageable debts, although there would be little comfort in this to those students who do accrue this level of debt.

Graduate debt is not necessarily students' only source of university debt and students also reported their level of undergraduate debt. The question asked students to identify the range of their undergraduate debt and the range of their graduate debt, which precludes us from simply adding the two levels of debt to obtain a total amount. Using a least conservative method (debt at the highest level of the selected range) and a most conservative method (debt at the lowest level of the selected range) gives us a range of overall debt. Forty-two per cent of graduate students expect to finish their studies having accrued no debt, while between 10% and 13% of graduate students expect to finish graduate school having accrued over $50,000 of combined graduate and undergraduate debt. Looking at how these numbers differ relative to level of program, the numbers show that a higher proportion of students in professional programs anticipate an accrued level of debt of over $50,000 (11% to 15%), and further sub-grouping at the level of discipline indicates that these numbers are driven by students in business/management programs (16% to 19%) (data not shown). This is not surprising, given the generally high tuition costs for some of these programs.

In the remainder of this section we focus on characteristics that influence the proportion of students who indicated that they expected to have graduate-level debt by the time they complete their degree (i.e., no debt vs. some debt).

Professional master's. There is little variation in professional master's students' expectation of graduate debt associated with our characteristics of interest (Figure 9). Region does not quite reach our 10% threshold, with Ontario, Quebec and the RoC at 65%, 56% and 57%, respectively. Students in year 3+ are least likely to report expected debt, although as noted on Table 7 this represents only 12% of the professional master's sample, suggesting that few professional master's students take more than three years to complete.

The only other characteristic association with debt for professional master's students is discipline (Figure 9d). Students in non-health professions (71%) and health sciences (70%) are clearly more likely to accrue debt and education students are least likely at 51%. The balance of the discipline groups range between these two extremes with no notable pattern or groupings. In the section above we discussed the relatively high proportion of students in business/management studies who expect to accrue a very high level of debt, so it is worth noting that despite this being the case only 54% of students in professional business/management master's programs report an expectation of any level of debt.

Research master's. The expectation of graduating with some level of graduate debt did not vary by university size, year of study or gender (Figure 9).

The expectation of debt did vary by discipline (Figure 9d), with the familiar pattern of students in engineering and science grouped together and least likely to report graduate debt at 41% and 43%, respectively. (Figure 9d). As noted above, these two groups were in the upper half of the discipline groups reporting access to scholarships and TA/RA work. Students in non-health professions were the only group with over 60% expecting to accrue some level of graduate debt during their studies and, as noted in Figure 7d, although 50% reported scholarships as a form of financial support only 42% of students reported access to TA/RA work.

More domestic than international students indicated that they would accumulate graduate debt (53% vs. 39%, respectively) (Figure 9e). As noted above, international students are less likely than domestic students to report loan/savings as financial supports, perhaps because access to loans is often limited to domestic students.

Doctoral. The expectation of debt did not vary by university size, year of study or gender among doctoral students (Figure 9).

A lower proportion of students in the RoC report graduate debt than those in Ontario and Quebec (Figure 9a). The regional distribution of the various forms of income supports (Section 5.2) does not explain this difference, as the RoC group was only slightly more likely to have accessed non-repayable forms of income support.

Two fairly distinct groups could be identified when considering the data at the discipline level (Figure 9d). Students in health sciences and the STEM disciplines are grouped together and were least likely to expect to accrue debt (less than 42%), while approximately 50% to 55% of students in the other fields anticipated accumulating debt. Again, looking back to the sources of financial support (Figure 8d), more health science and science students reported support through scholarships (relative to their peers), and a high proportion of engineering students reported TA/RA work. These non-repayable income supports, combined with shorter average times to degree completion, explain some differences in debt associated with discipline of study. Alternatively, long degree completion times frequently lead to reduced funding options, necessitating loans to meet financial needs.

Similar to the results discussed above for research master's students, domestic doctoral students were more likely than international students to predict that they would graduate with some level of graduate debt (49% vs. 32%) (Figure 9e).

5.4 Financial Services

All universities have an office that provides financial services and though its primary focus is to help students access funding, many also offer advice and information on budgeting and financial planning. Despite the potential value of these services, less than half of the master's professional and doctoral graduate students sampled said that they had used their university's financial aid office, and just over half of master's research students reported use. Among those who had, approximately one-third rated the quality of the service that they had received as poor (Figures 4d and 4e). Graduate students are not new to university and most have considerable experience living on a limited budget. These findings suggest that graduate students consider this resource to serve primarily undergraduates, obtain information about funding options elsewhere (perhaps within their department) or simply do not feel that they need financial advice.

Professional master's. Students in professional programs were on average the least likely to use financial services relative to research master's and doctoral students (Figure 4d), while also being the group that were most likely to report graduate-level debt. Their use of financial services is however impacted by all our characteristics of interest with the exception of university size and gender (Figure 10).

Ontario and Quebec students in professional programs are more likely than students in the RoC to use financial services (Figure 10a), and students in year 3+ barely use financial services (at 26%) compared to students in first (44%) and second (42%) year (Figure 10b). The greatest variation was associated with discipline (Figure 10d), with a range of 41% (social sciences) to 53% (engineering), no clear pattern among the disciplines and one low outlier. Only 26% of students in education reported using their financial office. International students were much more likely to use their financial office than domestic students.

Students who use the office show little variation in their rating, with the exception of by region and discipline. Although Quebec students report a similar level of use as students in Ontario, they are more likely to give their office a positive rating at 77% compared to Ontario students at 61% (Figure 11a). Although there is a range in positive ratings associated with discipline, from non-health professions (59%) to sciences (72%), there is no discernable pattern (Figure 11d). Nor does the proportion of students using their financial aid office appear to be associated with reporting a positive rating.

Research master's. Use of campus financial aid services did not vary by year of study or gender among the research master's students. However, there were some differences associated with region, university size, discipline of study and international student status (Figure 10).

Master's students in Ontario and Quebec were more likely to use their financial aid office than students in the RoC (Figure 10a) and international students were more likely to access this campus service than domestic students (Figure 10e). Size of university also appears to matter, with smaller institutions being better able to attract students at 60%, medium-sized institutions at 57% and large at 50%.

The greatest variation was associated with discipline, with the results ranging from 40% (education) to 57% (engineering). There is no clear pattern associated with discipline (Figure 10d).

Despite the variation in use, there was little variation in satisfaction ratings among those who had used the service. The only non-trivial difference in satisfaction ratings was by region (Figure 11a). More students in Quebec reported being satisfied with financial services, with almost 80% of Quebec students giving their campus office a positive rating.

Doctoral. There is once again some variation in use relative to region at the doctoral level, with only 43% of doctoral students in the RoC indicating that they had accessed this service compared to 53% of PhD students studying in Quebec (Figure 10a). Not only were Quebec students more likely to use their financial aid offices but proportionally more Quebec students reported the quality of the service to be positive (Figure 11a). Seventy-three per cent of Quebec students report satisfaction compared with a low of only 60% in Ontario.

There is also variation by international status, with international students being more likely to have used the financial aid office than domestic students (55% vs. 45%, respectively) (Figure 10e). There was no difference in positive rating of the service (Figure 11e). Doctoral students at small universities were most likely to use the financial aid office (Figure 10b) but no more or less likely to rate the service they received as positive (Figure 11b).

There was some variation by discipline of study (Figure 10d). Engineering doctoral students stand out, with 59% reporting that they did make use of their financial aid office. Service use was low for all other disciplines, ranging between 39% (health sciences) and 48% (non-health professionals and social sciences). Despite these differences in use, there was no variation in positive rating associated with discipline (Figure 11d). Use and positive rating also did not vary among doctoral students by year of study or gender.

While there was some variation in the proportion of students who used their financial aid offices, there was very little variation in the proportion who gave positive ratings to the service. This would suggest that financial aid offices are providing a somewhat generic service and that perhaps the factors driving some groups to use the office more than others are external to the offices themselves. International students may have no preconceived idea of what their financial aid office provides, while domestic students do. This may explain why international students are much more likely to report using their office. Once through the doors, personal and institutional characteristics have little impact on the perceived quality of the services offered.

Section 6: Results: Career and Academic Supports

6.1 Benchmarks

Four benchmark measures were created by combining similarly themed survey items (Mercier, Meunier, Jacques, Simon & DiGenova, 2010; Zhao, 2012). Each gives a composite measure of student satisfaction in one of four areas considered especially relevant to the graduate student experience: teaching quality; opportunities to present and publish; training and career orientation; and supportive dissertation advisor. We anticipated that these benchmark scores would be more informative than the general assessment measures but found the actual results to be fairly consistent across most groups and the scaling somewhat difficult to interpret, with two benchmarks having a scale from 1 to 5, one having a scale from 0 to 4 and one measuring counts. We discuss each measure in turn.

Opportunities to present and publish. This benchmark measures the number of opportunities a graduate student has had to present or publish their work and is a cumulative measure for their current program. The scale of this measure is clear but identifying non-trivial differences was somewhat problematic. What is difficult to discern is the level of opportunity necessary for students to develop the publishing and presenting skills required to enter the labour market successfully.

As expected, doctoral students reported the highest average number of opportunities to present and publish, followed by research master's students and finally professional master's students (Figure 12b). The number of opportunities increased with year of study but students were asked to report the number of opportunities accumulated over their current graduate program, so this too is as expected (Figure 14c).

Domestic students reported more opportunities than international students at the doctoral level, which may reflect the challenge of writing and presenting when English is not a student's first language (Figure 14e). There was little variation related to discipline of study (Figure 14d).

Supportive dissertation advisor. This benchmark measure was based on questions using a four-point Likert scale with 1 = strongly disagree and 4 = strongly agree. Both research master's and doctoral students reported strong support and mentoring from their dissertation advisors[6] (Firgure12d), with no important variation associated with personal and institutional characteristics (Figure 16).

Quality of teaching. This benchmark measure was based on questions using a five-point Likert scale with 1 = poor and 4 = excellent. Students also rated the quality of instruction and the intellectual quality of their faculty quite highly (Figure 12a). There was some variation related to discipline of study. Humanities students gave the highest ratings to their instructors, while engineering students in the two research levels and non-health professions students in the master's professional stream gave the poorest ratings (Figure 13d). There is no important variation by any of our other student and institutional characteristics.

Research training and career orientation. This benchmark measure was based on questions using a five-point Likert scale with 1 = poor and 4 = excellent. The average score for satisfaction with research training and career orientation was considerably lower than the advisor and teaching benchmarks (Figure 12c). Contributing to this poorer benchmark result were relatively low ratings given by students when asked about the advice and workshops they had received relating to career options and training (see Section 6.2 below).

[6] The questions making up the supportive dissertation advisor benchmark were not included in the professional version of the CGPSS.

No notable variation was found in this benchmark across the independent variables explored (Figure 15).

The general lack of variation among these last three important benchmark measures suggests either a consistency of experience among graduate students or a dampening of differences through the averaging of the individual measures used to create the benchmark. The next section of this chapter will focus on student responses to individual questions that relate to workshops and supports for professional development, labour market access and student use of career service offices.

6.2 Workshops and Supports for Labour Market Access

Students decide to embark on graduate studies for a wide variety of reasons, ranging from personal interest in a specific topic or field of study to the pursuit of a credential to access a specific career path. The majority of students would likely describe their motivation as blending both of these goals. Graduate programs themselves vary from those that offer a broad intellectually centred program to those with a more narrowly defined labour market access objective, with some programs struggling to find a balance between these two extremes. Certainly graduate program administrators want their students to get jobs and students themselves expect their range of employment opportunities to be broader after completing a graduate credential. Current media attention on job prospects for students with graduate credentials may influence students' expectations and rating of the labour market-related workshops and supports offered by their institution.

Professional master's. Professional master's students were asked three questions related to professional skills development (refer to Table 4 for full items). Between 63% and 69% of students gave a positive rating to the workshops and advice they received on career options, job preparation/professional practice and internship/practicum opportunities (Figure 17a).

Students at small universities were more likely to report lower ratings of workshops on career options than students at medium and large universities, although there is no large difference in response associated with university size for the questions on job preparation or internships (Figure 18b). The proportion of satisfied students generally declined with year of study for all three questions, although none quite reach a 10% difference (Figure 18c). Fewer international than domestic students were satisfied with their opportunities for internships and practicums at 60% and 70%, respectively (Figure 18e). This may be related to difficulties competing with domestic students for experiential opportunities or challenges related to accessing work placements on a student visa. Responses to these questions did not vary by region or gender (Figures 18a and 18f).

Finally we considered discipline of study (Figure 18d). As expected, there were differences associated with this variable. The pattern was very similar for student assessment of career options advice and job preparation/professional practice advice. Students in science were most likely to report a positive rating, while students in non-health professions and the humanities were least likely to report a positive experience. The results for internship/practicum satisfaction were more diverse, with a surprisingly low percentage of engineering students satisfied (55%). Universities may have difficulty meeting the high expectations of engineering students, a discipline that has long been associated with industry contact and an integrated work experience. Humanities students, a discipline not associated with a work-integrated learning component, were also dissatisfied, with only 55% reporting positively on their internship/practicum experience. This may reflect a lack of opportunity rather than dissatisfaction with any experience itself. Students in science and health science fields were largely satisfied with their internship/practicum experience at 79% and 86%, respectively.

Research master's. Students who responded to the research version of the CGPSS were asked four questions relating to professional skills development, specifically to rate the quality of the advice and

workshops they had received on teaching, careers within academia, careers outside academia and research positions (refer to Table 5 for full items).

A large majority of master's students in research programs rated the courses, workshops and orientations they received on teaching positively (82%). This is in stark contrast to the 52% of students rating workshops/advice on careers within academia positively and the less than 50% giving positive ratings to the advice and workshops on research positions and career options outside academia (Figure 17c). With the exception of teaching workshops, the majority of master's students in research programs were not satisfied with the quality of the training and support they received in areas related to job readiness and career options.

The proportion of students rating teaching workshops/courses positively did not vary considerably with personal and institutional characteristics. In addition, none of the professional development measures varied by region or gender (Figure 19a and 19f).

Questions rating the quality of workshops/advice on careers within academia, careers outside academia and research positions did vary by university size, year of study, international status and discipline (Figure 19). Students at medium universities were more likely to be satisfied than students at large or small universities (Figure 19b), and proportionally more international students were satisfied than domestic students (Figure 19e). Similar to most findings reported above, satisfaction decreased with year of study (Figure 19c).

The patterns associated with discipline of study are remarkable similar. There is not a large variation in the proportions satisfied with advice/workshops on careers within academia, with engineering students at the high end (59%) and students in non-health professions, social sciences, education and humanities at the low end (47%). The proportion of students satisfied with advice/workshops on careers outside academia shows the greatest variation with discipline and the lowest levels. Again engineering students are most likely report a positive rating (57%) but students in the humanities report only 38% satisfied with these career supports. Only engineering and business students report more than 50% satisfied with the workshops and supports on careers outside academia.

The pattern for satisfaction with research position support falls between these two results, again with engineering students most satisfied (55%) and humanities students least satisfied (40%).

Doctoral. A large proportion of doctoral students were satisfied with teaching workshops/courses but a much smaller proportion gave positive ratings for workshops/advice on career options inside academia, outside academic or research positions (Figure 17b).

Similar to the results for master's research students, the results for teaching workshops/courses do not vary by any of our characteristics (Figure 20). Additionally, no professional skills measure varied by region, university size or gender.

Again we see a familiar pattern, as satisfaction decreased with each year of study and only 34% of doctoral students in year 5+ were satisfied with workshops/advice on careers outside academia (Figure 20c). Even in years 1 and 2 less than 50% of students were satisfied with supports relating to career options outside academia. One area of note was the poor satisfaction ratings for workshops/advice on careers within academia, arguably an area where institutions and individual departments should have the expertise to provide a breadth of supports. Fifty-six per cent of students in years 1 and 2 are satisfied in this area, dropping to 47% for students in year 5+.

International and domestic students report similar proportions of satisfied students, with the exception of

professional development workshops and advice on careers outside academia, where a greater proportion of international students were satisfied.

There was also considerable variation in the proportion of satisfied students by discipline of study (Figure 20d), with the exception of teaching workshops and supports, which received positive ratings from more than 70% of students in all disciplines. In all disciplines the ordering of response was the same. Students in each discipline were most likely to rate supports on careers inside academia positively, followed by research positions, with the lowest proportions giving a positive rating to advice/workshops on careers outside academia. Engineering students were the one exception to this pattern and rated career/workshops on research positions below careers outside academia.

Broadly students in engineering, science and health sciences were more likely than their peers in other disciplines to be satisfied with their career advice and workshops in all four areas.

6.3 Career Services

Career services offices are another campus resource available to graduate students. These centers offer career education and employment support services but are generally targeted to a broad student audience. Career services staff can help students explore career options outside academia, provide support with job search activities and occasionally provide direct access to potential employers by organizing campus-based recruitment events. We finish this chapter on graduate student satisfaction with professional skills development and work readiness by reporting on the proportion of students who use their career services office and, of those, the proportion satisfied with the services they received.

A striking finding was just how few graduate students accessed their career services centers at all (Figure 17d). The professional master's students were most likely to report using the campus service (42%), followed by master's students in research-based programs (39%) and finally doctoral students (36%). Overall there was little difference in the quality ratings of career services, with approximately two-thirds of students who used the services giving a positive rating (Figure 17e).

Professional master's. More professional master's students from Ontario accessed their career services offices than those from other parts of Canada (Figure 21a), but there was little variation in the proportion of satisfied respondents (Figure 22a). Students from small universities were least likely to use their career services office, as well as being least likely to be satisfied with the quality of these services (Figures 21b & 22b). Students who were in their third year of study or higher were least likely to report using career services, but again satisfaction did not differ by 10% (Figures 21c & 22c). There was a very large difference in use associated with international status, with 74% of international students indicating that they had accessed these services, compared to only 36% of domestic students (Figure 21e). Despite differences in use the satisfaction levels were similar, with 64% of domestic students and 72% of international students satisfied (Figure 22e).

Male professional master's students were more likely to use career services than female students, but again there was no difference in the proportions who were satisfied with the quality of the service (Figures 21f & 22f).

There was considerable variation in use associated with discipline of study, with 64% of engineering and only 21% of education students reporting use (Figure 21d). Despite this wide range in use, there is much less variation in the proportion of students giving positive satisfaction ratings, with science students the most satisfied at 74% and humanities students the least satisfied at 60% (Figure 22d). There does not appear to be

any relationship between use and proportion satisfied.

Research master's. Similar to professional master's students, research students at small universities were least likely to report use of career services and least likely to be satisfied with them (Figures 21b & 22b). International students were much more likely to report use, and the variation in the proportion rating the service positively also meets our 10% threshold of significance, with 74% of international students and 64% of domestic students satisfied (Figures 21e & 22e).

The distribution of use by discipline was very similar to that of professional master's students but with a slightly smaller spread. Engineering students were most likely to use career services, while education students were least likely (57% vs. 25%, respectively (Figure 21d). Again, the proportion rating the service positively is much less variable by discipline and ranges from 72% (education) to 61% (humanities) (Figure 22d).

Doctoral. Among doctoral students use of career services varied with discipline, international status and gender (Figures 21), while the proportion of students satisfied only varied with year of study and discipline (Figures 22).

International doctoral students were most likely to use career services (45% vs. 33% of domestic students; Figure 21e), though only 9% more of them described the quality of the service positively (Figure 22e).

Similar to professional master's students, male PhD students were more likely to use career services, with 41% of male respondents indicating that they had used the service, while only 31% of female students did the same (Figure 21f).

There was considerable variation in service use associated with discipline of study. Engineering students reported using career services at 54% and all other disciplines were below 40% use, with a low of 26% for social science students. Positive ratings of the service showed much less variation, with discipline-level ratings ranging only from 55% (non-health professionals) to 66% (engineering).

In an effort to understand the surprising results associated with international students at all program levels, we looked at the use of career services for international and domestic students by discipline (not shown). It was thought that certain disciplines might have both an institutional culture that promoted the use of career services and a high proportion of international students. The results, however, confirmed that international students were proportionally more likely to use career services across all disciplines. International students may be working towards changing their immigration status with the intention of remaining and working in Canada. It may be that the career service office is where they anticipate learning basic information about job availability and how to apply.

Similarly male students were more likely to report accessing career services regardless of their field of study (data not shown).

Despite some of the stark differences in use of career services described above, there was little difference in the proportion of students who rated these services positively. With few exceptions, between 60% and 70% of students reported being satisfied with their institution's career service office. One exception is students from small universities, who were both less likely to use the service and less likely to report satisfaction relative to their peers at larger universities.

As with the financial aid offices, we are left wondering whether the career advice offered in these centers is

perceived to cater primarily to the undergraduate student body and is unappealing to graduate students. One might also ask whether or not advisors and other faculty members endorse the use of these kinds of campus services and how this might encourage or discourage graduate students from accessing these centres. It is also possible that in research programs, much of the career advice is expected to come from the department and the supervisor.

Section 7: Results: Comparisons between 2010 and 2013, Ontario

Comparison of the 2010 and 2013 results for the province of Ontario indicates there has been very little change in how graduate students rate their experiences. In many cases the results were so similar that the lines in the graphs lie on top of one another (Figure 23). In 2010 and again in 2013, approximately 77% of Ontario graduate students rated the quality of their student lives positively, roughly 85% rated the quality of their programs and the quality of their overall experiences positively, and almost 90% were satisfied with the quality of their academic experience. The 2013 average benchmark scores were almost identical to those in 2010 (Figure 27).

Levels of graduate debt also remained static, with no difference in the proportion of students who expected to accrue each level of debt by the time of graduation (Figure 25). Aside from a slight decrease in the proportion of research master's and doctoral students who indicated that they had received bursaries (~8%) and a slight decrease in the number who reported using loans, savings and family assistance (~5%), there were no changes in the forms of financial support students used (Figure 24).

There has been no drastic change in the range of graduate-level programs of study available to students in Ontario between 2010 and 2013, no radical alterations in policy that might impact graduate education and no large change in student demographics (Table 8) or, at least as evidenced by these satisfaction comparisons, students expectations. In the case of doctoral students, many who were relatively new students at the time of the 2010 survey would still have been enrolled for the 2013 wave. In short, the evidence presented here indicates that, on average, the graduate student picture in Ontario has remained consistent over the last few years. The comparison reported by Zhao (2012) on differences between Ontario's 2007 and 2010 CGPSS results paints a similar picture.

Table 8: Respondent Profile for CGPSS 2010 and CGPSS 2013 in Ontario[7]

	Doctoral		Master's Research		Master's Professional		All Master's	
	% 2010 (N = 6,771)	% 2013 (N = 8,271)	% 2010 (N = 6,555)	% 2013 (N = 7,811)	% 2010 (N = 5,873)	% 2013 (N = 7,449)	% 2010 (N = 12,428)	% 2013 (N = 15,260)
Gender								
Female	50%	52%	59%	59%	61%	64%	60%	61%
Male	50%	48%	41%	41%	39%	36%	40%	39%
Age								
<=30	50%	53%	77%	75%	52%	65%	65%	70%
>30	41%	40%	19%	17%	32%	29%	25%	23%
Immigration Status								
International	81%	80%	87%	83%	90%	84%	88%	84%
Domestic	19%	20%	13%	17%	10%	16%	12%	16%
Aboriginal								
No	86%	89%	91%	89%	80%	90%	86%	90%
Yes	2%	2%	3%	3%	3%	3%	3%	3%
Visible Minority								
No	58%	53%	64%	53%	53%	50%	59%	52%
Yes	33%	35%	32%	35%	32%	40%	32%	37%
Registration Status								
Part-time	5%	5%	13%	11%	26%	24%	19%	17%
Full-time	95%	95%	87%	89%	74%	76%	81%	83%
Year of Study								
1	23%	21%	50%	51%	57%	59%	53%	54%
2	21%	19%	36%	33%	33%	32%	35%	33%
3	19%	19%	10%	10%	7%	5%	8%	7%
4	17%	16%	3%	2%	2%	1%	2%	2%
5	11%	11%	1%	0%	1%	0%	1%	0%
6 or above	9%	12%	1%	0%	1%	1%	1%	0%

[7] Percentages represent the proportion of the full sample. For groupings that do not sum to 100%, the balance represents missing values/responses.

	Doctoral		Master's Research		Master's Professional		All Master's	
	% 2010 (N = 6,771)	% 2013 (N = 8,271)	% 2010 (N = 6,555)	% 2013 (N = 7,811)	% 2010 (N = 5,873)	% 2013 (N = 7,449)	% 2010 (N = 12,428)	% 2013 (N = 15,260)
Discipline								
Social sciences	19%	20%	19%	20%	10%	9%	15%	15%
Business/Man	3%	2%	2%	2%	22%	22%	11%	12%
Education	6%	6%	5%	3%	10%	11%	8%	7%
Engineering	16%	16%	15%	16%	11%	12%	13%	14%
Health sciences	13%	14%	14%	16%	15%	16%	14%	16%
Humanities	14%	14%	10%	10%	5%	5%	8%	7%
Non-health professions	3%	4%	8%	8%	16%	17%	12%	12%
Sciences	25%	23%	27%	25%	10%	8%	19%	17%
University Size								
Small	2%	4%	5%	10%	4%	4%	5%	7%
Medium	13%	13%	25%	18%	24%	23%	25%	20%
Large	84%	83%	70%	72%	72%	73%	71%	73%

Section 8: Summary and Policy Recommendations

Given the consistency of results in some areas (general assessment measures, benchmarks, Ontario change over time) and the inconsistent variation related to students and institutional characteristics in the remaining measures, it is challenging to identify concluding statements that pull together these divergent results. We can summarize in a few distinct areas as follows.

General assessment

- The majority of graduate students in Canada are satisfied with the general aspects of their program and academic experience, and this satisfaction holds for specific groupings of students by region, university size, discipline of study, international status and gender.

Meeting financial needs

- A large proportion of the graduate students surveyed said that they are able to meet their financial needs and do not expect to accrue any additional debt during their years in graduate school (~48%). This is not universally the case, however, as a small but non-trivial fraction of graduate students expect to accrue rather considerable graduate debts of $50,000 or more (~4%), particularly those in master's professional business/management programs.

- Over two-thirds of students consider money to be an obstacle to their academic progress, with almost half of this group identifying money as a major obstacle. Despite this, less than 50% of graduate students visit their university's financial aid office and of those who do less than 70% are happy with their experience. Financial aid offices must ensure that their services address the needs of their graduate student body, although the form of the financial support that is actually available to a given student (e.g., loans rather than scholarships) may create obstacles to student satisfaction over which financial aid offices have little control.

- Students in professional master's programs access a wide range of financial supports, although no single source is used by more than 40% of them. Relative to students in master's research streams they report considerably less access to scholarships and TA/RA work. This likely contributes to their expectation of higher graduate-level debt.

- Research master's students use a wide range of financial supports, with access to scholarships, TA/RA work and employment varying considerably by discipline of study. Over 50% of students in engineering, sciences, social sciences and humanities report access to scholarships and TA/RA work. However, only among students in engineering and sciences do scholarships and TA/RA work seem to translate into a reduction in debt.

- Doctoral students rely heavily on scholarships and TA/RA work. The reliance on employment income showed the most variability by discipline, with students in STEM disciplines, health science and business least likely to report employment.

- Despite the much longer time commitment required of doctoral studies, a greater proportion of doctoral students expect to graduate with no graduate-level debt, highlighting the importance of scholarships and TA/RA work in helping students meet their financial needs.

- Region appears to matter for access to TA/RA work and employment as a source of income. Quebec students in master's programs are more likely to use employment to fund their studies than students in Ontario, while Quebec students in research streams (master's and doctoral) report less access to TA/RA work than do students in Ontario.

Professional skills development

- Professional skills development is an area where by and large universities appear not to be meeting student expectations. One exception is in the area of teaching, where students in research programs are happy with the quality of support and training they receive.

- Students in research programs (doctoral and master's) are not satisfied with the workshops/advice they receive on career options within academia, career options outside academia or research positions. The proportion of satisfied students also decreased by year of study. As students move through their academic program, plans after graduation become more relevant and students become increasingly critical of workshops/advice related to career options.

- Students are particularly critical of the support and advice they receive on career options outside academia, but there is considerable variability associated with discipline. At the master's research level more than 50% of engineering and business students are satisfied, but humanities students report the lowest satisfaction at 38%. At the doctoral level only engineering students report more than

50% satisfied, with science, health science, non-health professional, social science, education and humanities disciplines all reporting 41% or less as satisfied.

- Master's students in professional programs are more likely than their peers in research streams to rate their professional skills development positively, but even this group does not reach a 70% positive rating of workshops/advice on career options, workshops/advice on job preparation and professional practice, or opportunities for internships and practicum. There is variation associated with discipline but for no group does the level of positive rating fall below 50%.

- Similar to financial services use reported above, students also do not access their university career service office. Less than 45% of each group of graduate students reports using career services and of those less than 70% report positively on the experience. Students at small universities are less likely to access this service and again use varies by discipline. Engineering students in all graduate groups make more use of this service than students in other disciplines.

- International students in all academic groups make considerably more use of career services than domestic students but they are only slightly more likely to rate their experience positively than domestic students.

- University size matters, particularly for research master's students. Students at medium universities are happier with a number of training and support programs than are students at small or large universities. Specifically, they are more likely to report positively on the quality of support and training they have received in the areas of careers within academia, careers outside academia and research positions, and are also more likely (along with students from large universities) to rate their career service office positively.

Policy Recommendations

The considerable variation associated with discipline of study for many of the measures evaluated in this report suggests that graduate schools and individual departments should implement policy and program changes targeted to specific student groups. In particular there needs to be greater alignment between student expectations of professional skills development and what departments deliver to prepare students for employment after graduation.

Students without access to scholarships and TA/RA work are more likely to find money to be a major obstacle to their academic progress, and this could arguably disadvantage students from low-income backgrounds who are studying in high cost programs. Increasing scholarship support or bursary options would help alleviate this potential inequity.

Given the recent and continuing increase in the enrolment numbers of international graduate students and the variation in many satisfaction measures associated with international status, universities should ensure that financial supports and professional skills development programming are flexible enough to accommodate international students' unique needs.

Universities should determine which graduate student needs are not being met by career services and financial aid offices. Services should be adjusted or expanded to provide better support for graduate students while ensuring that the graduate student body is aware of their benefits.

CAGS should continue to encourage universities to participate in the CGPSS survey. Its current strengths include the large sample size, the breadth of data collected and the national distribution. An increase in the number of participating universities would make possible additional analyses of the data. For example, descriptive analysis of the experience of underrepresented groups, such as those identifying as aboriginal, would be possible with a larger sample. Comparisons between waves at the national level would also become possible, and over time this would give a much more complete picture of the Canadian graduate student experience.

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Appendix A

Participating Institutions by Region

Table 9: Ontario Institutional Participation

University	Size	Region	CGPSS 2010	CGPSS 2013
Carleton University	Large	ON	X	X
McMaster University	Large	ON	X	X
University of Ottawa	Large	ON	X	X
Queen's University	Large	ON	X	X
University of Toronto	Large	ON	X	X
Western University	Large	ON	X	X
University of Waterloo	Large	ON	X	X
York University	Large	ON	X	X
Brock University	Medium	ON	X	X
University of Guelph	Medium	ON	X	X
Ryerson University	Medium	ON	X	X
University of Windsor	Medium	ON	X	X
Wilfrid Laurier University	Medium	ON	X	X
Laurentian University	Small	ON	X	X
Lakehead University	Small	ON	X	X
Nipissing University	Small	ON		X
OCAD University	Small	ON		X
Saint Paul University	Small	ON		X
Trent University	Small	ON	X	X
University of Ontario Institute of Technology	Small	ON	X	X
		Total	17	20

Table 10: Quebec Institutional Participation

University	Size	Region	CGPSS 2010	CGPSS 2013
Concordia University	Large	PQ	X	X
Université Laval	Large	PQ	X	X
McGill University	Large	PQ	X	X
Université de Montréal	Large	PQ	X	X
Université de Sherbrooke	Large	PQ		X
Université du Québec à Montréal	Large	PQ	X	X
École nationale d'administration publique	Medium	PQ	X	X
École polytechnique de Montréal	Medium	PQ	X	
Université du Québec à Trois-Rivières	Medium	PQ	X	X
École de technologie supérieure	Small	PQ	X	X
Institut national de la recherche scientifique	Small	PQ	X	X
Université du Québec en Abitibi-Témiscamingue	Small	PQ	X	X
Université du Québec à Chicoutimi	Small	PQ	X	X
Université du Québec en Outaouais	Small	PQ	X	X
Université du Québec à Rimouski	Small	PQ	X	X
		Total	14	14

Table 11: Institutional Participation in the Rest of Canada

University	Size	Region	CGPSS 2010	CGPSS 2013
University of Calgary	Large	ROC	X	X
Dalhousie University	Large	ROC	X	X
University of Manitoba	Large	ROC		X
Memorial University of Newfoundland	Large	ROC		X
University of Saskatchewan	Large	ROC	X	X
Simon Fraser University	Large	ROC		X
University of British Columbia	Large	ROC	X	X
University of Victoria	Large	ROC	X	X
University of Alberta	Large	ROC	X	X
University of Regina	Medium	ROC		X
Royal Roads University	Medium	ROC	X	X
University of Lethbridge	Small	ROC		X
Université de Moncton	Small	ROC		X
Thompson Rivers University	Small	ROC		X
		Total	7	14

Benchmarks

Four benchmark measures were established by the survey developers using component factor analysis based on 29 items from survey sections 3 to 7 (Mercier, Meunier, Jacques, Simon & DiGenova, 2010; Zhao, 2012). The benchmarks are: Quality of Teaching, Research Training & Career Orientation, Opportunities to Present & Publish, and Supportive Dissertation Advisor. The advisor benchmark applies only to students who completed the research-focused version of the CGPSS.

Benchmark scores are computed by taking the average of completed items.

Table 12: Quality of Teaching Benchmark

Question	CGPSS 2013 Code
The intellectual quality of the faculty	Section 3, Q8-1
Overall quality of graduate level teaching by faculty	Section 3, Q8-4
Quality of instruction in my courses	Section 3, Q8-9

Opening text: “Please rate the following dimensions of your program.” 5-point Likert-scale items. 1 = Poor to 5 = Excellent.

Table 13: Training and Career Orientation

Question	Stream	CGPSS 2013 Code
Advice/workshops on the standards for academic writing in your field	Research	Section 4, Q9-4
Advice/workshops on writing grant proposals	Research	Section 4, Q9-5
Advice/workshops on publishing your work	Research	Section 4, Q9-6
Advice/workshops on career options within academia	Research	Section 4, Q10-1
Advice/workshops on career options outside academia	Research	Section 4, Q10-2
Advice/workshops about research positions	Research	Section 4, Q10-3
Advice/workshops about research ethics in human subject research	Research	Section 4, Q10-4
Advice/workshops about research ethics in the use of animals	Research	Section 4, Q10-5
Advice on intellectual property issues	Research	Section 4, Q10-6
Advice/workshops on the standards for writing in your profession	Professional	Section 4, Q11-1
Advice/workshops on career options	Professional	Section 4, Q11-2
Advice/workshops on professional ethics	Professional	Section 4, Q11-3
Advice/workshops on job preparation and professional practice	Professional	Section 4, Q11-4
Opportunities for internships, practicum, and experiential learning as part of the program	Professional	Section 4, Q11-5
Opportunities for contact (lectures, seminars, discussion) with practicing professionals	Professional	Section 4, Q11-6

Opening text: “How would you rate the quality of the support and training you received in these areas?” 5-point Likert-scale items. 1 = Poor to 5 = Excellent.

Table 14: Opportunities to Present and Publish

Question	Stream	CGPSS 2013 Code
Departmental funding for students to attend national or regional meetings	Research & Professional	Section 6, Q14-2
Attend national scholarly meetings	Research & Professional	Section 6, Q14-3
Deliver any papers or present a poster at national scholarly meeting	Research	Section 6, Q15-4
Co-authored in refereed journals with your program faculty	Research	Section 6, Q15-5
Published as sole or first author in a refereed journal	Research	Section 6, Q15-6

Opening text: “Please select if the following occurs in your department, and the number of times you were involved.” Items were presented in two parts. (a) Occurred? Yes / No. (b) [If yes] Number of times you were involved. 0, 1, 2, 3 or 4+.

Table 15: Supportive Dissertation Advisor

Question	CGPSS 2013 Code
My advisor served as my advocate when necessary.	Section 7, Q16-2
My advisor gave me constructive feedback on my work.	Section 7, Q16-3
My advisor returned my work promptly.	Section 7, Q16-4
My advisor promoted my professional development.	Section 7, Q16-5
My advisor overall, performed the role well.	Section 7, Q16-6
My advisor was available for regular meetings.	Section 7, Q16-7
My advisor was very helpful to me in preparing for written qualifying exams.	Section 7, Q16-8
My advisor was very helpful to me in preparing for the oral qualifying exam.	Section 7, Q16-9
My advisor was very helpful to me in selecting a dissertation topic.	Section 7, Q16-10
My advisor was very helpful to me in writing a dissertation prospectus or Proposal.	Section 7, Q16-11
My advisor was very helpful to me in writing the dissertation.	Section 7, Q16-12

Questions presented only to students completing the Research edition of the survey and therefore not computed for individuals who responded to the Professional version. Opening text: “Thesis/Dissertation advisors engage in a variety of mentoring activities. For each of the following statements, indicate the extent that it DESCRIBES THE BEHAVIOR of your advisor.” 4-point Likert-scale items. 1 = Strongly disagree to 4 = Strongly agree

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