

B.C. University Survey of Graduates from Masters and Doctorate Programs

2006 **REPORT OF FINDINGS** ■

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2006

Prepared for
The University Presidents'
Council of British Columbia

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Executive Summary

In 2006, the B.C. Ministry of Advanced Education and the Universities Presidents' Council (TUPC) collaborated to survey graduates of masters and doctorate programs in order to measure graduate outcomes and provide some feedback on the links between graduate education and the labour market.

The 2006 Graduate Survey was administered to graduates from masters and doctorate programs who graduated in the year 2000/01 or in 2003/04. Two cohort years were selected in order to provide sufficient data for analysis. Approximately 930 graduates from The University of British Columbia (UBC), Simon Fraser University (SFU), The University of Victoria (UVIC), the University of Northern British Columbia (UNBC) and Royal Roads University (RRU) participated in the survey for an overall response rate of 25.7%.

The respondent breakdown is consistent with the size of graduate programs offered at individual universities and there are slightly more female respondents compared to male respondents (55.9% vs. 44.1%). This result is fairly similar for all the universities except UNBC, where over 80% of the respondents are female, most likely due to the type of graduate programs offered at UNBC (e.g., Education and Health Professions). As with undergraduate programs, males are more represented in the fields of Computing Science, Engineering, Law, Business and the Physical Sciences while females are more represented in the Fine and Performing Arts, Education, Health related fields, Social Sciences, Humanities and interestingly enough, Medicine.

Graduates were asked about the province or country that they were employed in both before and immediately after undertaking their graduate degree. Of those who were employed prior to their graduate degree, the majority worked in the province of B.C. (69.5%). Immediately after completing their graduate degree, 73.0% were employed in B.C., indicating a net gain of highly qualified personnel as a result of graduate education. In addition, while 20% of graduates came to B.C. from outside of Canada, only 13% reside outside of Canada after graduation.

While B.C. universities still fall short of reaching the goals of equitable representation among visible minorities, aboriginal people, and the disabled, it is somewhat positive to note that the representation of equity groups among graduate students mirrors that of undergraduates, indicating that university education at the undergraduate level equalizes opportunities for graduate study, unlike the progression through K–12, for example, where the proportion of these minority groups steadily diminishes with each transition.

The largest group of survey respondents are Social Sciences graduates (22.7%), followed by Business and Education (20.2%). When asked why they chose to pursue graduate studies, 60.3% of respondents selected the “need to further their careers” as one of the primary reasons for pursuing graduate studies. Not surprisingly, the next most popular choice was “to continue to pursue scholarly/research interests” confirming university graduates’ commitment to life-long learning. Only 3.4% of respondents said that they entered graduate studies due to a lack of employment opportunities, contradicting the myth that students enter graduate studies due to a lack of employment opportunities.

When asked about program satisfaction, 92.9% of graduates reported that they are satisfied with the education that they received. This high level of program satisfaction is consistent among all the universities with the exception of UVIC where 87.0% of graduates report that they are satisfied.

While graduates are satisfied with their education, only 73.3% said that they would take the same program again, elaborating that the educational process and climate could be improved. Student comments provide further evidence of dissatisfaction and point to quality of supervision received, quality of course instruction, cost of education, perceived better opportunities in other provinces and in the United States, lack of cohesion amongst faculty members in the department, lack of timely feedback and access to committee members, changed interests and lack of career opportunities.

Career outcomes for graduate students are better than those for undergraduate degree holders in terms of higher income and higher level job

responsibilities. But perhaps the most significant finding of this survey is the nature of the work and the degree to which skills acquired in graduate education transfer to the workplace, with 90.1% of respondents saying that their job is “very or somewhat” related to their program. The results are particularly startling for PhD holders, where they report that in the course of their jobs they make use of skills such as research, innovation, advanced techniques and methods, staying current in their field through the latest literature, working as part of a research team, consulting with academics and other contacts made at university, creating new knowledge, translating scholarly research into applications, and communicating leading edge developments to others in the workplace. In each of the above cases, over 80% of PhD holders report that to some, or a great extent, these skills are used in their current jobs.

I Introduction

For many years B.C. universities have surveyed their graduates as part of basic accountability and information activities. These surveys have always excluded the graduates of our Post-graduate (masters and doctorate) programs because these programs are fundamentally different, in terms of their objectives, modes of instruction, outcomes and long term impact. In fact, outcomes surveys of post-graduate degree holders are rare worldwide, and for the most part focus on labor market outcomes. This is the first survey we know of which attempts to measure some of the more important learning outcomes of the graduate degree in a world where the demand for such degrees is steadily increasing.

With the increasing emphasis and need for graduate education in B.C. and worldwide, and with the recent initiatives of the B.C. government a collaboration between the Ministry of Advanced Education and the Universities Presidents’ Council (TUPC) undertook to document and provide further evidence of the importance of graduate education in B.C., and to provide some feedback on the links between graduate education and the labour market. The survey also seeks to identify in

particular the regions, jobs, and innovation activity of post-graduate degree holders.

The 2006 Graduate Survey is the first survey to be administered collaboratively by B.C. universities to graduates from masters and doctorate programs who graduated in the year 2000/01 or in 2003/04. Two cohort years were selected in order to provide sufficient data for analysis. Approximately 930 graduates from The University of British Columbia (UBC), Simon Fraser University (SFU), The University of Victoria (UVIC), the University of Northern British Columbia (UNBC) and Royal Roads University (RRU) participated in the survey providing a rich data source which can be used to not only inform policy but also to provide students and faculty with key information as to the types of jobs, demand, and earnings related to a graduate degree.

This report is intended to be a summary at the system level. Individual programs have been aggregated into broad categories.

II Survey Population and Response Rates

This report is based upon the feedback of two cohorts of B.C. university graduates who graduated from masters and doctorate programs in 2000/01 or 2003/04. The survey was conducted on-line. There were 6,882 students who graduated from one of the five universities in 2000/01 or 2003/04. Of these, a total of 3,602 graduates had valid email addresses and were invited to respond to the survey. Nine hundred and twenty-nine students responded to the survey for an overall response rate of 25.7%. Based on other web-based surveys, the response rate is about average, and as with other on-line surveys, there is no indication of any particular type of response bias, hence we are confident that these results, for the most part, do represent a fair and accurate sampling of the population.

III Demographics

A Institution and Graduating Year

The respondent breakdown is consistent with the size of graduate programs offered at individual universities. The majority of respondents are UBC graduates (46.2%), followed by SFU (18.5%), UVIC (12.4%), RRU (20.3%) and UNBC (2.6%).

B Gender

As shown in Table 1, there are slightly more female respondents compared to male respondents (55.9% vs. 44.1%) which is consistent with increased female participation rates at universities.¹ This result is fairly similar for all the universities except UNBC, where over 80% of the respondents are female. The result for UNBC is likely due to the type of graduate programs offered at UNBC where there are typically more females registered in the program than males (e.g., Education and Health Professions).

Table 1: Gender distribution by University

	Male	Female	Total	% Male	% Female
RRU	88	101	189	46.6%	53.4%
SFU	84	88	172	48.8%	51.2%
UBC	185	244	429	43.1%	56.9%
UNBC	4	20	24	16.7%	83.3%
UVIC	49	66	115	42.6%	57.4%
Total	410	519	929	44.1%	55.9%

Gender bias is evident in many of the programs (Table 2) and is similar to gender bias evidenced in undergraduate degree programs. Males are more represented in the fields of Computing Science, Engineering, Law, Business and the Physical Sciences while females are more represented in the Fine and Performing Arts, Education, Health related fields, Social Sciences, Humanities and interestingly enough, Medicine.

¹ At UBC, the graduate student population comprised of 54% females and 46% males in 2003/04 and this remains unchanged for 2007/08.

Table 2: Gender distribution by Program

	Male	Female	Total	% Male	% Female
Fine and Performing Arts	6	12	18	33.3%	66.7%
Computing Science	20	9	29	69.0%	31.0%
Engineering	39	12	51	76.5%	23.5%
Education	48	140	188	25.5%	74.5%
Law	3	2	5	60.0%	40.0%
Health Professions	12	34	46	26.1%	73.9%
Health, Fitness and Kinesiology	2	6	8	25.0%	75.0%
Business	115	73	188	61.2%	38.8%
Natural Resources and Agriculture	12	18	30	40.0%	60.0%
Social Sciences	77	134	211	36.5%	63.5%
Humanities	7	27	34	20.6%	79.4%
Life Sciences	24	26	50	48.0%	52.0%
Physical Sciences	34	10	44	77.3%	22.7%
Architecture	3	2	5	60.0%	40.0%
Medicine	6	10	16	37.5%	62.5%
Interdisciplinary	2	4	6	33.3%	66.7%
Overall	410	519	929	44.1%	55.9%

Table 3: Region of employment before and after degree

Region	Region of Employment before Grad Degree	Region of Employment after Grad Degree
Alberta	9.9%	7.3%
B C	69.5%	73.0%
Canada (unknown)	0.7%	1.0%
Manitoba	0.5%	0.3%
New Brunswick	0.4%	0.1%
Northwest Territories	0.7%	0.6%
Nova Scotia	1.6%	1.0%
Nunavut	0.2%	0.1%
Ontario	10.1%	8.6%
P.E.I.	0.2%	0.0%
Quebec	1.1%	0.6%
Saskatchewan	1.5%	0.9%
Yukon	0.7%	0.7%
United States	2.9%	5.9%
Outside Canada/USA	17.0%	7.7%
Total	100.0%	100.0%

C Residence

Graduates were asked about the province or country that they were employed in both before and immediately after undertaking their graduate degree. Of those who were employed prior to their graduate degree, the majority worked in the province of B.C. (69.5%). Immediately after completing their graduate degree, 73.0% were employed in B.C. In today's rapidly changing and knowledge-based economy where global competition continues to increase, it is reassuring to see that B.C. graduate degree holders are able to find employment within the province and thus contribute to the knowledge economy.

Unlike undergraduate education, graduate education is a much more global endeavor. We expect that many B.C. residents will pursue studies in their particular field of interest outside of B.C., and that many out-of-B.C. and international students will be attracted to B.C.. The result is conducive to globalization: B.C. benefits from the knowledge and training available to them from the international academic community, as well as from the infusion of international students who return (or stay in B.C.) and who maintain global contacts.

Free trade in graduate education is an enormous asset, and B.C. is fortunate to be a major participant. However our survey does indicate there may be a net gain of highly qualified personnel as a result of graduate education, with more graduates remaining in B.C. than were originally employed here.

D Equity Groupings

An important goal of the province of B.C. and B.C. Universities is to ensure access to post-secondary education for all types of students. As such, universities continue to monitor the participation and success rates of students from specific equity groups. As part of this survey, students were asked to self-declare if they are members of a visible minority group, disabled group or are of aboriginal heritage (as defined by Statistics Canada).

As seen in Table 4, 2.5% of the respondents defined themselves as aboriginal, 3.9% as disabled (ie., having a long-term physical and/or mental health condition which limits daily activities), and 19.8% as members of an ethnic visible minority group in Canada. The results are very similar to survey results for undergraduate students with the exception that there are fewer visible minority students represented in the graduate population (19.8% compared to 25.4% for undergraduates).

Table 4: Percentage of respondents belonging to Aboriginal, Disabled, and Visible Minority Equity Groups

	Aboriginal	Disabled	Visible Minority
RRU	2.6%	4.8%	5.9%
SFU	4.7%	2.9%	23.5%
UBC	0.9%	4.3%	26.2%
UNBC	4.2%	4.2%	8.3%
UVIC	4.4%	2.6%	15.7%
Professional	3.0%	3.8%	17.9%
Research/Academic	2.1%	3.7%	22.9%
Health/Medicine	0.0%	9.1%	26.1%
Fine and Performing Arts	0.0%	5.6%	0.0%
Doctorate	0.8%	6.6%	28.1%
Masters	2.7%	3.5%	18.6%
Overall	2.5%	3.9%	19.8%

Furthermore, there are more aboriginal and disabled respondents completing masters programs compared to doctorate programs while the reverse is true of visible minority graduates. Aboriginal students are not represented in the fields of Health, Medicine and the Fine and Performing Arts.

The results for aboriginal students are encouraging. The loss of aboriginal students to the post-secondary system after high school is a well documented and challenging phenomenon, and the universities endeavour to improve aboriginal participation. But, no such drop-off is seen at the graduate level. Since it is almost impossible for the proportion of aboriginal graduate students to be higher than the proportion of undergraduates, (an undergraduate degree is required first) this constant proportion can be viewed as evidence that aboriginal students, once they have reached university, are as successful as others in pursuing a post-graduate degree, and that a university education does indeed serve to reduce social inequity, even for groups starting with major socio-economic disadvantages.

Nevertheless, the rates are still too low and given what is known about the values of mentoring and modeling, aboriginal graduate education needs to remain a high priority. It is useful to know that these statistics show that efforts to recruit aboriginal students into graduate education are very likely to show successful long-term outcomes.

IV Academic Program

A Academic Program Taken

The largest group of survey respondents are Social Sciences graduates (22.7%), followed by Business and Education (20.2%).

Table 5 shows that program distribution among the universities is consistent with the size of programs offered and is similar to program distribution at the undergraduate level. For example, the majority of RRU's respondents completed a Business degree while those at SFU, UBC and UVIC

Figure 1: Distribution by Program

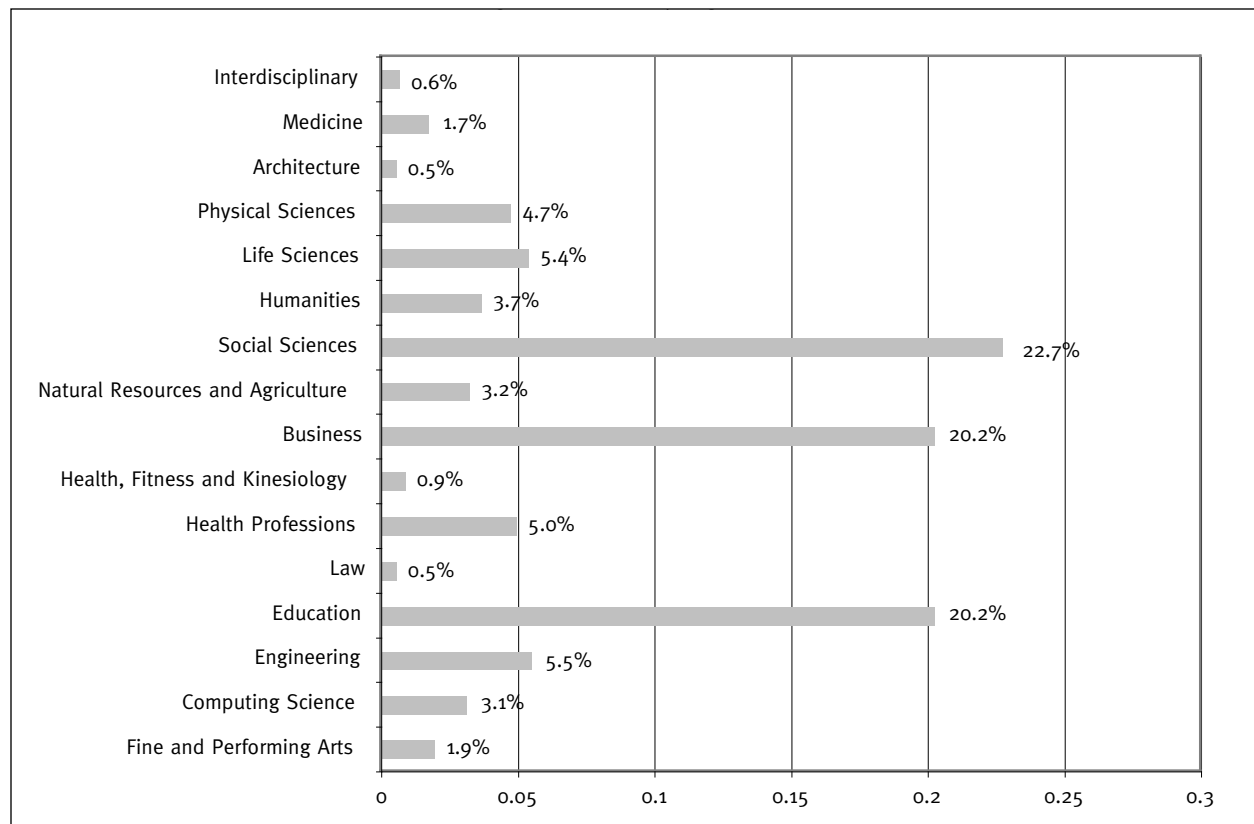


Table 5: Program distribution by University

	RRU	SFU	UBC	UNBC	UVIC
Fine and Performing Arts		1.2%	2.1%		6.1%
Computing Science		4.1%	3.5%		6.1%
Engineering		5.2%	8.4%		5.2%
Education	5.8%	20.3%	20.3%	33.3%	40.9%
Law			1.2%		
Health Professions		4.7%	8.4%	8.3%	
Health, Fitness and Kinesiology		0.6%	1.6%		
Business	47.1%	23.8%	8.4%	8.3%	17.4%
Natural Resources and Agriculture		5.2%	3.5%	20.8%	0.9%
Social Sciences	39.7%	20.3%	19.6%	25.0%	9.6%
Humanities		3.5%	4.4%		7.8%
Life Sciences	7.4%	4.7%	6.3%	4.2%	
Physical Sciences		6.4%	7.5%		0.9%
Architecture			1.2%		
Medicine			3.7%		
Interdisciplinary					5.2%

completed a much more diverse range of programs reflecting the scope of programs available at these universities.

B Program Selection

Graduates were asked why they chose to pursue graduate studies. Over 60% of graduates selected the “need to further their careers” as one of the primary reasons for pursuing graduate studies. Not surprisingly, the next most popular choice was “to continue to pursue scholarly/research interests” confirming university graduates’ commitment to life-long learning.

Respondents who undertook a masters degree were much more likely to do so to enhance their career options while those who undertook doctorate degrees were much more likely to do so in order to pursue further scholarly research. This survey dispels the myth of the graduate degree as a “holding tank” for the unemployed. Only 3.4% of graduates continued on to graduate studies as a kind of “default” activity due to the lack of opportunities. As the labor market data will show below the graduate degree has become integral to the economy, and hence career prospects and aspirations form by far the greatest part of the motivation to attain a graduate degree.

Like undergraduate education, graduate programs vary greatly in purpose and process. Many professions now require a graduate degree for professional credentials, and many graduate degrees are focused on job skills as opposed to pure research. In order to further illuminate the different types of degrees, table 7 shows a somewhat arbitrary division of degrees into four types, with “Research/Academic” referring to those more traditional graduate programs which emphasize disciplinary research versus job skills.

When examined by program area, we see that graduates from Professional and Health fields are more likely to pursue further studies in order to enhance their careers while those in the fields of Research/Academic and the Fine and Performing Arts do so in order to pursue further scholarly interests. This study also confirms the positive labor market outcomes for students with baccalaureate degrees as only 3.4% of respondents cited a lack of career opportunity as the reason for pursuing further education.

To re-emphasize the role of graduate degrees in the labour market, note that even for the more academic and research oriented degrees, 44% of graduates indicated that their primary reason for entry was the pursuit of career goals.

Table 6: Reasons Respondent Pursued Graduate Studies (Overall)

	N	Percentage of Responses	Percentage of Respondents
Needed a graduate degree to reach career goals	328	20.06%	35.31%
To enhance career opportunities	560	34.25%	60.28%
Did not have any career opportunities /could not find a job after bachelor's degree	32	1.96%	3.44%
To continue to pursue scholarly/research interests	372	22.75%	40.04%
Because respondent enjoys post-secondary studies	299	18.29%	32.19%
Other	44	2.69%	4.74%
Total	1635	100.00%	

Note: Multiple response question

Figure 2: Reasons for Pursuing Graduate Degree (by Degree Type)

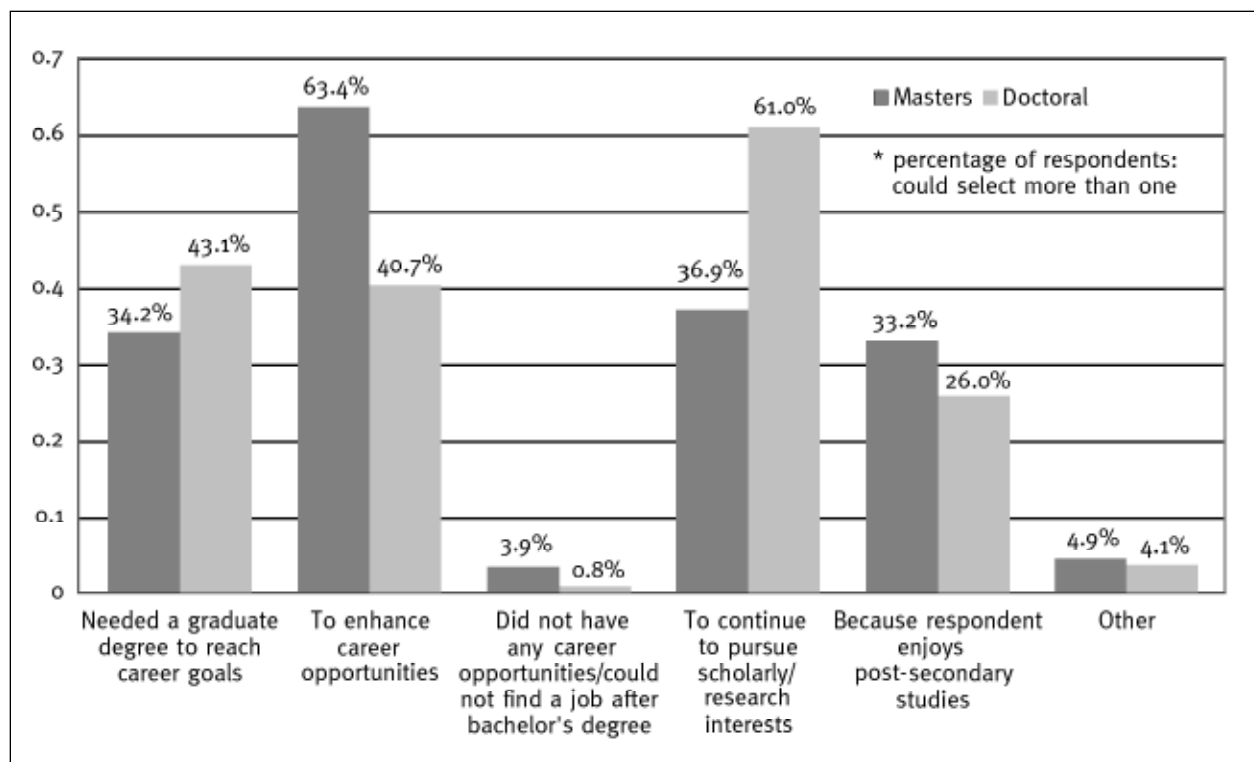


Table 7: Reasons Respondent Pursued Graduate Studies

	Professional	Research/ Academic	Health	Fine and Performing Arts
Needed a graduate degree to reach career goals	19.3%	21.3%	18.6%	12.5%
To enhance career opportunities	43.5%	23.9%	34.9%	28.1%
Did not have any career opportunities/ could not find a job after bachelor's degree	1.7%	2.5%	0.0%	0.0%
To continue to pursue scholarly/research interests	14.8%	30.6%	30.2%	37.5%
Because respondent enjoys post-secondary studies	17.5%	19.4%	16.3%	15.6%
Other	3.1%	2.2%	0.0%	6.3%
Total	100.0%	100.0%	100.0%	100.0%

C Program Satisfaction

When asked about program satisfaction, 92.9% of graduates reported that they are either “satisfied” or “very satisfied” with the education that they received. This high level of program satisfaction is consistent among all the universities with the exception of UVIC where 87.0% of graduates report that they are “satisfied” or “very satisfied”. Note however that UNBC graduates are the most

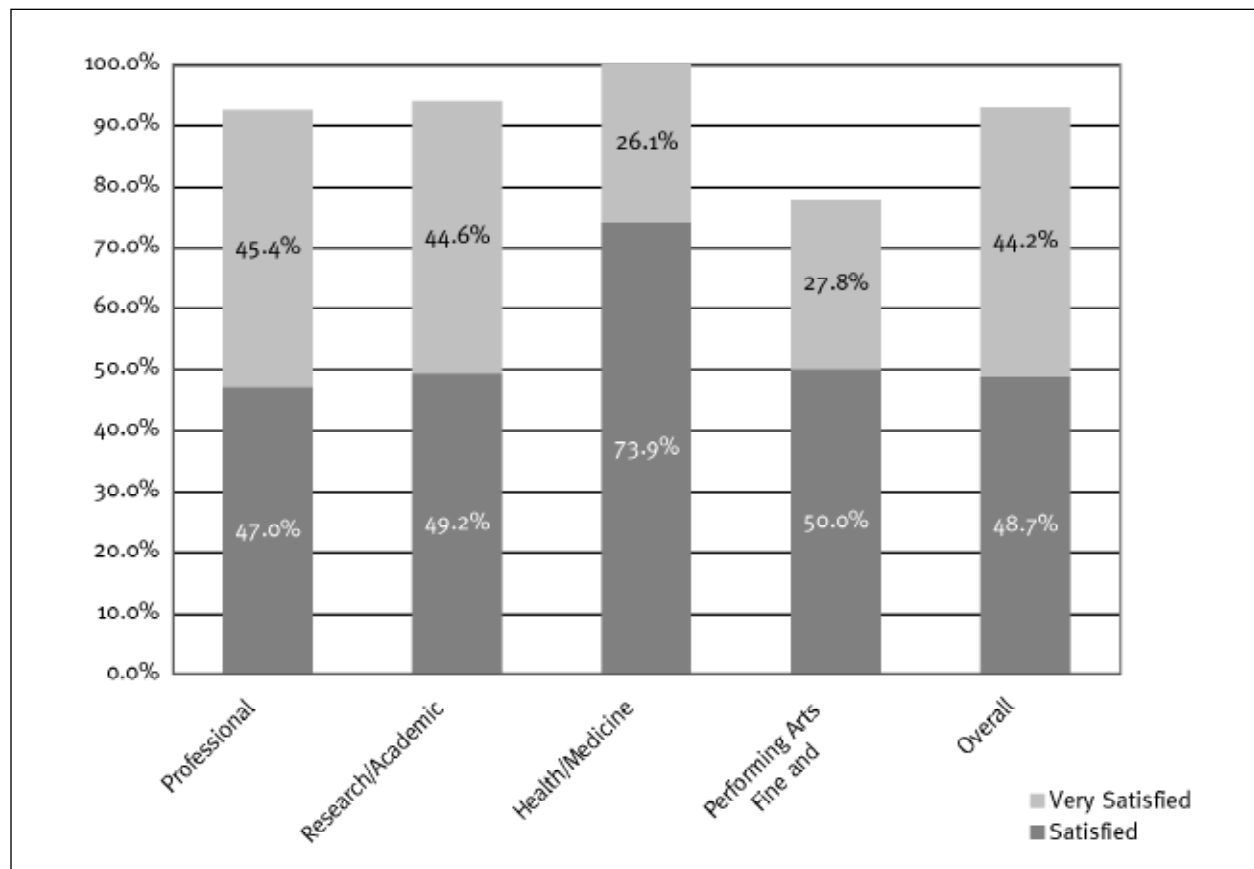
satisfied with over a 15 percentage point difference between the “very satisfied” UNBC graduates and those at other universities, a result which is likely indicative of the small number of programs offered at UNBC.

There is some variation in satisfaction by program with graduates in the area of Health and Medicine being most satisfied and in the Fine and Performing Arts being the least satisfied (26.1% and 27.8% “very satisfied”).

Table 8: Satisfaction with Education Received (by University)

	RRU	SFU	UBC	UNBC	UVIC	Overall	RRU	SFU	UBC	UNBC	UVIC	Overall
Very satisfied	105	81	167	17	41	411	55.6%	47.1%	38.9%	70.8%	35.7%	44.2%
Satisfied	74	80	232	7	59	452	39.2%	46.5%	54.1%	29.2%	51.3%	48.7%
Dissatisfied	6	9	21	0	12	48	3.2%	5.2%	4.9%	0.0%	10.4%	5.2%
Very Dissatisfied	3	2	7	0	2	14	1.6%	1.2%	1.6%	0.0%	1.7%	1.5%
Don't know	1	0	2	0	1	4	0.5%	0.0%	0.5%	0.0%	0.9%	0.4%
Total	189	172	429	24	115	929	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 3: Satisfaction with Education Received



There appears to be no gender bias with both males and females reporting the same level of satisfaction with their program (92.9%) (Table 9).

Although 92.9% of graduates expressed satisfaction with the education that they received, only 73.3% indicated that they would take the same program again with UVIC graduates being the least likely to take the same program again (63.5%). The results vary by program area with graduates in Professional programs at one end of the spectrum with 74.5% indicating that they would select the same program compared to those in the Fine and Performing Arts with less than half (44.4%) indicating that they would select the same program again. Surprisingly, even though there was no gender bias with respect to program satisfaction, males are more likely to select the same program again (by 6 percentage points) than females.

Student comments on why they would not select the same program again allude to dissatisfac-

tion with supervision received, quality of course instruction, cost of education, perceived better opportunities in other provinces and in the United States, lack of cohesion amongst faculty members in the department, lack of timely feedback and access to committee members, changed interests and lack of career opportunities.

Evidently while students are satisfied with their education, there is ample room to improve the process of graduate education, with over one-quarter of graduates perceiving that another choice of program or school would have provided a better experience.

These results are quite different from the undergraduate surveys, where students are less inclined to blame the educational process and climate, and more inclined to regret their choice of discipline or major. Also of interest is the low numbers of graduates who express regret due to lack of job opportunities; also different from the undergraduate survey results.

Table 9: Satisfaction with Education Received (by Gender)

	Male	Female	Total	Male	Female	Total
Very satisfied	181	230	411	44.1%	44.3%	44.2%
Satisfied	200	252	452	48.8%	48.6%	48.7%
Dissatisfied	19	29	48	4.6%	5.6%	5.2%
Very Dissatisfied	10	4	14	2.4%	0.8%	1.5%
Don't know	0	4	4	0.0%	0.8%	0.4%
Total	410	519	929	100.0%	100.0%	100.0%

Table 10: Would Respondent Select the Same Program Again

	Yes	No	Don't Know	Total	% Yes	% No
RRU	151	24	14	189	79.9%	12.7%
SFU	131	28	13	172	76.2%	16.3%
UBC	307	81	41	429	71.6%	18.9%
UNBC	19	3	2	24	79.2%	12.5%
UVIC	73	24	18	115	63.5%	20.9%
Professional	374	84	44	502	74.5%	16.7%
Research/Academic	283	65	38	386	73.3%	16.8%
Health/Medicine	16	6	1	23	69.6%	26.1%
Fine & Performing Arts	8	5	5	18	44.4%	27.8%
Male	315	66	29	410	76.8%	16.1%
Female	366	94	59	519	70.5%	18.1%
Doctorate	93	21	9	123	75.6%	17.1%
Masters	588	139	79	806	73.0%	17.2%
Total	681	160	88	929	73.3%	17.2%

D Course Assessment

Graduates were asked to evaluate the amount of course work required for their program and 83.8% responded that the course work required was appropriate with an 11.2 percentage difference between the RRU graduates and those of UNBC (90.4% vs. 79.2% affirmative).

When examined by program and gender, we see that graduates in professional programs are more likely to agree that the amount of course work required was appropriate (87.1%) while almost a third in the Fine and Performing Arts said that there was not enough course work. There is very little difference in the results by gender (Table 12).

Approximately 20% of graduates had difficulty scheduling required courses because they were either not available, full or had restricted enrolment policies. Students at UBC and UVIC had the most difficulty with course availability while graduates at RRU experienced virtually no difficulty (26%

compared to 3%), likely a reflection of the largely professional programs offered at RRU which have very specific course requirements with standard schedules. Females are also more likely to have difficulty scheduling courses compared to their male counterparts (by 4 percentage points). This may be due to the challenges that female students have in trying to juggle family, career, and scholarly responsibilities.

A lack of course availability at the graduate level is a serious problem. Unlike undergraduate education, the graduate student may have very specific needs and interests, and other courses cannot, and should not, be substituted. Graduate programs have grown rapidly over the past 10 years, and without the accompanying growth in faculty numbers to teach courses, course availability has become a new problem at the graduate level. Traditionally graduate courses have been open to all qualified graduate students, classes were small, and the individual interaction between teacher and student was intense. These results on course availability clearly show

Table 11: Was the Amount of Course Work in Program Appropriate?

	Yes	No, not enough course work	No, too much course work	Total	Yes	No, not enough course work	No, too much course work
RRU	169	14	4	187	90.4%	7.5%	2.1%
SFU	139	17	13	169	82.2%	10.1%	7.7%
UBC	349	34	42	425	82.1%	8.0%	9.9%
UNBC	19	2	3	24	79.2%	8.3%	12.5%
UVIC	94	12	8	114	82.5%	10.5%	7.0%
Overall	770	79	70	919	83.8%	8.6%	7.6%

Table 12: Was the Amount of Course Work in Program Appropriate? (by program and gender)

	Yes	No, not enough course work	No, too much course work	Total	Yes	No, not enough course work	No, too much course work
Professional	433	36	28	497	87.1%	7.2%	5.6%
Research/Academic	307	36	38	381	80.6%	9.4%	10.0%
Health/Medicine	19	2	2	23	82.6%	N/A	N/A
Fine & Performing Arts	11	5	2	18	61.1%	27.8%	N/A
Male	340	34	29	403	84.4%	8.4%	7.2%
Female	430	45	41	516	83.3%	8.7%	7.9%

some degradation in graduate education for those unable to obtain the relevant courses.

In addition, UNBC graduates seem to be the most positive about the quality of course instruction while UVIC and UBC graduates seem to be the least positive. Female graduates are also more disappointed with the quality of course instruction compared to male graduates (by 12 percentage points).

Table 13: Were There Required Courses that Respondent had Difficulty Scheduling (Unavailable, Not Offered, Full, or Restricted Enrollment Policies) (by University)?

	Yes	No	Total
RRU	5	165	170
SFU	34	125	159
UBC	110	305	415
UNBC	5	17	22
UVIC	28	81	109
Professional	81	386	467
Research/Academic	95	273	368
Health/Medicine	2	21	23
Fine and Performing Arts	4	13	17
Doctorate	27	88	115
Masters	155	605	760
Male	71	314	385
Female	111	379	490
Total	182	693	875

E Student-Faculty Collaboration and Faculty Supervision

Collaborative student-faculty interactions is a critical component of connecting students to current research, theories and practice in their field of study. Faculty provide mentorship and help students focus their research and devise their thesis. Increased student-faculty collaborations result in students being more engaged in their learning and provides students with an opportunity to publish papers with faculty. Overall, 87.6% of graduates were “satisfied” or “very satisfied” with the level of student-faculty interaction with less than half being “very satisfied”. Graduates from RRU and UNBC are more satisfied compared to graduates from the three larger universities. Furthermore, graduates from all programs indicated high levels of satisfaction with student-faculty collaboration except for those in the Fine and Performing Arts. Males and Females were equally “very satisfied” with slightly more males being “satisfied/very satisfied”.

With the broad range of graduate programs available in diverse fields such as Engineering, the Social Sciences, and the Fine and Performing Arts, to name a few, as well as whether students are undertaking masters or doctorate programs or engaged in purely professional graduate programs, it is to be expected that one will find considerable

Table 14: Respondent’s Rating for Quality of Course Instruction in Program

	Very good	Good	Poor	Very poor	Total	% Very Good	% Good/Very Good
RRU	89	89	7	2	187	47.6%	95.2%
SFU	72	88	9	2	171	42.1%	93.6%
UBC	153	242	22	8	425	36.0%	92.9%
UNBC	15	9	0	0	24	62.5%	100.0%
UVIC	39	66	7	2	114	34.2%	92.1%
Professional	205	261	22	10	498	41.2%	93.6%
Research/Academic	150	209	19	4	382	39.3%	94.0%
Health/Medicine	8	15	0	0	23	34.8%	100.0%
Fine and Performing Arts	5	9	4	0	18	27.8%	77.8%
Doctorate	48	67	7	0	122	39.3%	94.3%
Masters	320	427	38	14	799	40.1%	93.5%
Male	144	237	18	8	407	35.4%	93.6%
Female	224	257	27	6	514	43.6%	93.6%
Total	368	494	45	14	921	40.0%	93.6%

variation in the type of supervision provided to graduate students. Supervision can range from occasional meetings to close supervision on a weekly basis, from working independently to working in a team environment and therefore the selection of a supervisor is the single most important decision that a graduate student will make prior to starting their program. Nevertheless, supervisors are responsible for assisting students with devising a plan for undertaking their program, consulting with

students as needed and to keep students informed of current research in the field which may impact the student's own research/project. Supervisors may also fund a student's project from their own research grant. Despite the variation in supervision levels, all graduate students are expected to demonstrate increased skills in the areas of research, writing, critical thinking and analysis.

As expected, the majority of doctorate students (93.4%) had supervisors as part of their

Table 15: Satisfaction with the Level of Faculty/Student Collaboration in Program

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	100	77	8	3	188	53.2%	94.1%
SFU	69	82	16	4	171	40.4%	88.3%
UBC	146	212	45	18	421	34.7%	85.0%
UNBC	15	8	1	0	24	62.5%	95.8%
UVIC	42	52	16	3	113	37.2%	83.2%
Professional	213	236	37	11	497	42.9%	90.3%
Research/Academic	147	176	43	14	380	38.7%	85.0%
Health/Medicine	7	12	4	0	23	30.4%	82.6%
Fine and Performing Arts	5	7	2	3	17	29.4%	70.6%
Doctorate	43	60	13	5	121	35.5%	85.1%
Masters	329	371	73	23	796	41.3%	87.9%
Male	164	199	33	11	407	40.3%	89.2%
Female	208	232	53	17	510	40.8%	86.3%
Total	372	431	86	28	917	40.6%	87.6%

Table 16: Did Respondent have a Supervisor as Part of Program

	Yes	No	Total	% Yes	% No
RRU	158	25	183	86.3%	13.7%
SFU	163	8	171	95.3%	4.7%
UBC	356	68	424	84.0%	16.0%
UNBC	19	5	24	79.2%	20.8%
UVIC	109	6	115	94.8%	5.2%
Professional	398	93	491	81.1%	18.9%
Research/Academic	367	18	385	95.3%	4.7%
Health/Medicine	22	1	23	95.7%	4.3%
Fine and Performing Arts	18	0	18	100.0%	0.0%
Male	353	52	405	87.2%	12.8%
Female	452	60	512	88.3%	11.7%
Doctorate	121	2	123	93.4%	1.6%
Masters	684	110	794	86.2%	13.9%
Total	805	112	917	87.8%	12.2%

program with some variability between programs and university.

When asked if they were satisfied with the quality of their interaction with their supervisor, the majority (86.9%) indicated that there were “satisfied/very satisfied” with slightly over half indicating that they were “very satisfied”. Supervisor satisfaction is consistent with the low levels of satisfaction that we have seen in other areas for students in the Fine and Performing Arts. UBC which is the largest research university in B.C. has the lowest percentage of students “very satisfied” with the quality of supervisor

interaction (50.4%) followed by UVIC (52.8%).

In addition to their overall satisfaction with the quality of supervisor interaction, respondents were also asked if they were satisfied with the amount of time that they had with their supervisor. Not surprisingly, a similar percentage (84.6%) expressed that they were “satisfied/very satisfied” while less than half (45.9%) indicated that they were “very satisfied”. Again, there is significant variation among universities with RRU at 68.4% “very satisfied” compared to UVIC at 43.5%. There is little variation by program and gender.

Table 17: Satisfaction with Quality of Interaction with Supervisor

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	97	50	8	3	158	61.4%	93.0%
SFU	93	53	12	5	163	57.1%	89.6%
UBC	179	117	44	15	355	50.4%	83.4%
UNBC	16	1	1	1	19	84.2%	89.5%
UVIC	57	35	11	5	108	52.8%	85.2%
Professional	206	150	30	10	396	52.0%	89.9%
Research/Academic	214	94	43	16	367	58.3%	83.9%
Health/Medicine	14	7	0	1	22	63.6%	95.5%
Fine and Performing Arts	8	5	3	2	18	44.4%	72.2%
Male	188	118	37	9	352	53.4%	86.9%
Female	254	138	39	20	451	56.3%	86.9%
Total	442	256	76	29	803	55.0%	86.9%

Table 18: Satisfaction with the Amount of Time Respondent had with Supervisor

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	72	71	14	0	157	45.9%	91.1%
SFU	75	67	17	4	163	46.0%	87.1%
UBC	160	127	49	16	352	45.5%	81.5%
UNBC	13	4	2	0	19	68.4%	89.5%
UVIC	47	40	16	5	108	43.5%	80.6%
Professional	162	179	47	8	396	40.9%	86.1%
Research/Academic	186	117	47	14	364	51.1%	83.2%
Health/Medicine	11	9	1	1	22	50.0%	90.9%
Fine and Performing Arts	8	4	3	2	17	47.1%	70.6%
Male	155	141	47	6	349	44.4%	84.8%
Female	212	168	51	19	450	47.1%	84.4%
Total	367	309	98	25	799	45.9%	84.6%

Student comments elaborate on the extent to which supervisors can impact on students' ability to complete their graduate degree and their overall satisfaction.

Supervision for doctorate studies is difficult to find because of time constraints for possible suitable supervisory faculty members.

MASTERS DEGREE, UVIC

My personal feeling is that I (and most female students) were basically abandoned unless we focused on feminist issues—then one of the female professors would mentor us. My own supervisor was kind—but failed to understand the importance of publishing as a graduate student—and I found out too late.

The department was inherently sexist, even driving away one of their top young female professors, a keen researcher with a sizable research grant. I do hope the department has changed with the new people that have been hired.

DOCTORATE DEGREE, UBC

my supervisor, [name removed] gets all the credit for making my graduate program such a success.

MASTERS DEGREE, UBC

Supervisors and supervision should be more closely monitored by the department and the University.

MASTERS DEGREE, SFU

I had a phenomenal supervisor and have worked with great professors so my experience as a grad student was extremely positive.

MASTERS DEGREE, UBC

*I learned by far more what *not* to do and how *not* to behave than what to do or how to behave. The more experiences I had with my graduate university and department, the more appreciation I had for my undergraduate degree and department. My undergraduate school actively assisted me in obtaining two degrees; with my graduate school, I was lucky when faculty members didn't directly impede my progress. In*

*a department/program where almost all PhD candidates took 7 or more years to complete their degrees, I was only able to complete mine in 7 years and, after two supervisors ignored then abandoned me, I was only able to complete the degree because new professors came in as Head and as my supervisor. The delays in completing my degree that the politicking in my department caused led me to get into the job market later than I should have, after it changed and implemented higher expectations. At the same time that departments were expecting teaching experience as part of their hiring criteria, my department refused to allow graduate students to teach. I am glad to have the degree, glad to be working in my field, but I *hated* my experiences in my graduate degree and would not wish them on anyone.*

DOCTORATE DEGREE, UBC

Overall, my educational experience has given me encouragement. But it also discouraged my enthusiasm in science. I only wish I had a better supervisor and more interaction with the faculty. After PhD, I was like an undergrad student in the job market. I wish that the career department at UBC would have played an active role for the PhD students to find a job after graduation.

DOCTORATE DEGREE, UBC

Very pleased with quality of MSW program. Continue to maintain close personal relationship with supervisor. Very interested in pursuing PhD as result of positive experience in MSW program. Found research component of degree to be highly rewarding. Research skills developed in program have been highly transferable to future work.

MASTERS DEGREE, UBC

some variation in responses due to different experiences with programme in general (good) and with supervisor (great). Post-grad employment responses are variable—I use a lot of my skills, how valued they are I'm not sure, I know they count, but not how much.

DOCTORATE DEGREE, UVIC

faculty members composed of a strong group of woman that mentor and support students in a manner that creates a powerful learning experience

MASTERS DEGREE, SFU

I would have liked to be involved in my supervisor re-search team or get some financial support by obtaining a GRA or a GTA. I think I was not brilliant enough to study with this faculty member and her team of graduate students. She made me felt dumb and stupid. Hopefully, now at my job, I feel appreciated and valued. Many thanks!

DOCTORATE DEGREE, UBC

I cannot overstate the importance of the positive relationship that I had with my research supervisor. I am happy to have chosen this path.

DOCTORATE DEGREE, UBC

SFU was an incredible graduate experience (in BioSciences). The longer I am away from SFU and interacting with students in and from other grad programs (from both Canada and the US), the more I appreciate the strength of the program (in terms of my own supervisor, faculty and grad student quality, as well as graduate courses) and the preparation it gave me for pursuing a research career. I am now pursuing a PhD at a prestigious US school, under support from NSERC, something that would not have been possible without my MSc experience at SFU. NBAt a mid-point in this survey, I became confused as to which degree the questions were referring to; one question asked if I was now in a PhD program, but then it seemed like the following questions were about my MSc (although they seemed to refer to my current degree program).

MASTERS DEGREE, SFU

NEVER have a tuition freeze. It has hurt UBC more than everyone realizes. Provide more funding for students. My thesis took longer because my equipment was old. I spent more time fixing things than working on my thesis. Master programs should provide much more structure and guidance from supervisors. The number of courses should be reduced to 3 from 6 and

some of them should relate directly to thesis work. I spent time in courses that were irrelevant to my thesis and were simply a waste of time. NSERC top ups were reduced for my year from the previous year so I was doing the same work as others for less money. If I had known that I would have went to an Alberta university which would have doubled the value of my NSERC. The Alumni association is also very pushy. I was unemployed following graduation and the Alumni association was pushing me for donations even after I said I was unemployed and had no money.

MASTERS DEGREE, UBC

It was great, I feel that I could never have had this experience in another university. UBC had, probably still has, many of the leading lights of the Adult Education movement. In this faculty, they are probably the brightest star in the constellation! Oh, and of course where would I have found a supervisor with the character of [name removed]!

MASTERS DEGREE, UBC

My experience with co-supervisors was very fruitful; my experience with administration vis-a-vis pursual of a 'non-standard' interdisciplinary degree was often frustrating.

MASTERS DEGREE, UVIC

To be honest, I had to step away from making art since completing the program because it was so hard on me. I struggled a lot in the problem and received a lot of criticism from certain faculty members, which was hard on my confidence and is still something I struggle with. On more practical terms, the program could be greatly improved with 1)more funding, especially towards art equipment and facilities, 2)new, young, and energetic instructors, 3)having some emphasis on practical issues in being an artist such as how to get exhibitions, how to apply for grants, etc.

MASTERS DEGREE, UBC

F Research Outcomes

As discussed, one of the key outcomes of a graduate education is knowledge transfer and innovation, the results of which can be measured by assessing the extent to which graduates publish books, articles, works of art, develop patents or participate in conferences. Graduates were asked the extent to which their thesis research resulted in one of these outcomes and approximately one-third had published papers/articles while a slightly larger proportion (37.2%) had participated in conferences during their thesis research.

On-going research upon degree completion was also measured. Graduates were asked if they engaged in further research upon degree completion and half (50.3%) replied “yes”. Not surprisingly, doctorate students were much more likely to continue with research upon graduation (85.4%) as were those in the physical sciences (84.1%).

Further research after degree completion resulted in 38.8% of graduates publishing books, articles, papers or other material and 26.3% contributing to knowledge transfer by participating in conferences. Also, 2% of graduates registered patents and licenses related to their on-going research.

Table 20: Have you engaged in any further research since completing your degree?

	Yes	No	% Yes
Doctorate	105	18	85.4%
Masters	356	437	44.9%
RRU	64	124	34.0%
SFU	99	72	57.9%
UBC	238	185	56.3%
UNBC	13	10	56.5%
UVIC	47	64	42.3%
Male	202	206	49.5%
Female	259	249	51.0%
Fine and Performing Arts	12	6	66.7%
Computing Science	13	15	46.4%
Engineering	24	25	49.0%
Education	68	116	37.0%
Health and Fitness	38	16	70.4%
Business	57	128	30.8%
Natural Resources & Agriculture	22	8	73.3%
Social Sciences	110	101	52.1%
Humanities	24	14	63.2%
Life Sciences	34	15	69.4%
Physical Sciences	37	7	84.1%
Other Professional	22	4	84.6%
Total	461	455	50.3%

Table 19: Extent to which thesis research has resulted in one of the following:

	Patents	Licenses	Published books	Published articles/papers	Other published material	Copyrights	Conference participation	Works of art (including performance, film, etc.)	Other
Yes	7	1	24	297	104	34	346	20	87
No	922	928	905	632	825	895	583	909	842
Total	929	929	929	929	929	929	929	929	929
% Yes	0.8%	0.1%	2.6%	32.0%	11.2%	3.7%	37.2%	2.2%	9.4%
Doctorate	0	0	8	99	25	6	98	2	1
Masters	7	1	16	198	79	28	248	18	86
Total	7	1	24	297	104	34	346	20	87
% Doctorate	0.0%	0.0%	33.3%	33.3%	24.0%	17.6%	28.3%	10.0%	1.1%

Table 21: Extent to which further research since degree completion has resulted in one of the following:

	Patents	Licenses	Published books	Published articles/papers	Other published material	Copyrights	Conference participation	Works of art (including performance, film, etc.)	Other
Yes	17	2	22	215	123	24	244	19	46
No	912	927	907	714	806	905	685	910	883
Total	929	929	929	929	929	929	929	929	929
% Yes	1.8%	0.2%	2.4%	23.1%	13.2%	2.6%	26.3%	2.0%	5.0%
Doctorate	7		13	86	34	7	76	4	5
Masters	10	2	9	129	89	17	168	15	41
Total	17	2	22	215	123	24	244	19	46
% Doctorate	41.2%		59.1%	40.0%	27.6%	29.2%	31.1%	21.1%	10.9%

V University Infrastructure and Facilities

Graduates were asked to rate their satisfaction with the infrastructure and facilities at their university. These included the library, computer facilities, lab facilities, office space and research space. Innovation and excellence in scholarship depends on the recruitment of outstanding faculty researchers and graduate students. In order to foster excellence in graduate education, it is imperative that resource allocations are made to buildings and core facilities.

Satisfaction with library facilities is high with 92.3% of respondents being “satisfied/very satisfied”. Variability among institutions follows a predictable pattern, as UBC, with by far the most extensive research library collections in British Columbia showing the highest levels of satisfaction.

Variability with computer facilities is increasingly difficult to assess, as the definitions and meaning change. While clearly some students have identified problems, without further enquiry we can't say whether this represents a lack of infrastructure, software, or other ancillary features of a healthy info-technology environment.

Table 22: Satisfaction with the Library Facilities

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	53	112	14	2	181	29.3%	91.2%
SFU	53	102	15	1	171	31.0%	90.6%
UBC	188	212	21	3	424	44.3%	94.3%
UNBC	7	16	1		24	29.2%	95.8%
UVIC	36	63	11	2	112	32.1%	88.4%
Professional	165	288	35	3	491	33.6%	92.3%
Research/Academic	153	196	26	5	380	40.3%	91.8%
Health/Medicine	11	12			23	47.8%	100.0%
Fine and Performing Arts	8	9	1		18	44.4%	94.4%
Doctorate	51	65	6		122	41.8%	95.1%
Masters	286	440	56	8	790	36.2%	91.9%
Male	140	228	32	4	404	34.7%	91.1%
Female	197	277	30	4	508	38.8%	93.3%
Overall	337	505	62	8	912	37.0%	92.3%

Table 23: Satisfaction with the Computer Facilities

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	66	99	6	2	173	38.2%	95.4%
SFU	37	90	22	2	151	24.5%	84.1%
UBC	85	225	64	14	388	21.9%	79.9%
UNBC	3	12	3	1	19	15.8%	78.9%
UVIC	23	61	10	4	98	23.5%	85.7%
Professional	123	259	45	8	435	28.3%	87.8%
Research/Academic	82	208	57	13	360	22.8%	80.6%
Health/Medicine	3	13	1	1	18	16.7%	88.9%
Fine and Performing Arts	6	7	2	1	16	37.5%	81.3%
Doctorate	15	82	21		118	12.7%	82.2%
Masters	199	405	84	23	711	28.0%	85.0%
Male	96	223	55	10	384	25.0%	83.1%
Female	118	264	50	13	445	26.5%	85.8%
Overall	214	487	105	23	829	25.8%	84.6%

Table 24: Satisfaction with the Lab Facilities

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	26	60	6	1	93	28.0%	92.5%
SFU	25	48	12	1	86	29.1%	84.9%
UBC	52	132	49	11	244	21.3%	75.4%
UNBC	4	6	2		12	33.3%	83.3%
UVIC	11	34	13	4	62	17.7%	72.6%
Professional	56	140	31	5	232	24.1%	84.5%
Research/Academic	55	135	47	9	246	22.4%	77.2%
Health/Medicine	2	5	3	1	11	18.2%	63.6%
Fine and Performing Arts	5		1	2	8	62.5%	62.5%
Doctorate	13	51	12		76	17.1%	84.2%
Masters	105	229	70	17	421	24.9%	79.3%
Male	55	136	42	8	241	22.8%	79.3%
Female	63	144	40	9	256	24.6%	80.9%
Overall	118	280	82	17	497	23.7%	80.1%

Table 25: Satisfaction with the Office Space

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	9	69	11		89	10.1%	87.6%
SFU	18	67	36	11	132	13.6%	64.4%
UBC	39	136	96	45	316	12.3%	55.4%
UNBC	3	10	3		16	18.8%	81.3%
UVIC	12	26	21	11	70	17.1%	54.3%
Professional	29	149	60	13	251	11.6%	70.9%
Research/Academic	45	151	94	49	339	13.3%	57.8%
Health/Medicine	2	7	8	2	19	10.5%	47.4%
Fine and Performing Arts	5	1	5	3	14	35.7%	42.9%
Doctorate	16	47	37	13	113	14.2%	55.8%
Masters	65	261	130	54	510	12.7%	63.9%
Male	40	149	78	27	294	13.6%	64.3%
Female	41	159	89	40	329	12.5%	60.8%
Overall	81	308	167	67	623	13.0%	62.4%

Table 26: Satisfaction with the Research Space

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	11	58	8	1	78	14.1%	88.5%
SFU	19	56	26	5	106	17.9%	70.8%
UBC	47	142	68	32	289	16.3%	65.4%
UNBC	4	10	2		16	25.0%	87.5%
UVIC	11	40	14	8	73	15.1%	69.9%
Professional	33	145	37	11	226	14.6%	78.8%
Research/Academic	52	154	71	31	308	16.9%	66.9%
Health/Medicine	3	4	6	1	14	21.4%	50.0%
Fine and Performing Arts	4	3	4	3	14	28.6%	50.0%
Doctorate	18	50	24	9	101	17.8%	67.3%
Masters	74	256	94	37	461	16.1%	71.6%
Male	46	154	46	18	264	17.4%	75.8%
Female	46	152	72	28	298	15.4%	66.4%
Overall	92	306	118	46	562	16.4%	70.8%

Some students are quite dissatisfied with office space, and UBC, as both the oldest and most populous university has the lowest levels of satisfaction. Graduate students frequently share space, or have no space at all, and as a result, are less engaged in day-to-day exchange of knowledge, information and dialogue with faculty and colleagues.

VI Teaching Appointments and Training

Teaching appointments with full course responsibility are normally given only to doctorate students. Teaching appointments are both an important way for students to develop teaching skills, interact with undergraduates, bring current research and ideas to the classroom, as well as a source of additional income. Not all students can or wish to teach a course during their graduate studies, but for those who do, they are largely satisfied with the experience. However, training for the teaching of these courses is still developing at the universities, and only about one-third of those teaching have received teacher training.

Table 27: Did you hold any teaching appointments with course responsibility during your program (not including being a Teaching Assistant)?

	Yes	No	% Yes	% No
RRU	13	175	6.9%	93.1%
SFU	29	142	17.0%	83.0%
UBC	78	346	18.4%	81.6%
UNBC	7	17	29.2%	70.8%
UVIC	23	91	20.2%	79.8%
Professional	43	453	8.7%	91.3%
Research/Academic	96	288	25.0%	75.0%
Health/Medicine	5	18	21.7%	78.3%
Fine and Performing Arts	6	12	33.3%	66.7%
Doctorate	50	72	41.0%	59.0%
Masters	100	699	12.5%	87.5%
Male	54	354	13.2%	86.8%
Female	96	417	18.7%	81.3%
Overall	150	771	16.3%	83.7%

Table 28: How satisfied were you with your teaching appointments?

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Total	% Very Satisfied	% Satisfied/Very Satisfied
RRU	6	6			12	50.0%	100.0%
SFU	16	11	2		29	55.2%	93.1%
UBC	28	45	4	1	78	35.9%	93.6%
UNBC	5	2			7	71.4%	100.0%
UVIC	7	15			22	31.8%	100.0%
Professional	20	20	1		41	48.8%	97.6%
Research/Academic	37	53	5	1	96	38.5%	93.8%
Health/Medicine	2	3			5	40.0%	100.0%
Fine and Performing Arts	3	3			6	50.0%	100.0%
Doctorate	20	27	2	1	50	40.0%	94.0%
Masters	42	52	4		98	42.9%	95.9%
Male	20	28	5	1	54	37.0%	88.9%
Female	42	51	1		94	44.7%	98.9%
Overall	62	79	6	1	148	41.9%	95.3%

Table 29: Did you receive training in teaching skills?

	Yes	No	% Yes	% No
RRU	7	7	3.7%	50.0%
SFU	8	21	27.6%	72.4%
UBC	24	55	30.4%	69.6%
UNBC	4	3	57.1%	42.9%
UVIC	7	17	29.2%	70.8%
Professional	21	25	45.7%	54.3%
Research/Academic	26	70	27.1%	72.9%
Health/Medicine	2	3	40.0%	60.0%
Fine and Performing Arts	1	5	16.7%	83.3%
Doctorate	16	34	32.0%	68.0%
Masters	34	69	33.0%	67.0%
Male	18	37	32.7%	67.3%
Female	32	66	32.7%	67.3%
Overall	50	103	32.7%	67.3%

Table 30: How useful was this training?

	Very useful	Somewhat useful	Not very useful	Not at all useful	Total	% Very useful	% Very/Somewhat Useful
RRU	6	1			7	85.7%	100.0%
SFU	2	5	1		8	25.0%	87.5%
UBC	11	10	1	2	24	45.8%	87.5%
UNBC	4				4	100.0%	100.0%
UVIC	5	2			7	71.4%	100.0%
Professional	16	5			21	76.2%	100.0%
Research/Academic	10	13	1	2	26	38.5%	88.5%
Health/Medicine	2				2	100.0%	100.0%
Fine and Performing Arts			1		1	0.0%	0.0%
Doctorate	6	8	1	1	16	37.5%	87.5%
Masters	22	10	1	1	34	64.7%	94.1%
Male	11	6		1	18	61.1%	94.4%
Female	17	12	2	1	32	53.1%	90.6%
Overall	28	18	2	2	50	56.0%	92.0%

G Skill Development at University and Utilization in Employment

With the increasing need for job skills related to innovation where there is an increasing emphasis on research and knowledge creation and transfer, it is imperative that graduates receive training in skills related to high level research, development and innovation. Furthermore, graduate education is often viewed by employers as a form of high level job training and experience. Specifically, a graduate education, by its very nature, requires independent research, teamwork, and problem solving without immediate supervision or guidance. In this way, graduate education, in addition to its function in knowledge transfer from research to the economy, provides general skills for an innovation economy not usually learned to any great extent at the undergraduate level.

This survey is the first time we know of that any survey has attempted to measure those high level “innovation economy” skills which are key factors of human capital in a knowledge based economy. The education provided by a post-graduate degree program at a research university is unique in its capacity to provide knowledge transfer from the latest research to the economy, and where innovation, invention, and knowledge creation are the primary drivers of the endeavor. In the following section, we report on the part of the survey that asks graduates directly, did they indeed develop these attributes as part of their graduate education.

Graduates were asked to rate the extent to which their education helped them develop specific skills on a scale from “very high” to “very low” as well as “not applicable” or “don’t know”. For those respondents where skill development was applica-

Figure 4: Graduate Skill Development

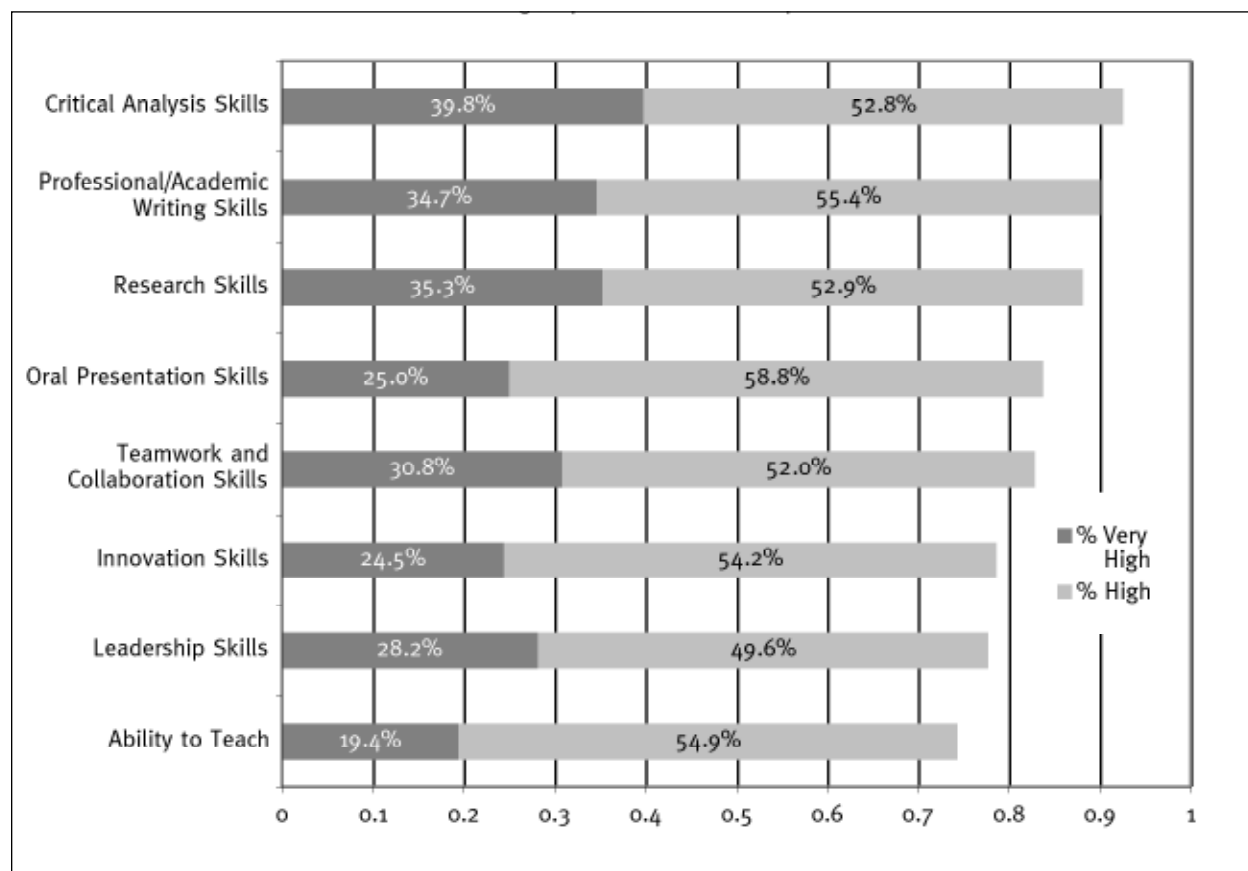


Figure 5: Graduate Skill development (“high/very high”) by degree

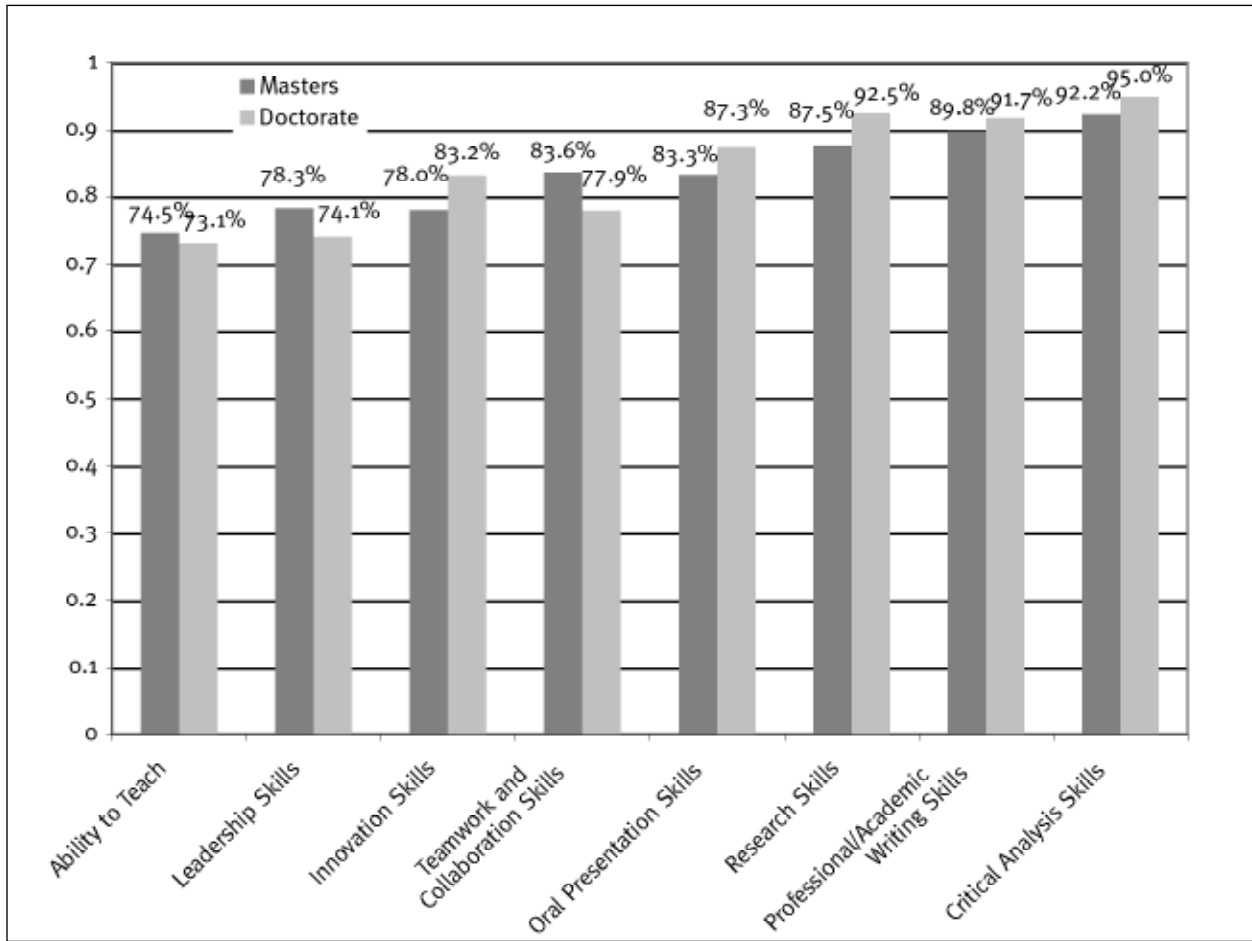


Table 31: Graduate Skill Development (% high/very high) by program

Program	Ability to teach	Oral presentation skills	Professional/academic writing skills	Teamwork and collaboration skills	Critical analysis skills	Innovation skills	Leadership skills	Research skills
Fine and Performing Arts	72.2%	72.2%	94.4%	61.1%	88.9%	77.8%	66.7%	77.8%
Computing Science	51.7%	86.2%	82.8%	69.0%	96.6%	62.1%	44.8%	82.8%
Engineering	52.9%	70.6%	78.4%	66.7%	90.2%	78.4%	51.0%	86.3%
Education	66.1%	71.5%	91.9%	74.2%	91.8%	76.9%	73.1%	87.1%
Health and Fitness	55.6%	83.3%	98.1%	85.2%	100.0%	75.9%	74.1%	83.3%
Business	58.1%	88.2%	85.0%	92.5%	89.8%	72.2%	83.4%	80.2%
Natural Resources & Agriculture	56.7%	86.7%	90.0%	80.0%	96.7%	69.0%	63.3%	90.0%
Social Sciences	69.2%	79.9%	87.2%	79.6%	91.5%	75.7%	71.6%	91.5%
Humanities	57.5%	76.9%	92.5%	57.5%	90.0%	60.0%	57.5%	87.2%
Life Sciences	57.1%	87.5%	93.9%	87.8%	85.7%	79.6%	87.8%	89.6%
Physical Sciences	65.1%	86.0%	90.7%	72.1%	86.0%	79.1%	74.4%	97.7%
Other Professional	61.5%	80.8%	76.9%	76.9%	88.5%	69.2%	65.4%	73.1%
All	62.2%	80.4%	88.4%	79.1%	91.2%	74.3%	72.3%	86.4%

Other prof=Law, Medicine, Architecture

ble, the majority rated the development of ‘critical analysis skills’ as the highest skill developed during the pursuit of their graduate education (92.6%), followed by ‘professional/academic writing skills’ and ‘research skills’.

It’s apparent that graduate students do acquire these high level skills, and to a significant extent. The vast majority of graduate students report having acquired research skills, while a somewhat smaller but still significant majority acquire innovation skills.

Surprisingly, doctorate graduates rated the development of their teaching, leadership and teamwork skills lower than masters degree holders.

As expected, there is considerable variability in skill development when examined by specific program area. Students in computing science are less likely to develop leadership and teaching skills and surprisingly, only 62.1% rated their innovation skill development as “high/very high”. Graduates in business programs are more likely to develop their oral presentation and teamwork/collaboration skills while those in life sciences said that their leadership skills and innovation skills were highly developed. Research skills were most highly developed for graduates of physical science and life science programs (97.7% and 91.5% respectively).

Students and policy makers often want to see a correlation between the education that graduates pursue and outcomes in the labor market. Often there is not a direct relationship between jobs and programs undertaken at the undergraduate level and rather the skills and knowledge that graduates develop should allow them to transition into the knowledge economy, into diverse career fields.

However, when we examine if graduates of masters and doctorate programs are employed in jobs that are related to their program, we find that 90.1% of graduates responded that their job is “very or somewhat” related to their program with 60.5% saying that their job is “very related” to their program. This compares to 73.1% of undergraduate degree holders who described their primary job as “somewhat related” or “very related” to their bachelor’s degree program.² It’s clear that graduate degree holders are in career fields that are much more specialized and therefore more closely

² 2005 BC University Baccalaureate Graduate Survey. http://www.tupc.bc.ca/student_outcomes/publications/graduate_outcomes/graduate_followup_survey_2005/index.html

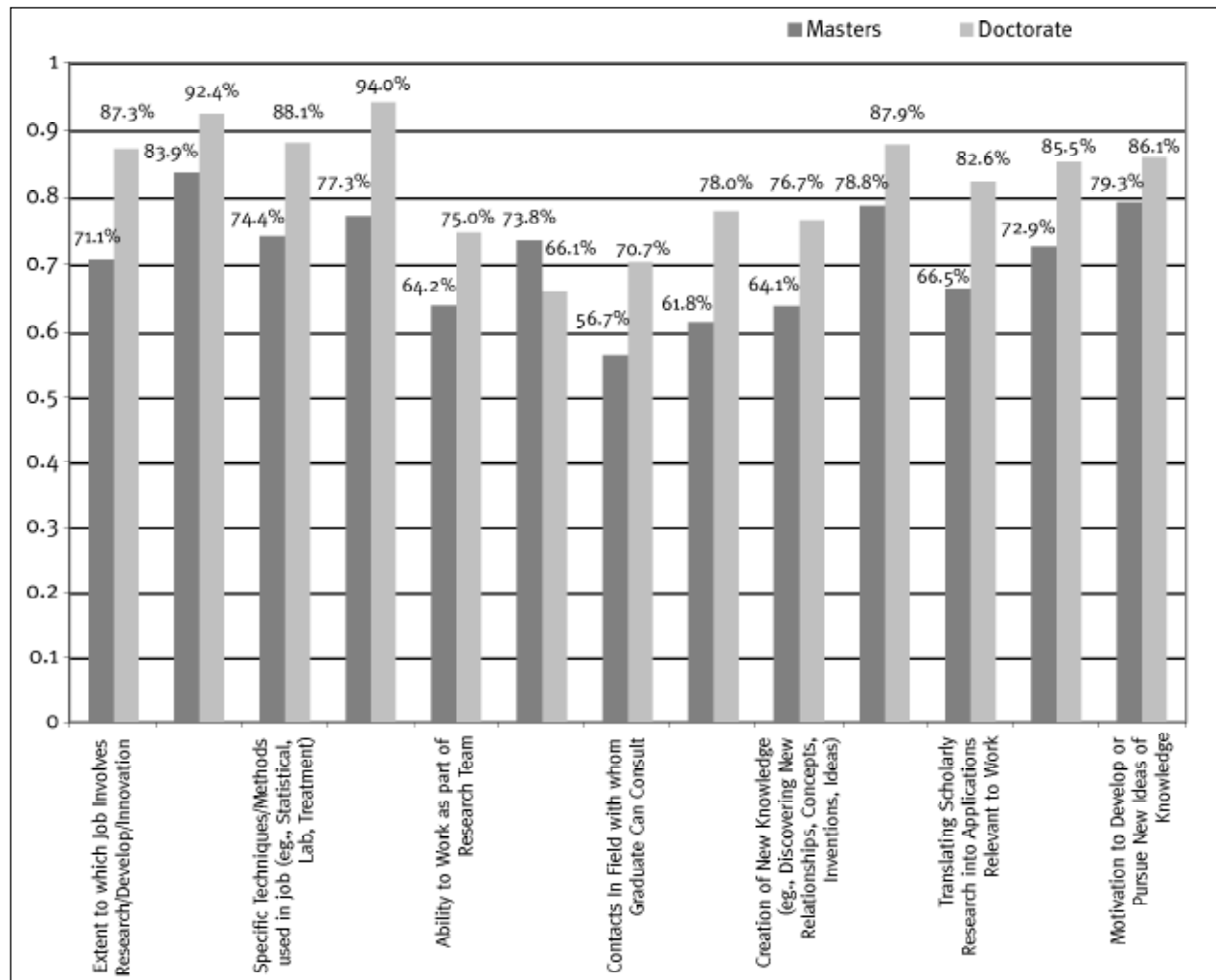
Table 32: Relationship of Main Job to Graduate Program

	Very related	Somewhat related	Not very related	Not at all related	Total	% Very Related	% Very/Somewhat Related
RRU	104	59	11	3	177	58.8%	92.1%
SFU	80	50	5	6	141	56.7%	92.2%
UBC	230	94	29	9	362	63.5%	89.5%
UNBC	17	5	0	1	23	73.9%	95.7%
UVIC	54	34	5	5	98	55.1%	89.8%
Professional	269	152	30	8	459	58.6%	91.7%
Research/Academic	192	84	19	13	308	62.3%	89.6%
Health/Medicine	17	1	1	0	19	89.5%	94.7%
Fine and Performing Arts	7	5	0	3	15	46.7%	80.0%
Male	201	116	29	11	357	56.3%	88.8%
Female	284	126	21	13	444	64.0%	92.3%
Doctorate	91	22	2	3	118	77.1%	95.8%
Masters	394	220	48	21	683	57.7%	89.9%
Overall	485	242	50	24	801	60.5%	90.8%

Table 33: Usefulness of Knowledge, Skills and Abilities Acquired During Graduate Education in Work (by University)

	Very useful	Somewhat useful	Not very useful	Not at all useful	Total	% Very useful	% Very/Somewhat useful
RRU	129	43	3	2	177	72.9%	97.2%
SFU	91	44	5	2	142	64.1%	95.1%
UBC	218	119	20	4	361	60.4%	93.4%
UNBC	16	7	0	0	23	69.6%	100.0%
UVIC	53	35	8	1	97	54.6%	90.7%
Professional	282	152	19	6	459	61.4%	94.6%
Research/Academic	203	87	15	2	307	66.1%	94.5%
Health/Medicine	13	6	0	0	19	68.4%	100.0%
Fine and Performing Arts	9	3	2	1	15	60.0%	80.0%
Male	219	114	14	9	356	61.5%	93.5%
Female	288	134	22	0	444	64.9%	95.0%
Doctorate	92	22	2	1	117	78.6%	97.4%
Masters	415	226	34	8	683	60.8%	93.9%
Overall	507	248	36	9	800	63.4%	94.4%

Figure 6: Skills used in job (to a great extent/some extent)



related to their graduate program than the general skills that undergraduates bring to the workforce.

Furthermore, 94.4% of graduates responded their the knowledge and skills that they acquired during their graduate education are useful in their jobs.

As a final look at the place of graduate degree holders in the modern economy, we asked specific questions about their jobs. The results are very supportive of the hypothesis that graduate degree holders are key employees in the knowledge economy. The skills used in their jobs indicate that they hold jobs requiring idea creation, innovation, and independent thinking, all characteristics of the kinds of activities which lead the economy and society in general.

Detailed analysis of specific skills utilized by graduates reveals that doctorate degree holders are more likely to employ skills such as the ability to stay current, the ability to synthesize ideas or information, translating scholarly research into applications, appreciating the broader implications of current research and the motivation to pursue or develop new ideas of knowledge than masters degree holders. Doctorate students are also more likely to be employed in positions which involve research, development and innovation and to be involved in the creation of new knowledge. However, figure 6 shows that the ability to work as part of a research team or to lead a team, which are considered to be key components of skills that graduate degree holders should develop are not utilized as highly by graduates in their jobs as other skills

(75.0% and 66.1% for doctorate students compared to 64.2% and 73.8% for masters students).

VII Formal Post-Secondary Education or Training Since Graduation

Since completing their graduate degrees, 28.1% of respondents had taken or were currently taking some form of post-secondary education. Of these, 95.0% were masters degree holders, the majority of whom (45.0%) had enrolled in a doctorate program.

Table 34: Formal Post-Secondary Education Since Graduation? (by University)

	Yes	No	Total	%Yes
RRU	36	151	187	19.3%
SFU	51	120	171	29.8%
UBC	132	293	425	31.1%
UNBC	9	15	24	37.5%
UVIC	31	83	114	27.2%
Professional	103	394	497	20.7%
Research/Academic	138	245	383	36.0%
Health/Medicine	10	13	23	43.5%
Fine and Performing Arts	8	10	18	44.4%
Doctorate	13	110	123	10.6%
Masters	246	552	798	30.8%
Male	119	289	408	29.2%
Female	140	373	513	27.3%
Overall	259	662	921	28.1%

Table 35: Type of Formal Post-Secondary Education Being Taken (by Degree Type)

	Doctorate	Masters	Overall	Doctorate	Masters	Overall
Undergraduate degree	3	13	16	23.1%	5.4%	6.3%
Masters degree	2	25	27	15.4%	10.3%	10.6%
Doctorate degree	0	109	109	0.0%	45.0%	42.7%
Applied program certification	0	22	22	0.0%	9.1%	8.6%
Professional association certification	2	25	27	15.4%	10.3%	10.6%
Post-doctorate	3	2	5	23.1%	0.8%	2.0%
Other	3	46	49	23.1%	19.0%	19.2%
Total	13	242	255	100.0%	100.0%	100.0%

VIII Leadership and Social Engagement

For the 2005 survey of 2000 baccalaureate graduates, a special section on leadership and social engagement was included to explore the influence of a baccalaureate education on graduates' civic involvement, leadership skills, volunteerism, and charitable giving. Seventy-four percent of baccalaureate degree holders responded that their university experience had helped them “appreciate and exercise [their] rights, responsibilities and privileges as a citizen”; 46.7% said that their education helped them participate in volunteer activities and 26.7% said that their education influenced their charitable donations.

Further education undertaken at the graduate level continues to influence the extent to which graduates interact with their communities. In this survey, 48.6% of our respondents volunteered in their community, 49.6% were influenced to participate in social and political issues while a larger proportion said that they wrote academic and non-academic papers for dissemination (74.4). The strongest effect of graduate education outside of employment was related to communication; three-quarters of graduates indicated that their graduate education was beneficial in their communications to others about issues and academic topics, and half of those characterized the impact as “to a great extent”. This is very strong evidence of the knowledge transfer hypothesis: the information and knowl-

Table 36: Extent to which graduate studies is of benefit outside employment

	To a great extent	To some extent	To a very small extent	To no extent	Total	% Great extent	% Great/some extent
Graduate's Relationship to His/Her Community (volunteerism)	116	254	208	183	761	15.2%	48.6%
Understanding of and Communication about Issues to Others	253	329	135	63	780	32.4%	74.6%
Participation in Social and Political Issues	118	264	210	178	770	15.3%	49.6%
Writing (Academic or Non-Academic, For Publication or Other Dissemination)	279	295	120	77	771	36.2%	74.4%
Artistic Endeavors (e.g., Film, Arts, Music)	47	115	156	343	661	7.1%	24.5%

Table 37: Extent to which graduate studies is of benefit outside employment to a great extent/some extent

	Graduate's Relationship to His/Her Community (by University)	Understanding of and Communication about Issues to Others (by University)	Participation in Social and Political Issues (by University)	Writing (Academic or Non-Academic, For Publication or Other Dissemination) (by University)	Artistic Endeavors (e.g., Film,) Arts, Music (by University)
RRU	60.6%	87.0%	60.5%	71.3%	20.5%
SFU	42.6%	64.5%	48.9%	79.0%	21.8%
UBC	42.6%	71.5%	44.0%	74.9%	23.8%
UNBC	71.4%	86.4%	54.5%	70.0%	26.7%
UVIC	52.1%	75.0%	50.0%	73.1%	37.8%
Professional	53.8%	79.1%	54.0%	68.4%	22.3%
Research/Academic	41.2%	67.4%	45.0%	81.5%	24.8%
Health/Medicine	33.3%	94.4%	33.3%	94.4%	25.0%
Fine and Performing Arts	64.3%	60.0%	33.3%	85.7%	78.6%
Doctorate	40.4%	67.0%	39.8%	86.3%	24.7%
Masters	50.1%	75.9%	51.3%	72.3%	24.5%
Overall	48.6%	74.6%	49.6%	74.4%	24.5%

edge attained at a research university is readily and effectively disseminated throughout society and the economy via the conduit of graduate education.

There are differences in these non-employment categories by university, but a more detailed examination of the data indicates that these are primarily the results of the different disciplinary mixes at the universities. Of particular interest is the apparent high effectiveness of graduate programs in Health and Medicine related fields in engendering effective communication with society.

IX Labour Market Outcomes

A Unemployment and Employment Characteristics

Examining labor market outcomes is an important factor in determining the success of a graduate education. For our cohort of graduates, the majority were employed prior to undertaking

their graduate degree (only 3.4% were unable to find a job after their baccalaureate degree) and the primary reason for undertaking graduate studies was to enhance their career opportunities. When asked if they were working prior to starting their graduate program, 77.1% said “yes”.

Respondents were asked if they were employed after completing their graduate degree and almost all (88.6%) were either employed or self-employed with only 2.1% actively looking for employment. The overall unemployment rate for graduates in 2006 was 2.3%. There is very little variation by university, program and gender.

Moreover, 7.8% of graduates were self-employed and this result is relatively high when compared with university baccalaureate graduates where 8.1% replied that they were self-employed,³

³ 2005 BC University Baccalaureate Graduate Survey. http://www.tupc.bc.ca/student_outcomes/publications/graduate_outcomes/graduate_followup_survey_2005/index.html

Table 38: Was Respondent Working at Paid Job/Business Before He/She Began Graduate Program? (by Degree Type)

	Doctorate	Masters	Total	Doctorate	Masters	Total
Yes	72	641	713	58.5%	79.9%	77.1%
No	51	161	212	41.5%	20.1%	22.9%
Total	123	802	925	100.0%	100.0%	100.0%

Table 39: Unemployment Rate

	Employed	Not employed but looking	Not employed and not looking	Unemployment Rate
RRU	176	3	19	1.7%
SFU	144	4	46	2.7%
UBC	367	10	1	2.7%
UNBC	22	0	11	0.0%
UVIC	100	2	85	2.0%
Professional	465	10	21	2.1%
Research/Academic	309	8	59	2.5%
Health/Medicine	20	0	3	0.0%
Fine and Performing Arts	15	1	2	N/A
Doctorate	119	1	3	N/A
Masters	690	18	82	2.5%
Male	360	9	34	2.4%
Female	449	10	51	2.2%
Overall	809	19	85	2.3%

Table 40: Paid Worker or Self-Employed (by Degree Type)?

	Doctorate	Masters	Overall	Doctorate	Masters	Overall
Paid worker	103	549	652	88.8%	80.9%	82.0%
Self-employed	2	60	62	1.7%	8.8%	7.8%
Both a paid worker and self-employed	11	70	81	9.5%	10.3%	10.2%
Total	116	679	795	100.0%	100.0%	100.0%

Table 41: Main Reason Respondent Not Currently Employed in Paid Job or Business (by Gender)

	Male	Female	Overall	Male	Female	Overall
Temporary or seasonal layoff	0	1	1	0.0%	1.4%	0.8%
Lost or quit job	2	3	5	4.0%	4.3%	4.2%
Business conditions (cannot find work/lack of suitable...)	4	5	9	8.0%	7.2%	7.6%
Going to school full-time	32	29	61	64.0%	42.0%	51.3%
Caring for children full-time	0	9	9	0.0%	13.0%	7.6%
Other personal or family responsibilities	0	1	1	0.0%	1.4%	0.8%
Personal preference	1	1	2	2.0%	1.4%	1.7%
Retired	3	2	5	6.0%	2.9%	4.2%
On a leave of absence from job/maternity leave	0	2	2	0.0%	2.9%	1.7%
Lack the skills for the job that I want	3	0	3	6.0%	0.0%	2.5%
Just finished school	0	1	1	0.0%	1.4%	0.8%
Just returned to Canada (after travelling, working...)	0	2	2	0.0%	2.9%	1.7%
Awaiting work visa	1	1	2	2.0%	1.4%	1.7%
Currently a full-time volunteer worker	0	1	1	0.0%	1.4%	0.8%
Don't know/unsure	0	1	1	0.0%	1.4%	0.8%
Other	4	10	14	8.0%	14.5%	11.8%
Total	50	69	119	100.0%	100.0%	100.0%

Table 42: Employment status for those who are employed

	Full-time	Part-time	Total	% Full-time
RRU	169	7	176	96.0%
SFU	122	16	138	88.4%
UBC	316	33	349	90.5%
UNBC	19	4	23	82.6%
UVIC	87	8	95	91.6%
Professional	418	30	448	93.3%
Research/Academic	266	34	300	88.7%
Health/Medicine	16	2	18	88.9%
Fine and Performing Arts	13	2	15	86.7%
Doctorate	109	6	115	94.8%
Masters	604	62	666	90.7%
Male	330	15	345	95.7%
Female	383	53	436	87.8%
Overall	713	68	781	91.3%

because baccalaureate graduates include graduates from Law, Medicine and Dentistry, where self-employment pre-dominates.

The primary reason cited for not being employed was due to respondents attending school full-time. If we examine the unemployment for cases of classical “non-frictional” employment (“cannot find work/lack of suitable opportunities), as opposed to “frictional unemployment” (unemployment resulting from changes in a dynamic economy), we see that classical unemployment of the worst kind is virtually non-existent (one-percent).

As we would expect, most working respondents were employed full-time (91.3%).

B Occupational Types and Skill Levels

Perhaps the most convincing test of the importance of the relationship between education and a strong and vibrant economy is to simply look at the jobs of graduates. The results of this survey show to an extraordinary extent that graduate education feeds the very highest skill levels and needs of a knowledge economy: management and professional occupations.⁴ Two points are important. First, the distribution of jobs of graduate degree holders is very different from the distribution of jobs in the total economy, focussing on the highly skilled jobs. This fact, along with the higher salaries of the graduates (see section x) and low levels of unemployment, is complete economic evidence of a high demand in the economy. Second, these are the job categories shown by the Labour Force Survey to be among the fastest growing jobs, indicating a future high demand, and possible shortages.

As part of the survey analysis, respondents' main jobs have been classified into two different categories—one which identifies the skill level of that job, and the other the skill type. Most re-

spondents held jobs categorized as “professional” (67.7%), followed by “management” occupations (22.9%). When results for graduate degree holders are compared to baccalaureate degree holders, we see that, as expected, graduate degree holders are more than twice as likely to hold management positions (22.9% compared to 9.2%).⁵ Distribution by university shows that RRU respondents are more likely to be in management positions, possibly due to the large number of business graduates from RRU. Also, there are very few graduates (0.1%) with positions in the lowest skill level (“labouring and elemental”) and finally, there are many more males than females in management positions (a difference of 9 percentage points).

Table 44 details the specific skill types of respondents' jobs. By far, the vast majority have jobs

⁴ Respondents reported their occupation along with some detailed work duties which were coded using the Statistics Canada standard “National Occupational Classification” (NOC) codes. Hence these categories are consistent and comparable with national statistics as well as other TUPC employment surveys.

⁵ 2005 BC University Baccalaureate Graduate Survey http://www.tupc.bc.ca/student_outcomes/publications/graduate_outcomes/graduate_followup_survey_2005/index.html

Table 43: Skill Level of Respondents' Job

	Management (no skill level)	Skill Level A (Professional Occupations)	Skill Level B (Technical, Paraprofessional and Skilled Occ)	Skill Level C (Intermediate Occupations)	Skill Level D (Labouring and Elemental Occupations)	Total
RRU	54.9%	38.9%	6.3%	0.0%	0.0%	100.0%
SFU	16.8%	72.3%	9.5%	0.7%	0.7%	100.0%
UBC	11.3%	83.9%	4.0%	0.8%	0.0%	100.0%
UNBC	13.6%	86.4%	0.0%	0.0%	0.0%	100.0%
UVIC	18.4%	75.5%	4.1%	2.0%	0.0%	100.0%
Professional	35.3%	59.6%	4.9%	0.2%	0.0%	100.0%
Research/Academic	6.6%	86.7%	5.3%	1.0%	0.3%	100.0%
Health/Medicine	5.6%	83.3%	11.1%	0.0%	0.0%	100.0%
Fine and Performing Arts	0.0%	73.3%	13.3%	13.3%	0.0%	100.0%
Doctorate	8.5%	89.8%	1.7%	0.0%	0.0%	100.0%
Masters	25.5%	67.5%	6.0%	0.9%	0.1%	100.0%
Male	27.9%	66.7%	4.3%	1.1%	0.0%	100.0%
Female	19.0%	74.1%	6.2%	0.5%	0.2%	100.0%
Overall	22.9%	70.8%	5.4%	0.8%	0.1%	100.0%

Table 44: Skill Type of Respondents' Job

	Management	Business, Finance and Administrative Occupations	Natural and Applied Sciences & Related Occupations	Health Occupations	Social, Science, Education Government Services	Art, Culture, Recreation and Sport	Sales and Service Occupations	Trades, Transport and Equipment Operators and Related Occupations	Processing, Manufacturing and Utilities	Total
RRU	10.9%	27.0%	13.8%	15.5%	18.4%	3.4%	9.8%	0.6%	0.6%	100.0%
SFU	3.6%	10.9%	21.2%	4.4%	51.8%	1.5%	5.8%	0.0%	0.7%	100.0%
UBC	0.3%	7.1%	20.7%	9.6%	50.7%	9.3%	1.4%	0.3%	0.6%	100.0%
UNBC	0.0%	0.0%	9.1%	13.6%	72.7%	4.5%	0.0%	0.0%	0.0%	100.0%
UVIC	2.0%	10.2%	9.2%	8.2%	64.3%	3.1%	3.1%	0.0%	0.0%	100.0%
Professional Research/Academic	5.6%	18.4%	13.3%	14.4%	35.6%	5.6%	6.2%	0.2%	0.7%	100.0%
Health/Medicine	0.7%	4.3%	25.2%	2.3%	61.1%	4.7%	1.3%	0.0%	0.3%	100.0%
Fine and Performing Arts	0.0%	0.0%	0.0%	0.0%	46.7%	40.0%	6.7%	6.7%	0.0%	100.0%
Doctorate	0.0%	0.8%	23.7%	3.4%	70.3%	1.7%	0.0%	0.0%	0.0%	100.0%
Masters	4.1%	14.4%	16.4%	11.1%	41.7%	6.5%	5.0%	0.3%	0.6%	100.0%
Male	5.2%	13.8%	25.4%	7.8%	36.6%	4.9%	4.9%	0.6%	0.9%	100.0%
Female	2.1%	11.2%	11.2%	11.7%	53.5%	6.4%	3.7%	0.0%	0.2%	100.0%
Total	3.4%	12.4%	17.5%	9.9%	46.0%	5.7%	4.2%	0.3%	0.5%	100.0%

in the social science, education and government services (46.0%), followed distantly by the natural and applied sciences and business and finance related jobs (17.5% and 12.4% respectively). Gender differences are comparative to enrolments in programs at universities where more males register in the natural and applied sciences while more females enter the fields of health and education.

C Employment Earnings

Previous studies of baccalaureate degree graduates have clearly demonstrated that university graduates enjoy salaries that are higher than the average annual salary for Canadians and this survey further reinforces the successful salary outcomes for university graduates. The average salary for these graduates employed full-time was \$76,218 (Table 45). In comparison, the average annual salary for Canadians in November 2005 was \$38,471 (www.statscan.ca)⁶ and the average salary for baccalaureate degree holders five years after gradu-

ation was \$54,655. Clearly, holders of masters and doctorate degrees benefit financially and their degrees are valued more by employers.

As we would expect, there are salary differences by program area with median salaries higher for those in the professional and health fields and graduates from the Fine and Performing Arts earning substantially lower salaries. In addition, doctorate degree holders earn slightly more than masters degree holders and we also see gender disparity, with males earning an average of \$16,835 more than females.

Finally, these statistics show that even after only three years, there is real growth in salaries of respondents. Comparing 2001 graduates with 2004 graduates we see a nominal increase in salaries of 14%, and real growth of 8%. From an economic point of view, these graduates, through their salary increases, can be seen to be both creating and reaping the rewards of B.C.'s economic growth.

⁶ Note: This national average includes part-time employees

Table 45: Total Income (Mean and Median) for Respondents' employed full-time by graduation year

	2000/01		2003/04		Overall	
	Mean	Median	Mean	Median	Mean	Median
RRU	\$103,186	\$ 94,500	\$ 91,058	\$ 85,000	\$ 93,969	\$ 85,000
SFU	\$ 80,536	\$ 74,500	\$ 70,261	\$ 65,000	\$ 74,411	\$ 69,500
UBC	\$ 79,905	\$ 65,000	\$ 64,233	\$ 60,000	\$ 70,753	\$ 62,000
UNBC	\$ 67,875	\$ 70,000	\$ 67,757	\$ 65,000	\$ 67,810	\$ 67,500
UVIC	\$ 70,368	\$ 69,250	\$ 63,440	\$ 65,000	\$ 64,930	\$ 65,000
Professional	\$ 94,007	\$ 77,000	\$ 81,030	\$ 74,000	\$ 84,884	\$ 75,000
Research/Academic	\$ 70,078	\$ 65,000	\$ 58,673	\$ 55,000	\$ 63,438	\$ 60,000
Health/Medicine	\$ 105,000	\$ 77,000	\$ 61,600	\$ 70,000	\$ 83,300	\$ 73,500
Fine and Performing Arts	\$ 46,750	\$ 38,500	\$ 39,357	\$ 35,000	\$ 42,045	\$ 35,000
Doctorate	\$ 77,955	\$ 75,000	\$ 64,141	\$ 66,000	\$ 71,048	\$ 70,000
Masters	\$ 84,024	\$ 70,000	\$ 73,818	\$ 68,000	\$ 77,084	\$ 69,250
Male	\$ 94,537	\$ 75,000	\$ 80,146	\$ 72,000	\$ 85,445	\$ 73,000
Female	\$ 71,849	\$ 68,500	\$ 67,034	\$ 62,000	\$ 68,610	\$ 65,000
Overall	\$ 82,765	\$ 70,000	\$ 72,756	\$ 67,000	\$ 76,218	\$ 70,000

X Overall Satisfaction and Involvement after Graduation

Satisfaction levels are high for graduates from all five universities with 87.7% saying that they would recommend the university to prospective students. Graduates from the two smaller universities (RRU and UNBC) were more likely to recommend the university to prospective students.

A university's reputation is critical in a globally competitive market where universities compete for the same top students and researchers. Other factors which contribute to a university's overall reputation includes funding, infrastructure, effectiveness of service units and the learning and working climate. The higher a university's reputation, the more likely it will be able to attract not only top students and researchers but also corporate partners and donors. Survey participants were asked to rate the university's reputation and 85.6% said that their university's reputation was "very good/good" with 43.9% responding "very good". UBC graduates rated their institution's reputation higher than participants from other universities with 89.5% stating "very good/good" and 51.3% stating "very good".

Table 46: Would you recommend the university to prospective students?

	Yes	No	Don't Know	Total	% Yes
RRU	177	6	5	188	94.1%
SFU	149	12	10	171	87.1%
UBC	370	30	26	426	86.9%
UNBC	21	1	1	23	91.3%
UVIC	92	12	10	114	80.7%
Total	809	61	52	922	87.7%

Table 47: In your opinion, how good is the university's reputation?

	Very good	Good	Average	Poor	Very poor	Total	% Good/Very Good
RRU	62	84	32	5	2	185	78.9%
SFU	66	82	20	1	2	171	86.5%
UBC	219	163	38	6	1	427	89.5%
UNBC	8	12	3	1	0	24	83.3%
UVIC	48	43	21	0	0	112	81.3%
Total	403	384	114	13	5	919	85.6%

Table 48: Do you maintain an academic and/or professional relationship with the university?

	Yes	No	Total	% Yes
RRU	70	114	184	38.0%
SFU	91	69	160	56.9%
UBC	239	179	418	57.2%
UNBC	14	9	23	60.9%
UVIC	53	59	112	47.3%
Total	467	430	897	52.1%

Table 49: Do you consider your primary loyalty to be to the university where you completed your graduate studies, or to the university where you did your undergraduate studies?

	Graduate studies university	Under-graduate studies university	Not applicable – both degrees taken at the same university	Total	% Grad univ.
RRU	114	26	8	148	77.0%
SFU	59	30	51	140	42.1%
UBC	155	70	101	326	47.5%
UNBC	6	4	6	16	37.5%
UVIC	30	15	43	88	34.1%
Total	364	145	209	718	50.7%

Table 50: Mentoring current students

	I am	I would	No	Total	% Yes	% Would
RRU	21	117	49	187	11.2%	62.6%
SFU	14	90	63	167	8.4%	53.9%
UBC	60	198	155	413	14.5%	47.9%
UNBC	3	12	6	21	14.3%	57.1%
UVIC	12	61	37	110	10.9%	55.5%
Total	110	478	310	898	12.2%	53.2%

Table 51: Providing internship or co-operative education opportunities

	I am	I would	No	Total	% Yes	% Would
RRU	3	94	79	176	1.7%	53.4%
SFU	9	80	71	160	5.6%	50.0%
UBC	42	188	178	408	10.3%	46.1%
UNBC	1	8	10	19	5.3%	42.1%
UVIC	13	54	36	103	12.6%	52.4%
Total	68	424	374	866	7.9%	49.0%

Over half of the participants maintain an academic or professional relationship with the university. Results for RRU and UVIC are surprisingly low compared to those of the other universities and further investigation should be undertaken to understand these results.

One would assume that a graduate education which provides extensive interaction with faculty and researchers would lead to increased loyalty towards the university. However, only 50.7% of participants replied that their primary loyalty is towards the university where they undertook their graduate studies. UNBC which has the highest proportion of participants who maintain a relationship with the university has conversely one of the lowest proportion of participants who consider their primary loyalty to be with UNBC. UVIC graduates are both less likely to maintain a relationship with their university and less likely to consider their primary loyalty to be with UVIC.

Very few graduates were mentoring students or providing co-op/internship opportunities at the time of the survey although many indicated a willingness to participate in these programs.

XI Conclusion

These results show for the first time ever, the strong role of graduate education in the economy. The vast majority of students (96%) enter graduate studies for career related reasons (though many simultaneously express their intellectual interests as a factor as well). Career outcomes almost universally reflect the importance of the graduate degree in the careers of the graduates. The results show almost non-existent unemployment, very high earnings, skills which have been highly developed in relevant areas, and jobs almost entirely (94%) classified as “management” or “professional”. These results also contradict the myth that students enter graduate studies due to a lack of employment opportunities, with only 3% indicating that as a reason. Though there is some variation in these results by discipline, only Fine and Performing Arts graduates diverge significantly from other graduates; with significantly lower earnings and less skilled job responsibilities.

By comparison with previous studies we note that the career outcomes for graduate students are better than those for undergraduate degree holders only (in terms of higher income and higher level job responsibilities). But perhaps the most significant finding of this survey is the nature of the work and the degree to which skills acquired in graduate education transfer to the workplace. The results are particularly startling for PhD holders, where they report that in the course of their jobs they make use of skills such as research, innovation, advanced techniques and methods, staying current in their field through the latest literature, working as part of a research team, consulting with academics and other contacts made at university, creating new knowledge, translating scholarly research into applications, and communicating leading edge developments to others in the workplace. In each of the above cases, over 80% of PhD holders report that to some, or a great extent, these skills are used in their current jobs.

Thus we have a consistent picture of the role of graduate studies in the economy. First, ambitious students pursue further education for both intellectual and career purposes. Their graduate education provides them with much training not attainable at the undergraduate level, often with emphasis on innovation, self-directed research, and teamwork skills, finally followed by careers involving the highest levels of intellectual productivity in a knowledge economy, and accompanied by high earnings and job responsibilities.

Graduate education is more global than any other type of education, and B.C. institutions enroll many graduate students from outside of Canada. But this survey shows that the net impact of the global nature of graduate studies in B.C. is a net gain in the number of highly qualified personnel living in the province. While 20% of graduates came to B.C. from outside of Canada, only 13% reside outside of Canada after graduation.

While B.C. universities still fall short of reaching the goals of equitable representation among visible minorities, aboriginal people, and the disabled, it is somewhat positive to note that the representation of equity groups among graduate students mirrors that of undergraduates, indicating

that university education at the undergraduate level equalizes opportunities for graduate study, unlike the progression through K–12, for example, where the proportion of these minority groups steadily diminishes with each transition.

These results also provide universities and government with some valuable feedback on the academic experience in graduate studies. First and foremost, the results emphasize the role of individual faculty members in mentoring, teaching and guiding graduate students. Although most students expressed satisfaction with their supervisors (85%), when students made open ended comments in the survey, positive or negative, they nearly always related to the academic relationships with faculty. The implication for funding is clear: graduate education is expensive as it involves interaction with prominent researchers, and though independent research is also a key component, there is no substitute for the highest quality faculty and sufficient opportunity for intellectual relationships.

