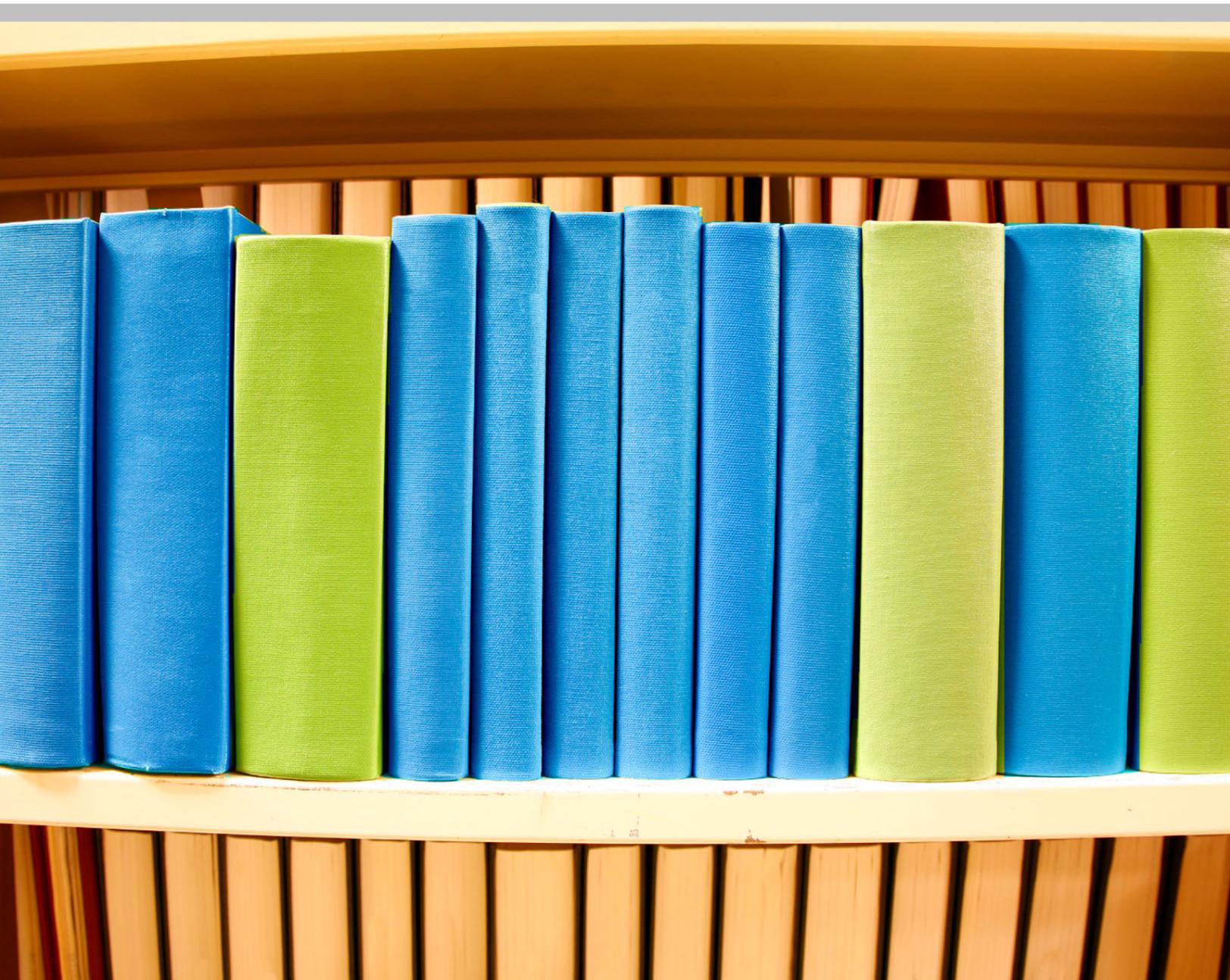# Science-Metrix

Final Report

Environmental Scan for SSHRC Doctoral Fellowship Program

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by

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Executive Summary

The purpose of the present report, commissioned by the Social Sciences and Humanities Research Council of Canada (SHHRC), is to provide an overview of Canadian doctoral education in the social sciences and humanities (SSH) that will support the upcoming evaluation of SSHRC's Doctoral Fellowships Program. A number of issues and trends were identified by stakeholders during the design phase of the study, and these have been examined with the objective of determining their effect on the funding of doctoral students in the SSH. Methods of information collection and analysis included a review of the literature, statistical analysis of time-series data, case studies, and interviews with more than 50 key informants.

While no prominent demographic trends have appeared during the last ten years within the population of doctoral students in the SSH, there have been two notable developments with respect to age and gender. Contrary to general perception, the average age of doctoral students in the SSH has not increased, but the proportion of students over the age of 50 has grown. Although men remain the majority in doctoral degree programs on the whole, women now constitute the majority of students in the humanities. Additionally, in examining data on students' modes of study (or their part-time or full-time status), the report revealed that part-time enrolments have been in decline.

In recent years, discourse on increasingly long time-to-completion among doctoral students has intensified, despite the fact that there is little data available in the public domain to substantiate this claim. However, the data show that students in the SSH take about one year longer to finish their degree programs than students in the natural sciences and engineering (NSE). The data also show that students in the SSH are more likely to abandon their studies than students in the NSE. A number of contributing factors have been identified, including the fact that students in the SSH have less adequate financial support and are more prone to academic isolation.

The report found little empirical evidence to establish that interaction between supervisors and doctoral students is changing in the SSH and involving more "active mentorship" (it was noted that supervision and mentorship are two different functions). In addition, while there is a perception that SSH research is increasingly organized like that in the NSE—that is, with teams working collectively on common themes—it is a fairly isolated phenomenon, particularly in the humanities. Any increases in team-based research in the SSH can largely be attributed to the top-down influence of programs that fund collaborative work.

The fast-track option, or the opportunity for outstanding students to enter PhD programs without having completed a master's degree program, is not currently offered on a widespread basis in Canadian universities. In addition to being more commonly offered in the NSE than in the SSH, it is reserved for only the most exceptional students. As a result, it has not had a significant impact on doctoral education in the SSH. Based on interviews with key informants, the primary benefit assumed to be associated with this option is decreased time-to-completion, but this has not been empirically proven. However, it is feared that fast-track students are not able to benefit from the research training provided by a master's degree program and thus may be less prepared for doctoral studies.

The study found that online and distance education is not well-represented in Canadian graduate programs, particularly when compared with the US. Only one university in Canada was found to offer a PhD online. Significant barriers exist for their provision, such as limited access to specialist equipment and the difficulties of creating an academic community among students who reside remotely.

The number of interdisciplinary programs in Canadian doctoral education does not seem to be increasing significantly; however, the prevalence of interdisciplinary research within traditional disciplines has likely increased, and many programs that could be labelled as interdisciplinary are not formalized as such. It was also found that the professional doctorate (such as the EdD and PsyD) has not reached widespread popularity in Canada; this is likely due to the fact that it is different from the traditional PhD in theory but not in practice. Students in interdisciplinary and professional programs may encounter certain challenges when attempting to obtain funding through traditional means; however, other means of funding do exist for these students, so it is difficult to determine whether they are at a disadvantage in financing their education.

Based on interviews with key informants, it is clear that many believe that university programs in the SSH are more responsive to the needs of society than they are to the needs of private interest, and the level of responsiveness is more significant in the social sciences than it is in the humanities. Research in the SSH relies heavily on public sector funding, and programs such as the Canada Research Chairs and the Community-University Research Alliances demonstrate that socially responsive research is being publicly supported and encouraged. However, although most private sector research funding is distributed in the NSE, the demand for PhD graduates has increased dramatically, fuelled in large part by private sector industry, so universities are aware of the importance of making PhD holders (regardless the field of study) more marketable to the non-academic sector.

The study examined both aspects of international education—the inflow of foreign students into Canada and the outflow of Canadian students to other countries. Because inflows of foreign students can have a positive impact on a country's economy, especially within the context of the knowledge-based economy, the provision of financial aid for supporting inflows and outflows is of great importance. Although there has been an increase in the population of foreign doctoral students coming to Canada in the last decade, their ratio within the total population of Canadian doctoral students in the SSH has not changed and, based on interviews, sources of funds to support these students are very limited. Additionally, there has been a net decrease in the demand by Canadian students to complete a doctoral degree abroad, and SSHRC's support for Canadian doctoral students in foreign countries appears to have declined within the last decade. One promising avenue towards promoting international education would involve fostering the development of joint PhD programs. It was found that there are a number of exchange programs in Canada that support the inflow and the outflow of students.

Given the increased pressure for doctoral students in the SSH to attend national and international conferences to present their work and obtain feedback from their peers, financial resources that would exist specifically to support such travel would be welcomed. Travel grants could also cover limited study abroad and site visits to libraries and archives that are crucial to students' research. The

study also reviewed the methods that are currently used in Canada to assess foreign academic credentials. It was found that there is no central agency or national framework in place for credential assessment. Therefore, the responsibility falls on individual institutions, autonomous accreditation boards, professional regulatory bodies, and provincial and territorial departments, each of which has its own set of policies and procedures for foreign credential assessment.

Funds for doctoral students are widely available. Firstly, funding programs are extensive and diverse and include merit-based funding, loan and grant programs, and work performed on campus, including research assistantships and teaching assistantships. In addition, the larger Canadian research universities provide substantial financing (by drawing on internal funds) and endowments to their best students. Secondly, the data on student debt clearly shows that only about half of doctoral graduates have debts related to their graduate studies, although the proportion of students with debt is higher in the SSH (and particularly in the humanities) than in other fields. The report also found that there is an increasing need for access to digital archives and other electronic data sources and specialized computer hardware and software in some fields of the SSH, and that financial support for these types of equipment and resources is insufficient.

The overarching goal of the granting councils is to support excellence in research. Due to the prominent role of research councils in the financing of research, they are among the most important players within those realms. With respect to several of the issues examined in this study, there is some evidence that changes in the research councils' funding programs are actually the most important vectors of change in the university system.

Contents

Figures

Tables

1   Introduction

The aim of this report is to provide the Social Sciences and Humanities Research Council (SSHRC) of Canada with an overview of Canadian doctoral education in the social sciences and humanities (SSH) to inform the upcoming evaluation of SSHRC's Doctoral Fellowships Program. The work comprised two phases: design and study. In the design phase, Science-Metrix consulted with stakeholders in order to identify a set of key research questions. This set of questions, provided in Appendix, functioned as a directive and was used to guide the data collection, and organization of the report. All the main issues addressed were examined to determine their effect on the funding of doctoral students in the SSH.

Section 2 examines changes in enrolment by client (student) type, including variables such as age, gender, part-time enrolment, and time-to-completion and whether there is evidence of a change in the patterns of interaction between PhD students and their supervisors. Section 3 examines doctoral programs design and delivery and issues such as fast-track options, online and distance education, multidisciplinarity and professional degrees, and the responsiveness of doctoral programs to external influences. Section 4 analyses issues related to the mobility of students while Section 5 examines the availability of financial support for SSH doctoral students.

More than 400 documents were gathered, and interviews were conducted with 52 key informants including 34 university representatives (20 deans or vice-presidents from offices of graduate studies and from offices of the vice-president (research/academic) and 14 doctoral students), 7 representatives from funding agencies, 3 from ministries of education, and 4 from relevant associations, as well as 4 international experts. Of the 52 interviews, 6 are pilot interviews and were not considered in the analysis. A case study on the funding of doctoral students in SSH disciplines in a Canadian university (University of British Columbia - UBC) completed this evidence-based study. This case study should be considered a best-case scenario, since UBC is one of the leading Canadian universities and UBC students certainly have access to a vastly greater variety of funds than the smaller Canadian universities. Data for the University du Québec à Montréal (UQAM) were also compiled, but the results were not readily comparable to those of UBC. These data could not be used to estimate the funding available to UQAM students because of the precedence that was given to external sources of funding and because no contest data showed how much UQAM students got out of these external sources of funding; therefore, these results are not presented here.

It is important to note that this study was designed as an environmental scan—*not* a research project. Despite the extensive amount of data collected, it was not possible to provide tangible answers to all the questions raised in the design phase of the study. This can be attributed, in part, to the narrow focus of some of the questions, which naturally limited the amount of germane information that could be retrieved. Essentially, however, the study method did not aim to provide absolute answers or solutions to the research questions; its main objective was to establish whether and how the issues raised were reflected in the research literature, the statistical data, and the experiences and perceptions of those who have a stake in doctoral education.

2   Enrolment and Course Completion

This section examines developments in how doctoral students are enrolling in and completing their degree programs. In Section 2.1, student demographics (specifically age and gender) are discussed. Then, in Section 2.2, changes in the mode-of-study, or full-time or part-time status, of doctoral students in the SSH are examined. Time-to-completion and attrition are the topic of the next section (Section 2.3). The final section (Section 2.4) discusses supervision and mentorship in doctoral programs in the SSH.

2.1   Demographics

An examination of demographic data indicates that the most notable change in doctoral study in the last decade is the predominance of certain age groups among the population of SSH doctoral students. Proportions of women in doctoral programs have not changed dramatically in the last decade, and they continue to be underrepresented in certain fields of study.

2.1.1   Age

When asked about demographic and social trends, most of the informants interviewed for this study mentioned an overall increase in the age of doctoral students. Data from Statistics Canada on the average age of students do not support this perception, but there are a noticeable number of older students along with the increased enrolment of younger students in doctoral programs.

Between 1994 and 2003, the average age of students enrolled in doctoral programs, and differences between fields, remained constant. The data also revealed that students from SSH disciplines tend to be older when they embark on their doctoral studies than their colleagues from other fields. The average age of doctoral students enrolled in the SSH is 35.4, as opposed to 31.4 for students in the natural and life sciences (Table I).

Table I   Average age of doctoral students by field, 1994-2003

Year	Social sciences & humanities	Sciences
1994	35.3	31.4
1995	35.4	31.5
1996	35.5	31.6
1997	35.6	31.6
1998	35.7	31.5
1999	35.5	31.4
2000	35.4	31.3
2001	35.4	31.4
2002	35.3	31.4
2003	35.1	31.3
Total	**35.4**	**31.4**

Note   Sciences include the life sciences and natural and applied sciences
Source   Data compiled by Science-Metrix from Statistics Canada

Although the average age has not changed over the period, the composition of the population of students enrolling in doctoral programs in the SSH has changed in terms of the number of students within certain age classes. Not surprisingly, the proportion of the youngest students (i.e., age class 18-21) within the total population of doctoral students enrolling in doctoral programs in the SSH in 1994 was marginal, and their number showed a decrease by 2003 (Table II). Middle-aged students (i.e., age classes 30-49), who accounted for nearly 67% of the whole population in 1994, remained in the majority, although their share in the total population of doctoral students enrolling in doctoral programs in the SSH decreased to about 57% in 2003. Concurrently, the proportions of both younger (i.e., age class 22-29) and older (i.e., age class 50 plus) students enrolling in doctoral programs in the SSH increased. The average annual increase was highest for the population of students aged between 55 and 59 years at nearly 13% per year during the period studied. In 2003, students aged 50 and over made up slightly more than 9% of the total doctoral student population in the SSH in contrast to about 6% in 1994, and students aged between 22 and 29 years made up about 34% of the total population in 2003 in contrast to 28% in 1994 (Table II).

Table II   Distribution of doctoral students' enrolment in the SSH in Canada by age class, 1994-2003

Year/Age class	18-21	22-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	>60
1994	0.02%	2.8%	24.7%	27.0%	18.0%	12.8%	8.8%	4.1%	1.0%	0.9%
1995	0.02%	2.6%	25.5%	26.4%	17.8%	12.1%	8.7%	4.6%	1.3%	0.9%
1996	0.02%	2.4%	26.2%	26.2%	16.9%	12.4%	8.7%	4.6%	1.5%	1.0%
1997	0.02%	2.3%	26.5%	25.0%	16.9%	12.8%	8.7%	5.1%	1.5%	1.1%
1998	0.02%	3.2%	26.2%	24.3%	16.7%	12.2%	9.0%	5.4%	1.7%	1.2%
1999	0.05%	3.3%	27.4%	24.5%	15.8%	11.7%	8.6%	5.7%	1.8%	1.3%
2000	0.02%	3.3%	27.7%	24.7%	15.5%	11.6%	8.5%	5.7%	1.7%	1.3%
2001	0.04%	3.3%	28.5%	24.6%	14.9%	11.1%	8.4%	5.7%	2.1%	1.3%
2002	0.01%	3.3%	29.4%	24.7%	14.5%	10.5%	8.2%	5.6%	2.3%	1.4%
2003	0.01%	3.5%	30.3%	25.2%	13.8%	10.0%	7.9%	5.5%	2.3%	1.5%
Average annual increase	**-4.2%**	**2.7%**	**2.2%**	**-0.7%**	**-2.3%**	**-2.1%**	**-1.0%**	**3.5%**	**12.8%**	**7.3%**

Source   Data compiled by Science-Metrix from Statistics Canada

2.1.2 Gender

The number of women enrolled in SSH doctoral programs has increased while in the natural and life sciences and engineering, women are underrepresented. Statistics Canada's Study of Earned Doctorates (Gluszynski & Peters, 2005) found that 47% of students in the social sciences and 50.7% in the humanities are female. Women are in a clear majority in education fields (64.8% as opposed to 35.2% for male), and they also outnumber men in the health sciences and psychology.

Certainly that one of the largest challenges that research councils have to meet is to support an increasing proportion of female students. The challenge here is that women who pursue doctoral studies are firmly in their window of opportunity to become parents. As we make the transition from a university system dominated by males to one that provide equal opportunities, there will be increasing pressure on the research councils to adjust their programs to the needs of women who should not be faced with either/or choices.

2.2 Mode of Study

Determining the mode of study of graduate students can be problematic for a number of reasons. For example, formal enrolment status may not reflect the actual time commitment (full-time or part-time) of the student (Holbrook & Clayman, 2003). In addition, some PhD students switch from one status to another during their candidature (Bourke et al., 2004). Also, measures of full-time and part-time vary from country to country, which questions the accuracy of international comparisons of study modes (OECD, 2004). According to the Organisation for Economic Co-operation and Development (OECD), a full-time student is:

> one whose study within the reference period represents an academic value (e.g. number of study units towards a qualification) that would typically be achieved with a *full-time commitment of time* by the student *and* if they would normally be expected to be in the programme for the entire school year. A full-time commitment of time equates to 75% or more of the typical school week as it applies locally at that level of education. Otherwise the student should be recorded as part-time (43).

The Canadian data demonstrate that part-time enrolments for university students have been in decline for over two decades. Between 1980 and 1992, there was a drop in part-time students in all provinces except British Columbia and Alberta (Junor & Usher, 2004). Some provinces experienced more dramatic declines than others; according to a study by Swail and Heller (2004), part-time enrolment decreased by 23% in Quebec and by some 48% in Newfoundland between 1990-91 and 2001-02.

In line with this trend, the proportion of part-time doctoral students in the SSH in Canada has decreased. Between 1994 and 2003, the share of total enrolment of part-time SSH students fell from 21% to 9% (Figure 1).

Figure 1   Percentage of part-time enrolment in the SSH, 1994-2003
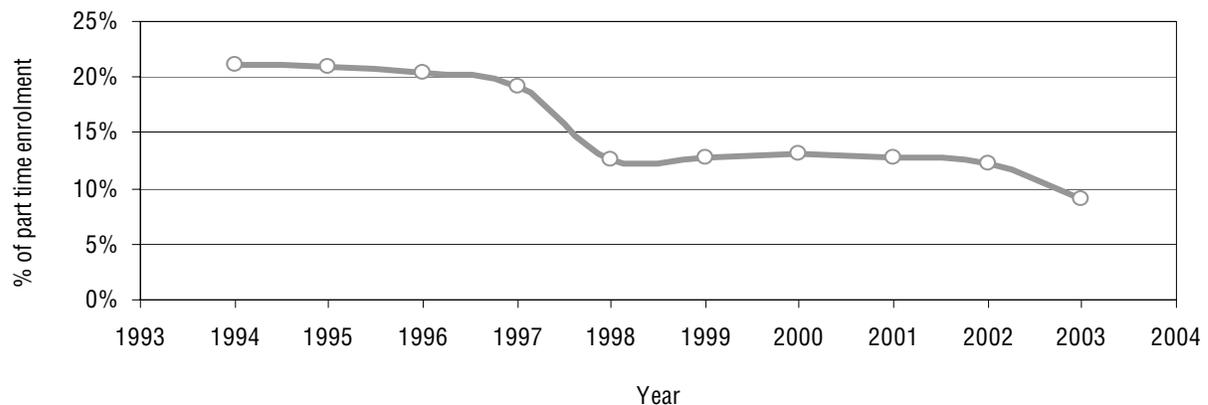
Funding for part-time students is available, though it tends to be related to income rather than need. Government of Canada loan and grant programs provide assistance for part-time students, though the take-up rate for these programs is generally very low (Junor & Usher, 2004).

In contrast, in some countries, such as the UK and Australia, part-time study is increasing and in these two countries almost half of all doctoral students are part-time (Pearson, Evans, & Macauley,

2004). However, the data indicate a worrying trend in that part-time doctoral students are far less likely to complete their degree programs (Martin, Maclachlan, & Karmel, 2001). According to a UK study (HEFCE, 2005) of PhD students between 1996-97 and 2002-03, only 34% of part-time students went on to earn their degree, as opposed to 71% of full-time students. This study also found that very few part-time doctoral students in the UK were sponsored by the Research Councils, 58% received no financial assistance at all, and that any financial support that was received was clearly tied to achievement rates. The study's authors concluded that "starting a part-time PhD is a high-risk venture: we can estimate that only one in three students is likely to submit a thesis within six years" (HEFCE: 32).

2.3 Time-to-completion and Attrition

According to Elgar (2003), time-to-completion has increased over the last 30 years. However, Canadian data on the time-to-completion of doctoral degrees does not show a significant increase for recent years. There is a general perception that students in the SSH disciplines take considerably longer than students in other fields to complete their doctoral programs, and some of the informants interviewed for this study felt that the culture of the SSH disciplines fosters the notion that extended times-to-completion are expected, and even inevitable. Canadian research indicates that students in the SSH do take longer to complete their degree programs, but not by very much. A study conducted by the large Canadian universities found that the median time-to-completion in the physical and applied sciences was 14 terms while in the SSH it was 17, a difference of 3 terms (Berkowitz, 2003). Table III displays data on PhD time-to-completion from five Canadian studies on doctoral students in the SSH, the life sciences (LS), and the natural sciences and engineering (NSE). Although the studies cited in Table III vary significantly in both methodology and time period studied, all produced similar conclusions: the time taken for SSH students to complete their degrees is about one year longer than for students in other fields of study. It is important to consider, however, that the time-to-completion of undergraduate students and master's students in the SSH is presumably also longer than that of students in the LS or NSE. Consequently, by the time a student arrives at the PhD level, he or she may be many years behind PhD students in other disciplines.

Table III   Time-to-completion for doctoral programs in Canada by field

Author	Method	Time to completion (year)			Difference between fields	
		SSH	LS	NSE	SSH & LS	SSH & NSE
Gonzalez	Cohort study, 1981-84	6.1	4.7	4.7	1.4	1.4
Elgar	Cohort study, 1985-88	5.2	4.6	4.5	0.6	0.7
Audet	Degree obtained in 1987,1990 &1992	4.7	4.0	4.0	0.7	0.7
CAGS	Cohort study, 1992	5.7	5.0	4.7	0.7	1.0
Gluszynski	Degree obtained between 2003-04	6.6	5.5	5.3	1.1	1.3
Average		**6.2**	**5.3**	**5.0**	**0.9**	**1.2**

Note	SSH: Social sciences & humanities; LS: Life sciences; NSE: Natural sciences and engineering
Source	Data compiled by Science-Metrix from Audet (1996), CAGS (2004), Elgar (2003), Gluszynski and Peters (2005), and Gonzalez (1996)

In terms of completion rates, the SSH differs considerably from other fields. The national graduation rate for doctoral students in both Canada and the US is about 50% (Elgar, 2003). However, while about 70% of the students enrolled in LS or NSE doctoral programs graduate, only about 52% of social science and 45% of humanities students do so (CAGS, 2004).

The time interval for doctoral students who do not complete their studies to permanently abandon their degree programs can be very extended and, in certain cases, time-to-attrition can be equivalent to time-to-completion (CAGS, 2004). While most students leave within the first two to three years of study, it is not uncommon for students to remain enrolled in their program for up to eight years and then leave without obtaining a degree, usually because they no longer have the money or other resources to support them in their efforts to complete their degrees (CAGS). Late attrition also represents an opportunity cost: individuals who do not graduate might have achieved greater productivity and life satisfaction outside of academia.

In recent years, education researchers have conducted several enquiries into the factors contributing to longer times-to-completion. The results indicate that the issue is complex and that longer completion times have a number of primary and secondary causes. In addition, studies such as Baird's (1990) have found a correlation between increasing time-to-completion and falling completion rates among graduate students. Some of the leading factors for long completion times, as identified by Elgar (2003), Golde (2000), Lovitts (2001), and Seagram, Goulde, and Pike (1998), are:

- inadequate financial support;
- lack of preparation for graduate studies;
- academic isolation;
- lack of supervision;
- inadequate support during the dissertation-writing process;
- pressure to publish.

Inadequate financial support

Research suggests that graduate students who are not adequately funded during their studies often experience difficulty in completing (Grayson & Grayson, 2003; Seagram et al., 1998), while a study by McElroy (2005) found that Canadian students who receive financial aid are much more likely to successfully complete their degrees. Funding for doctoral students is more readily available during the initial years of study, with availability declining sharply after the fourth year. Consequently, if they are not already in some sort of employment, students may have to find work, in addition to continuing their studies, in order to cover their living costs. Employment, particularly in work that is unrelated to the student's field of study, may divert students from their academic efforts, leading to longer completion times.

There is less funding available to students enrolled in social science graduate programs and their counterparts in the natural sciences also benefit from more funding sources and options (CNCS, 2001; Elgar, 2003). This more limited funding for students in the SSH has been linked to SSH students' longer times-to-completion and higher attrition rates (Leroux, 2001). At the same time, most informants interviewed for this study agreed that inadequate funding of doctoral students in the SSH is a cause of longer times-to-completion. Of 35 key informants, 66% considered this to be the primary cause (34% did not).

Lack of preparation for graduate studies

The transition from undergraduate to graduate study requires careful planning and foresight. Undergraduate students often have a poor understanding of what graduate study entails, and show a lack of preparedness for a graduate program (CAGS, 2004). Students who are unprepared for the transition are more susceptible to failure in the face of the difficulties associated with successful degree completion within a reasonable period of time. All students considering enrolling in doctoral studies should be made aware of the challenges, responsibilities, and outcomes associated with study at this level.

Academic isolation

Research indicates that one factor contributing to extended time-to-completion and higher attrition rates among doctoral students is academic isolation (Lovitts, 2001). Academic isolation is characterized by the student's lack of integration into the intellectual community of the department, the university, and even the wider field of study. This sense of separation is evidenced by lack of opportunity for knowledge exchange and social interaction with peers and supervisors, which may be exacerbated by employment outside of academia.

Some of the key informants interviewed for this study noted that students in the NSE, particularly those in the laboratory sciences, are required to work on projects collaboratively with professors and fellow students, which provides increased opportunities for interaction. This kind of collaborative working is far less common in the social sciences and almost nonexistent in the humanities.

Poor quality supervision

The graduate student supervisory relationship involves extended personal and professional interaction between student and supervisor. This relationship includes such critical tasks as selecting a research subject, planning the research, identifying and acquiring the necessary resources, managing the project, actively conducting the research, carrying out the literature review, analysing and interpreting data, writing the thesis, defending it, and in some cases publishing the research contained in the thesis, and finding a position. There is wide consensus that supervision, supervisors, and the supervisory process have a major impact on graduate students, their scholarly outlook, their time-to-completion and their propensity to graduate. In fact, constant and thoughtful supervision plays a key role in successful graduate program completion (Drysdale, 2001; Gregor, 1997). According to one study (Seagram et al., 1998), the students who completed in the shortest time were more heavily involved with their supervisors than with their peers. These students met more frequently with their supervisors and were more likely to collaborate with them on research papers, presentations, and journal articles.

Inadequate support during the dissertation writing process

Researching and writing up the dissertation is often the most challenging part of the doctoral work. Students are expected, at the very least, to be able to write well, to manage their time, and devise a timeline; dissertation advisers need to encourage timely completion and assist students in selecting manageable topics and setting a realistic plan (Katz, 1997). Compounding the problem is that, at the master's level, fewer students are required to write a thesis, and when these students enter a PhD program, they do not have any experience writing an extended piece of research literature. Some

universities offer support services such as writing workshops and seminars, though many others can not afford to do so. Frequently, students leave their university having completed all their coursework requirements and a comprehensive exam, but *not* the dissertation. These students are often labelled "ABD"s—All But Dissertation. Their numbers are not known, as they are poorly tracked and monitored (Rapoport, 1998), but are believed to be high and growing (Sadlack, 2004). Some of the identified obstacles to dissertation completion include lack of focus and enthusiasm, topics that are too challenging, perfectionism, isolation, and other psychosocial factors (Green, 1997; Katz).

Pressure to publish

Doctoral students function in a highly competitive environment where there is a continuous pressure to publish in scholarly journals. Students are often encouraged to submit items for publication as a way to stand out among the competition. Of 31 key informants, about 97% believed that the contribution of doctoral students in the social sciences to universities' research production (e.g., scientific papers, conference proceedings, and books) had increased within the last decade (48% said it had increased significantly, 48% said it had increased somewhat, and only 3% said it had decreased somewhat). Although less of a trend in the humanities (52% of the key informants interviewed either did not answer or answered "don't know"), 86% out of 22 respondents believed that the contribution of doctoral students to universities' research production had increased in the last decade (27% said it had increased significantly and 59% said it had increased somewhat) while only 5% believed it had decreased somewhat, and 9% said it had not changed.

This trend has produced what some key informants referred to as the 'premature professionalization' of doctoral students. According to one key informant, the focus on the number of published units rather than the quality of research has led to debates among academics about the "least publishable unit" (i.e., breaking down a study into units, each with a slightly different focus, and comprising the least amount of data that may be just broad enough to be acceptable for publication or presentation at a conference). The pressure to publish early and often vies with the many other obligations of doctoral candidates and increases the time-to-completion.

Other factors

A number of other variables, such as personality traits, and the work and study habits of the student, contribute to a student's ability to complete the degree program. Students who graduate in an acceptable period of time are less likely to have dependants or family commitments, to live in a rural environment, to delay the start of post-secondary studies, or to change institutions (Elgar, 2003; McElroy, 2005).

2.4 Interaction between Supervisors and Students

During the design phase of the study, stakeholders noted that doctoral students in the SSH need more interaction and involvement with peers and with supervisors during their research. It was suggested that one way to accomplish this would be to integrate these students into wider-scale research projects led by professors. This section addresses two questions related to this issue: 1) Are relations between students in the SSH and their supervisors changing and, more specifically, is there evidence of the integration of students in larger research teams?; and 2) How appropriate for the SSH disciplines is a model of funding based on stipends and research assistantships distributed to

doctoral students (who are also working on their own research) when this research is tied to a larger research project?

Evidence of integration of doctoral students in large research projects in the SSH

Participants in our study were asked whether supervisors' levels of involvement in students' research training were evolving towards more "active mentorship" in doctoral education in the SSH. It is important to note that, as observed by Campbell, Fuller, and Patrick (2005), the terms "advisor" or "supervisor" are often used interchangeably with the term "mentor". However, the roles they describe are different. Campbell, Fuller, and Patrick suggest that mentoring actually involves a personal—and not just a professional—relationship with the student, with the ultimate aim of advancing that student's educational and personal goals. A mentor, they contend, gives advice, shares experiences, acts as a source of information and support, and provides an example of correct ethical and scientific conduct; mentors help students to optimize their educational experiences, become familiar with the norms and values of their discipline, build a network of contacts, and obtain suitable employment.

A large number of respondents stated that mentoring is an important issue, and some universities have set up programs to encourage more active mentoring. Of 28 key informants, about 70% felt that there is a trend towards a greater level of interaction between students and their supervisors. However, close to 30% felt that active mentorship is not on the increase. In fact, one respondent believed that the level of active mentorship was down in all disciplines due to the pressure on faculty members to do more in less time. This is underlined by Campbell et al. (2005), who state that faculty members must deal with the constraints of granting agency policies, the institution's teaching and research needs, pressure to publish, and the need to obtain external funding. [Instead, a one-size-fits-all approach to supervision is often used, resulting in a lack of flexibility].

Although there is an abundant literature on supervision, there is scant evidence of a changing model of research involving larger research teams—and thus greater student-student and student-faculty interaction—in the SSH. Consequently, the discussion relies primarily on the perceptions of interviewees when asked whether collaborative or team-based doctoral thesis research has gained prominence in the SSH in Canada in the last decade. Of 29 respondents, 83% believed that collaborative or team-based doctoral thesis research (i.e., research that is integrated into the supervisor's funded projects as opposed to research that is conducted as part of the student's own project) has gained prominence in social science departments in the last decade. By contrast, of 28 respondents, 82% believed that collaborative research in the humanities has not become more prominent in the last decade.

Certain SSH disciplines, such as psychology, sociology, archaeology, women's studies, and comparative literature, are much more likely to adopt a collaborative research model. According to Renaud, Wiggin, and Charron (2002), team research in disciplines where the research process requires intensive fieldwork in order to gather data effectively is well established. Students in more "traditional" disciplines, such as philosophy, classics, and history, typically work autonomously and their interaction with their supervisors is more limited (Levine, Abler, & Rosich, 2004).

Appropriateness of funding SSH doctoral students through stipends and research assistantships

In most disciplines, including those in the SSH, the incidence of research teams and research networking is a "recent phenomenon, encouraged and assisted by government funding agencies" (Renaud et al., 2002: 100), a statement supported by the observations of many respondents who felt that any changes towards the increased use of team-based research results from the fact that research that is conducted by teams tends to attract more funding support.

Leroux (2001) reported that students who work alone are more likely to leave their doctoral programs than students who belong to research teams. This would appear to be a strong incentive to provide collective funding rather than support for individuals. However, some interviewees voiced concerns that this might lead to students' time being abused by their supervisors who would use them to perform menial tasks that did not contribute to their individual research. It was also argued that in the SSH, students have to determine their own research subjects, and team financing could create the situation in which students are so preoccupied with their supervisor's work, they are unable to develop their own research agendas.

Many respondents felt that the collaborative model of working was correlated with higher levels of mentorship. For example, professors and researchers in receipt of Canada Research Chairs funding, in their effort to achieve high level research are more likely to ensure that any doctoral students working with them perform well. Ultimately, according to Levine et al. (2004), the amount and nature of research and training support (e.g., the research model used and the level of mentorship provided) *does* shape the research training of doctoral students in the SSH. Due to a limited or intermittent level of interaction with a large number of scientists, students in the humanities, unfortunately, have fewer opportunities for multiple mentorships and may be less well equipped to work across disciplines or fields.

Several interviewees thought the collaborative model was more appropriate to the NSE; their belief was that large research teams and strong interaction between students and supervisors cannot be reproduced easily within the SSH. Delamont, Atkinson, and Parry (1997, as cited in Latona & Mairead, 2001) argue that the application of models inspired by traditions in natural science disciplines were fairly incompatible with the *modus operandi* of the SSH. This is especially true given the differences between supervisory relationships in fields with a critical mass of researchers compared to most humanities disciplines, where, for example, there is a more directed and intensive association with one or two supervisors (as opposed to a group of researchers in a research center). CAGS (2004) also indicated that, among its members,

> there was concern that SSHRC plans to adopt a science or lab-based model of student funding in which only those projects which form part of or fall directly within the scope of the supervisor's program of research would be funded. Although this model may be appropriate for certain domains within the social sciences, it may not be appropriate for the humanities or fine arts where student research may be a discrete project only peripherally related to the supervisor's topic of inquiry. An adequate degree of flexibility should be maintained in this regard (4).

Indeed, some interviewees suggested that there is resistance to collective funding in the humanities because humanists, except in very rare instances, do not work collaboratively. It was also mentioned that although humanities students tend to work on their advisors' research, this research is not integrated into their own research or their dissertation thesis.

3   Doctoral Programs Design and Delivery

This section discusses changes to the structure of doctoral programs in the SSH. Section 3.1 introduces and defines the fast-track option. Its popularity (Section 3.1.1), impact in terms of benefits and drawbacks (Section3.1.2), and the main funding models available to fast-track students (Section3.1.3) are examined. In Section 3.2, online education and the availability of doctoral programs that can be completed through the Internet are analyzed. Section 3.3 examines interdisciplinary and professional programs in doctoral education. Finally, the responsiveness of universities to the needs of society and private interest is discussed in Section 3.4.

3.1   Fast-Track Option

The process that allows students to embark on PhD studies without having first completed a master's degree program is not consistently referred to. For the purposes of this study, we use the term "fast-track".

Generally, two types of fast-track options are available. The first type, sometimes referred to as the "indirect fast-track" option, allows students to apply to a doctoral program when they are enrolled on a master's program (usually within the first 12 consecutive months of study). If accepted on the doctoral program, these students are given an exemption from completing their master's degree.

The "direct fast-track" option allows students with only a baccalaureate to be directly admitted into a doctoral program. While some universities have resisted offering this option to students, other universities have embraced it, and have established concrete measures to support fast-track entry to the SSH. For example, stakeholders interviewed reported that the bachelor's honour's program provides a more comprehensive research training in order to prepare students for direct entry to a doctoral program. In addition, these programs may allow university administrators to identify students with superior capabilities for research and graduate studies and, consequently, enter them as candidates for the fast-track option.

3.1.1   Prevalence of the Fast-Track Option

Students who choose to fast-track into doctoral programs are often those described as 'exceptional' or 'outstanding'. They are required to possess an excellent academic record and demonstrate superior research abilities. In addition, recommendations from at least two faculty members [from the university at which the student has fulfilled their most recent academic requirements] must accompany the application.

Interviews suggest that relatively few people are aware of or have access to this opportunity. More than half of key informants interviewed in this study stated that they did not know whether the fast-track option had gained prominence in SSH departments during the last decade. Of the 17 respondents who had observed a change, 41% believed that it had gained prominence while 59% felt that it had not. Some informants considered that the fast-track option is more available in NSE departments than in the SSH. Other respondents stated that the option has become more common

in the SSH, particularly in certain disciplines, but was more commonly offered in the social sciences than in the humanities.

A review of the admission guidelines on 51 Canadian university web sites revealed that many institutions presently offer accelerated entry into PhD programs within various SSH disciplines *and* state this clearly on their websites. Of these institutions, 17 have SSH departments that allow for the non-traditional admission of a student with no master's degree at the time of application to the doctoral program. In the same 17 institutions, the indirect fast-track option was offered by 15, and the direct option by 8. Eight of these 17 institutions are located in Quebec, 4 in Ontario, 2 in Alberta, 1 in Manitoba, 1 in British Columbia, and 1 in Newfoundland.

Six of the 17 institutions that offer the fast-track option explicitly on their websites have a general institution-wide policy regarding the fast-tracking of doctoral students, which is available to all departments and can be used at the discretion of the department heads. Four universities have fast-track options in their history departments, and two universities offer fast-track access to doctoral programs in the disciplines of philosophy, sociology, education, geography, English, and literature. Other disciplines where fast-track admission is available are anthropology, linguistics, media studies, and Quebec studies (*études québécoises*).

While this analysis relies solely on the information presented on university websites, it suggests that among Canadian universities the fast-track program is not widespread, which was endorsed by the responses of interviewees. About 30% of key informants interviewed were unsure whether their institution offered the fast-track option (either as direct or indirect entry into PhD programs). Of 31 respondents, about 60% believed that the direct entry option was available for students in the SSH at their institution, and about 40% did not believe that such an option was available. Regarding indirect entry into fast-track programs, of 32 key informants, about 80% mentioned that their university offered this option, while only about 20% believed that the indirect entry option was not available.

The availability of fast-track programs varies greatly from university to university, and there is little consistency in the structure of fast-track programs or the regulations governing fast-track students' admission to doctoral programs. The lack of visibility would perhaps explain the discrepancies observed among respondents in relation to direct and indirect entry (for instance, why more respondents believed that the direct option was available in their institution as compared to those who believed that the indirect option was available) and why so many respondents were unaware of whether the option was available at all in their institution.

3.1.2 Impact of the Fast-Track Option

The fast-track route has been proposed as a solution to several problems affecting doctoral students. For example, fast-track programs bring younger students into doctoral programs, which should have an impact of the age of students at the beginning of their doctoral studies, a factor that is correlated with times-to-completion (Berkowitz, 2003; Driver, 2005). Indeed, shorter time-to-completion was the most frequently mentioned benefit of younger intake due to the fast-track option. Some university administrators were not in favour of the fast-track option in SSH departments, stating that it was better suited to faculties of science, as students in the NSE usually need to carry out

postdoctoral research before they can find a job. Because this does not apply to students in the SSH, it was felt that there is less need to shorten the period of study through fast-track programs. Regardless of discipline, many respondents felt that the presumed advantage of shorter time-to-completion should somehow be balanced against appropriate and adequate preparation of doctoral students.

According to the interviewees, other benefits from fast-tracking students may include a reduction in overall amounts of student debt (assuming that time-to-completion would be shortened), an increase in the number of people applying for entry to PhD programs because the pool of applicants would not be restricted to people who had earned a master's degree and, consequently, more PhD graduates in Canada.

Some potential drawbacks to fast-tracking were identified in interviews. One respondent felt that the quality of master's education could decline if this option were to become widely offered, as master's programs would be attracting only students who "failed" to fast-track and would thus experience a decline in popularity and public image. In fact, several respondents voiced concerns that the fast-track option, if it were to become prevalent, would make the master's degree irrelevant; this situation already exists in certain disciplines, such as psychology. Other respondents felt that fast-track students would actually take longer to complete their degrees, as they would lack the academic and research experience that is acquired when doing a master's degree. Also, some interviewees saw a danger in students using the fast-track route remaining in the institution where they had undertaken their undergraduate studies.

In general, interviewees felt that the fast-track option, due primarily to its limited availability and its lack of visibility as an alternative route, has had very little overall impact on doctoral education in the SSH.

3.1.3 Funding Model to Support the Fast-Track Option

Based on the interview results, funding programs specially designed for students who undertake the fast-track option would seem to be virtually nonexistent. Generally, fast-track students compete for standard scholarships, and granting councils have modified their rules to allow for the funding of fast-track students. Many interviewees stated that fast-track students are even more likely than traditional students to acquire funding in the form of scholarships and awards simply because of their outstanding academic records and that, therefore, there was not an urgent need for specific financial aid programs.

One respondent stated that because universities get more government funding for doctoral students than for students at other levels, universities may encourage fast-tracking. Assuming that doctoral students earn more money for universities, universities might want to back programs specifically providing scholarship for fast-track students, involving partnerships between faculties and departments.

3.2   Online and Distance Education

Online education refers to any kind of formal study that can be done online. An online program is a set of courses, in a particular discipline, which has been adapted to an electronic format and is available through the Internet (ACOL, 2001). Distance education refers to courses or educational training that are delivered to students who are in a different geographical location from the teacher, through a variety of means, including the Internet, television, videotapes, DVDs, audiotapes, e-mail, or postal mail. Both online and distance learning may take place synchronously or asynchronously.

The Department of Human Resources and Skills Development (HRSD) has identified 43 universities across Canada that offer online and distance education[1]. Detailed information on program offerings is not available for 4 of these institutions. For the remaining 39, most of the online or distance programs offered are geared towards undergraduates in certificate or bachelor's programs. Fifteen of the 39 universities offer master's degrees, with nursing and business administration being the most common programs. However, of the 39 universities, only one (Université du Québec) offers an online doctoral degree (in cognitive informatics)[2].

Given that more than 53% of Canadians have Internet access at home and that Canada ranks second after Sweden in K-12 students' exposure to the internet, Canada has a new generation of online learners emerging from K-12 system (ACOL, 2001; Dryburgh, 2001). Canada's education institutions should be responsive to these developments and increase the opportunities for online education. However, currently, online education is not well represented in Canadian graduate programs, particularly when compared with the US. In the US, the emergence of online education is a very significant trend, as indicated by a 2003 survey of more than 1,100 colleges and universities (Allen & Seaman, 2004). This survey revealed that 1.6 million students were studying online in the fall of 2002, and this number was expected to grow to 2.6 million in the fall of 2004 (Allen & Seaman). The expected average rate of growth of online students in 2004 was 24.8%, up from 19.8% in 2003, suggesting acceleration in the rate of enrolment. Approximately 72% of the survey respondents believed that enrolment in online doctoral/research programs will continue to increase (Allen & Seaman). Several US universities, including the University of Phoenix, Walden University, Kennedy-Western University, and Capella University, offer online and distance doctoral programs in various disciplines (e.g., psychology, public health, education, epidemiology, applied management and decision sciences, and public policy and administration)[3].

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[1] See http://www.hrsdc.gc.ca/asp/gateway.asp?hr=/en/hip/lld/olt/Skills_Development/learners_corner/institutions.shtml&hs=lxt

[2] See http://www.teluq.uquebec.ca/sed/xml/sabplXml.php?p_no_url=1&p_etb_code=TELUQ&p_cycle_inf =1&p_cycle_sup=3&p_prg_code=3560&p_herit=ETU&p_ref_xslt=siteweb/etudes/xml/info_prg.xsl#haut _page

[3] See http://info.waldenu.edu/doctoral.php?j_id=942&s_id=4435&affiliateID=google-doctoralonline

See http://www.universities.com/Distance_Learning/Degrees_PhD_Programs.html

See http://www.online-education.net/doctorate_degrees.html

A study carried out by ACOL (2001) highlighted the negative impact of Canada's inaction with respect to online education. Atlantic Canada On-Line (ACOL) urged governments, universities, colleges, and businesses to accelerate and coordinate efforts to offer Canadians post-secondary education online and proposed an action plan based on a set of recommendations. The feasibility of offering doctoral studies online has been the subject of some national debate. Athabasca University, Canada's "leader in online and distance education"[4] and one of the first universities in the world to offer an online MBA, has engaged in extensive discussions about how a doctoral degree might be offered online, and has identified a number of limitations (Carr, 2000). For instance, some doctoral programs require access to specialist scientific equipment. Also, it is more difficult for online PhD students to experience membership of the academic community and research culture, and to receive the same level of supervision that traditional students typically get. While the infrastructure for online programs exists, and a mainly online PhD would encompass a number of strengths not available to traditional students, online PhDs will likely face strong resistance, at least in terms of public image. Presently, very few institutions offer doctoral degrees online, and according to Carr, these kinds of degrees are not well received by the academic community and employers.

3.3 Interdisciplinary Programs and Professional Degrees

While traditional degrees, rooted in long-established disciplinary conventions, remain the dominant type of doctoral degree, there has been heightened interest in the role of interdisciplinary and professional programs in doctoral education. Students in these programs typically do not follow the customary PhD degree path, raising concerns that non-traditional students are not well represented in the larger scheme of doctoral education and may even face stereotypic bias. This, in turn, has resulted in the perception that students in these programs may find sources of funding less accessible than students in conventional programs.

3.3.1 Funding for Interdisciplinary Research

In order to assess the prevalence of interdisciplinary studies in the SSH and gain a general picture of the extent to which doctoral students are involved in interdisciplinary projects, the funding of research projects that fall within interdisciplinary categories was investigated. For this purpose, it was assumed that the number of doctoral students involved in interdisciplinary projects is influenced by the number of researchers leading interdisciplinary research projects. Therefore, if the level of interdisciplinary research in Canada is low, the number of interdisciplinary doctoral students will also be low and, conversely, if the number of researchers involved in interdisciplinary research increases, the number of doctoral students associated with interdisciplinary projects will also increase.

SSHRC has developed a number of different programs that support interdisciplinary research. The Major Collaborative Research Initiative (MCRI) grants support large-scale, collaborative research on critical issues of social, economic, and cultural significance and requires the participation of many

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[4] See www.athabascau.ca

scholars from different disciplines (SSHRC, 2005)[5]. The Standard Research Grants (SRG) is a program designed by SSHRC to support broad-based research in all of the SSH disciplines[6]. A portion of the SRG budget is allotted to interdisciplinary studies.

According to Cuneo (2003), several indicators suggest that interdisciplinary research in the SSH is on the increase. For instance, the average number of researchers per MCRI grant increased from 4 in 1996 to 37 in 2002, and the average number of disciplines served by MCRI grants increased from 1 to 9 (Cuneo, 2003; Renaud et al., 2002). Moreover, in 2000, 72% of SRG grants were awarded to groups consisting of five or more researchers, more than double the 1997 proportion of 33% (Cuneo, 2003).

Based on SSHRC data, the amount of money awarded for interdisciplinary projects under the SRG program amounted to CDN$1.6 million in 1996 and increased steadily in the subsequent years, reaching CDN$5.5 million in 2002 (Figure 2). Among all research projects funded by the SRG program, the proportion of interdisciplinary projects supported by SRG grants increased from 5.9% in 1996 to 9.2% in 2002. The share of interdisciplinary projects then took a downturn between 2002 and 2005, reaching its lowest level in 2005, with a share of 4.7%.

Figure 2   Funding of interdisciplinary projects under the SRG program, 1995-2005
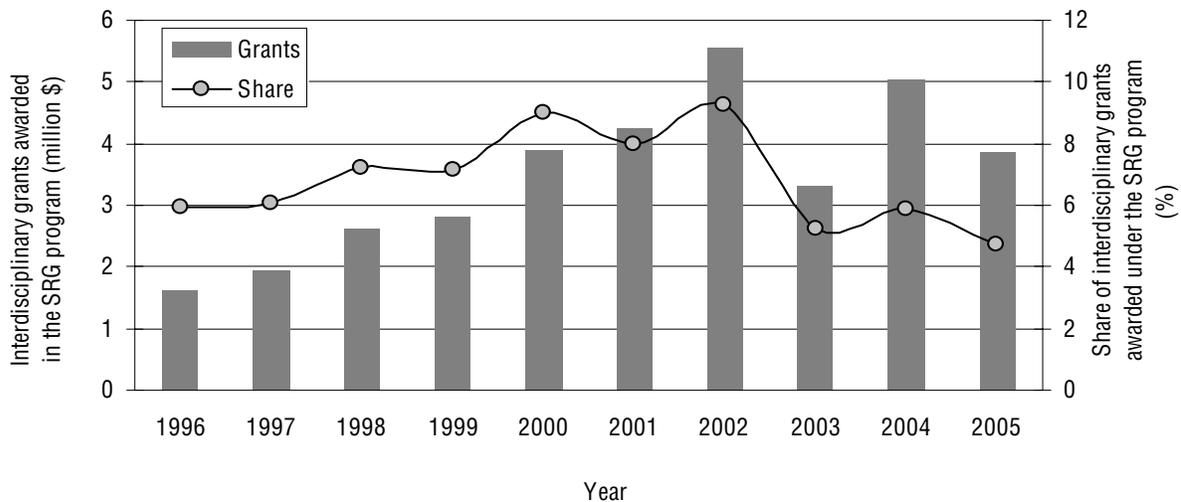
Source   Data compiled by Science-Metrix from SSHRC

Although it is true that an increasing number of interdisciplinary research teams in the SSH have been supported between 1996 and 2002, it is not clear whether this development is solely a consequence of the improved availability of money to support interdisciplinary projects (reflecting a top-down trend), or whether it is the result of a move in the SSH towards greater interdisciplinarity (a bottom-up trend). Would researchers work together on interdisciplinary projects if there was a dearth of funding opportunities? According to Cuneo (2003), it is only after funding opportunities

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[5] See http://www.sshrc-crsh.gc.ca/web/apply/program_descriptions/mcri_e.asp#1

[6] See http://www.sshrc.ca/web/apply/program_index_e.asp#1

become available that many researchers begin to establish networks for collaboration, and often among researchers who previously did not know one another.

3.3.2 Interdisciplinary Doctoral Programs

The previous analysis, based on SSHRC funding data, provides an indication of the presence of doctoral students in interdisciplinary research projects. In order to explore the incidence of interdisciplinary doctoral programs in the SSH, key informants were asked whether they believed that interdisciplinary programs have become more prevalent. Of 26 key informants, about 80% felt that interdisciplinary programs were becoming more common in Canadian universities, while only 20% perceived no increase.

It is important to note that the identification of interdisciplinary programs in Canadian universities is problematic. The term "interdisciplinary" is used to refer to traditional programs that offer students the facility of taking courses in other departments or working on projects with students from other disciplines. In effect, these programs may be no less interdisciplinary than a program that is officially designated as such and whose title reflects this. Many of the respondents who did not perceive an increase in interdisciplinary study stated that while there is increased *interest* in interdisciplinarity, this is not necessarily being translated into formalized interdisciplinary doctoral programs. While it is possible that the number of formalized interdisciplinary programs has not increased significantly, many respondents felt that the amount of interdisciplinary research being conducted by students who graduate from traditional disciplines is increasing. Therefore, while some programs are clearly identified as interdisciplinary, many others cannot be classified as such with confidence, making the "trend" of interdisciplinarity in doctoral education difficult to identify with hard data.

Some respondents felt that students in interdisciplinary programs are marginalized within doctoral education, and that a lack of scholarly credibility has prevented true interdisciplinary programs from proliferating and the demand for these programs from increasing in any substantial way. One respondent noted that there is a "very strong faculty attitude that disciplines are more rigorous than interdisciplinary programs." Another respondent felt that graduates from these programs "are perceived to be a jack of all trades rather than a master of one." Students are not convinced that the job opportunities for those with interdisciplinary degrees will be as plentiful as for graduates with single discipline degrees.

Respondents were divided about whether interdisciplinary students are at a disadvantage when applying for funding. Of 31 respondents, about half felt that they are at a disadvantage and half did not. Of those respondents who perceived there to be a disadvantage, some noted that students may have difficulty determining to which granting council they should apply, and whether they should apply to a disciplinary or an interdisciplinary committee. Others voiced concerns about representation on selection committees.

However, one respondent who did not think interdisciplinary students were disadvantaged noted the increased opportunities available to these students, as they could apply for funding from a number of disciplines. Some respondents felt that students in interdisciplinary programs apply for funding

in much the same way as students in traditional disciplines, and that while the subject matter of the research is different, the research and thesis process are much the same. A university dean stated that interdisciplinary applications for internally-administered awards were treated exactly the same as conventional applications. Another university dean asserted that interdisciplinary research may be looked on more favourably by SSHRC, due to its relative novelty status and the heightened interest and potential attaching to it.

While a majority of respondents (about 80%) believed that Canadian universities are increasingly integrating interdisciplinary programs into doctoral curricula, responses were divided with respect to the funding of students in interdisciplinary programs.

3.3.3 Professional Doctoral Programs

According to Statistics Canada, as defined in the Survey of Earned Doctorates, professional fields in the SSH include architecture, social work, and theology/religious education. However, a clearly defined division between the conventional doctoral degree (PhD) and the professional doctorate can be difficult to determine, as differences (in practice, if not in theory) can be minor.

In education, for example: the EdD was originally meant to prepare students for jobs as teachers or administrators in the school system; this is in contrast to the PhD in Education, which prepared students for research work in universities. One key informant noted that

> there is a theoretical, hypothetical distinction between the EdD and the PhD that on the ground is much blurrier. I think that most people, if you sit them down and ask, 'What's the distinction?' would articulate: 'One is a degree for practice, and it's much more grounded in the field, and the other is this more theoretically-oriented thing about creating original research.' But the reality in many, many schools of education is that people take one or the other with both career ends and the distinctions between them in real life, like what your requirements are and what your dissertation looks like, are very hard to tell apart.

The EdD has lost favour in comparison with the PhD, at least in Ontario (Allen, Smith, & Wahlstrom, 2002). Perhaps the fact that there are so few differences between the two degrees in practice (e.g., job opportunities, academic requirements, etc.) has contributed to that provinces' decline in EdD program enrolment.

Similarly, the doctorate in psychology, or the PsyD, which is meant to lead students to clinical practice, and the PhD in psychology, which follows a more research-intensive and "scientistic" model, are distinguishable in theory. However, as reported by Allon et al. (2004), the two training models have more similarities than differences. The authors concluded that both doctoral programs should result in competency as a professional psychologist.

Professional doctorates have become ubiquitous in certain countries, such as the UK and Australia, and are the source of a great deal of discussion among academic researchers in these countries (Allen et al., 2002). According to Maxwell (2003), an Australian researcher, the professional doctorate has undergone some transformations in recent years. While it was once characterized as being "only structurally different from the PhD", the latest form of the doctorate (what has been termed the "second generation Professional Doctorate") more accurately reflects the "realities of the workplace, the knowledge and the improvement of the profession and the rigour of the university are being

brought together in new relationships." This new professional doctorate, according to Lee, Green, and Brennan (2000, as cited in Maxwell & Shanahan, 2000) is "produced in the context of application; transdisciplinary; heterogeneous; socially accountable and reflexive; including a wider and more temporary and heterogenous set of practitioners; collaborating on problems defined in specific and localised context" (19). In the UK, the "New Route PhD", which blends much of the rigorous training of the traditional PhD (including research training) with a shorter thesis and a shorter time-to-completion, has become popular since its pilot implementation in 2000 (Allen et al., 2002).

In Canada, however, the professional doctorate has never gained widespread popularity according to Allen, Smyth, and Wahlstrom (2002). Of 24 key informants interviewed for the present study, half believed that professional doctoral programs have gained prominence in Canadian universities during the last decade in terms of number of programs offered, whereas the remaining half did not think so. Given these results, it is not possible to identify a clear trend.

Funding for students enrolled in professional doctoral programs may be less accessible than for students in traditional programs. Of 25 key informants, 60% believed that doctoral students in professional programs in the SSH were not at a disadvantage when applying for funding, while 40% did perceive there to be a disadvantage. Both a university dean and a granting council employee noted that there is an unofficial distinction made between professional degrees and research degrees and, in general, students who are not involved in research do not receive federal funding. Therefore, students enrolled in professional programs are often not eligible to apply for fellowships supported by federal or provincial granting councils and, thus, one could conclude that these students are disadvantaged.

However, many respondents felt that the need to fund these students is less critical because, in the words of one respondent, "professional doctorates tend to be for candidates who are in mid-career rather than who are 21-25 having just done the master's. It's a different market, generally." Another stated that "there is less availability of funding for students in professional programs, but this is the way it should be. Students in professional programs tend to leave school and enter careers that pay better." While these students may be less able to obtain federal or provincial funds for their studies, as some respondents noted, certain modes of funding may actually be more available to them than to traditional doctoral students, for instance employee-sponsored scholarships.

3.4 Responsiveness of Doctoral Programs to External Influence

Few would deny that universities are subject to the influences of society (which, for the purposes of this section, may be characterized as both the public sector and the general populace) and the private sector. This section discusses to what extent doctoral programs in the SSH are responsive to those external influences, the most notable influence being funding. Addressing this question necessitates the use of anecdotal evidence in the form of stakeholder perceptions of responsiveness, as the literature on this matter is, unsurprisingly, sparse (particularly in relation to the influence of social needs).

Responsiveness to needs of society

Despite the dearth of literature explicitly dealing with societal influences on university program design, it can be assumed that as social issues seize the collective attention of the general public, academics, and funding bodies, programs are created or transformed with varying degrees of rapidity. Of 25 key informants, 80% felt that social science programs are becoming more responsive to the needs of society; of these, 36% felt that they are becoming much more responsive, and 44% felt that they are becoming somewhat more responsive. For the humanities, of 23 respondents, 57% believed that humanities programs are more responsive to social needs; only 4% believed that they are much more responsive, 52% being of the opinion that they are somewhat more responsive.

The support of research in the SSH disciplines is a central mission of the Canadian government, as the SSH relies heavily on public funding. One example of a program that actively seeks to enhance the economic and social condition of Canada is the Canada Research Chairs (CRC) program. Specifically, the stated objectives of the program involve enhancing Canada's competitiveness in the global, knowledge-based economy, improving Canadians' health, and enriching Canada's social and cultural life[7]. SSHRC has awarded a number of CRCs. In addition, SSHRC's Community-University Research Alliances (CURA) program "signals the start of a new era of experimentation and outreach in the human sciences" (Renaud et al., 2002: 102). This program aims to build alliances between public, community, or private sector organizations and universities in order to "foster new knowledge, tools and methods to develop the best strategies for diverse aspects of intervention, action research, program delivery and policy development that will be appropriate for our rapidly changing times"[8].

Responsiveness to needs of private interest

The OECD (1999) states that it is important to recognize that the private sector is not a homogeneous entity; its interests (e.g., manufacturing, service, or trade; geographical interests) and characteristics (e.g., company size; local, national, or transnational ownership; nature of products) are extremely diverse. In keeping with the greater trend towards the privatization of Canada's universities, the demand for PhD graduates has increased dramatically, and this demand is fuelled in large part by private sector industry (Elgar, 2003). The PhD degree is now the premier job qualification in non-academic sectors (Elgar), and 60 to 70% of PhD graduates work outside of academia (AUCC, 2002). This has had an impact on university programs, argues Elgar, because "in a climate of increasing reliance on private sector contributions and partnerships, universities must produce 'marketable' PhD graduates to remain relevant to private sector industry".

Canadian universities are leaders in attracting private sector research contracts. Between 2001 and 2004 alone, annual private sector investments in university research grew by 25%, reaching $807 million (AUCC, 2005). Despite this, the federal granting agencies are far more significant sources of research funding, particularly for students in the SSH (AUCC, 2002). Because most private sector research funding goes towards research in the natural and health sciences, the SSH are not able to

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[7] http://www.chairs.gc.ca/web/about/index_e.asp

[8] http://www.sshrc.ca/web/apply/program_descriptions/cura_e.asp

depend on support from the private sector. According to Renaud et al. (2002), with the exception of a limited number of faculty members in specific disciplines, the humanities have always had difficulty linking up with the private sector while government offices, NGOs, social service delivery organizations, and other research consumers in the public and not-for-profit sectors offer the greatest opportunities for graduates in the SSH.

The Working Group on the Future of the Humanities (2001) cites "the considerable difficulty for humanists to secure matching funding, particularly from the corporate or private sector" as one reason why students in the humanities have such low rates of participation in funding award competitions. Relatively few scholarships are offered by private corporations to doctoral students in the SSH. For example, of approximately 300 scholarships that are available to doctoral students in the SSH at UBC, only 3.5% originate from corporations. Of these, about 38% come with specific conditions related to the needs of the donating company.

More interviewees felt that programs in the social sciences rather than programs in the humanities are becoming more responsive to private interests. However, in both fields, more than half of those interviewed either did not answer the question or responded "don't know". Judging from the perceptions of stakeholders, programs in the social sciences are more responsive to both social needs and private sector interest than programs in the humanities. However, the interview results do not indicate any consensus over perceptions of program responsiveness. Some interviewees did voice their concerns about the implications of external influence on programs. One respondent stated that the increasing influence of social needs on university research may be detrimental; there was a feeling that a gap between academic interests and social needs was important to allow researchers and students the freedom to pursue creative ideas; this same respondent felt that the question that should be asked was who determines what these needs are and what priority they should have over basic research (which is curiosity-driven). Another respondent felt that universities have an obligation to support research that is for the public good, as most research is funded by the tax payer. Another respondent stated that was a general acknowledgement that more financial resources are required in the SSH, and because granting councils have limited budgets, more funding from the private sector would be a very positive development. Despite a clear consensus, it is clear that those who fund research have remarkable power and influence on the direction of doctoral programs.

4 Mobility of Doctoral Students

There are two components to international education in Canada: the inflow of foreign students into Canadian universities, and the outflow of Canadian students to foreign universities. In a study of 10 countries (including Canada) international education has been shown to act as an economic stimulator: having a positive impact on innovation, international trade, foreign investment and gross domestic product (Bloom et al., 1999). Other important benefits include enhanced opportunities for research and learning, the development of worldwide networks of academics and graduates, and an international perspective on social and economic issues (BCCIE, 2000).

Over the last twenty years, the number of international students in OECD countries has doubled, reaching approximately 1.5 million students in 2001. The preferred destinations of these students were the US, the UK and Germany with, respectively, 30%, 14% and 13% of all international students. Canada, with 2.6% of international students, comes in 7th place as a destination for higher education among OECD countries (Julien, 2005; OECD, 2004).

In 2002, more than 35,000 Canadians were studying abroad in higher education institutions. Of these, a majority (about 75% of students) were studying in the US. The UK and Australia, hosting about 9% and 7% of all Canadian students studying abroad, came in 2nd and 3rd place, respectively (OECD, 2004).

In Canada, the inflow of international students is slightly greater than the outflow of Canadian students studying abroad. Indeed, in 2001, there were an estimated 1.4 international students coming to Canada for each Canadian student studying abroad; countries such as Denmark, Japan, Spain and Switzerland have a similar profile. The inflow of international students greatly exceeds the outflow of national students in countries such as the US, the UK and Australia. In contrast, the outflow of national students is greater than the inflow of international students in countries such as Mexico, Iceland and the Slovak Republic (Julien, 2005; OECD, 2004).

It has been reported that the presence of international students can have a positive impact on a country's economy. In fact, international students may be considered "educational tourists" who create economic impacts similar to those of other tourism activities (BCCIE, 2000; Bloom et al., 1999). Outflows of national students are also important for a country: students who study abroad acquire new skills and perspectives and, assuming they return to their home country following their studies, contribute to increases in innovation and knowledge. Therefore, to maximize the benefits related to international education, a country should establish initiatives, policies and funding mechanisms to support both aspects of international education (i.e., inflows of international students and outflows of national students).

However, according to stakeholders interviewed during the design phase of the current study, such financial aid appears insufficient. Another important issue appears to reside in the difficulty, for granting councils, of assessing and recognizing the value of degrees earned abroad with the purpose of awarding scholarships to foreign students coming to Canada. In order to assess the importance of these issues, a review of the literature was conducted, in addition to telephone interviews with key informants.

4.1 Inflows of Foreign Students to Canada

Approximately 12% of all doctoral graduates from Canadian universities in 2003-2004 were international students, and about two-thirds of these were enrolled in NSE (Statistics Canada, ESIS). Generally, foreign doctoral students have a higher graduation rate and a shorter time-to-completion than Canadian students. This could be explained by a number of factors. Foreign students often come from well-endowed social classes and, consequently, benefit from substantial financial assistance. Generally, these students are younger and not burdened with multiple responsibilities (e.g., dependants to care for). They are also more motivated to complete their studies because they are subject to administrative constraints—for instance, if they leave their university, they cannot work or stay in Canada, and those foreign students who benefit from financial aid have to conform to specific rules to complete their degree (Gonzalez, 1996).

Statistics Canada's ESIS data show that the number of foreign students enrolled in a doctoral program in the SSH in Canada has increased by 15%, from 2,079 students in 1994 to 2,400 students in 2003 (Figure 3). However, because the population of doctoral students in the SSH in Canada also increased by about 15% over the same period, the proportion of international doctoral students in the SSH did not grow. In fact, the share of international students in Canada's doctoral student enrolment in 2003 was the same as that of 1994 (16% of doctoral students in the SSH).

Figure 3   International student enrolment in doctoral studies in the social sciences and humanities in Canada, 1994-2003
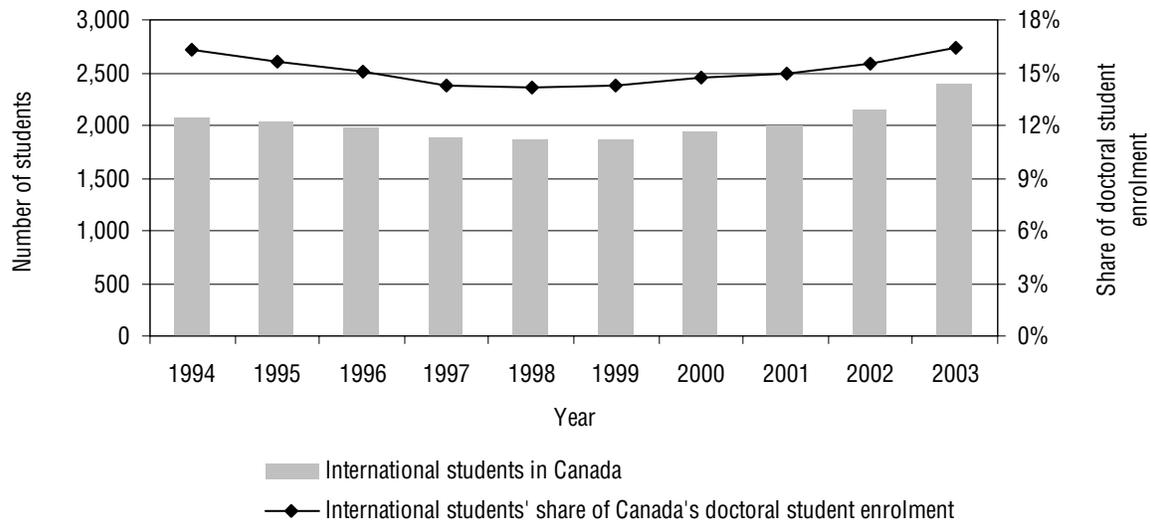
Source   Data compiled by Science-Metrix from Statistics Canada, ESIS

There is no current data on demand by foreign students to carry out doctoral studies in SSH in Canada[9], but many of the key informants interviewed for this study felt that demand by foreign

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[9] Because the actual enrolment of international doctoral students is not directly indicative of demand by foreign students to complete a doctoral degree in the SSH (a number of foreign students wishing to come to Canada may not be accepted by Canadian universities or may not have the financial resources to study abroad), it is difficult to assess the level of demand with existing data.

students to study in Canada had increased, though the level by which informants felt it had increased varied greatly. In addition, some interviewees noted that Canadian universities have been more aggressive when aiming their recruiting efforts at international students who wish to undertake doctoral programs, regardless of the discipline.

However, about 60% of interviewees did not answer or said "don't know" when they were asked if they were aware of sources of funds for financing foreign doctoral students in the SSH studying in Canada. In addition, those who were aware of such sources of funds mostly considered these to be inadequate. A respondent suggested that international students, after having considered Canada as a destination, often turn toward other countries, like the US, where they may find better financial support.

Foreign students are not eligible for SSHRC grants. These grants, as discussed in Section 5, are one of the most important sources of financial support for SSH doctoral students in Canada. Existing funding sources foreign students have available to them include fellowship programs from their home countries (many countries have their own scholarship programs allowing doctoral students to study abroad), a variety of other scholarships for specific sets of countries (e.g., Commonwealth Scholarships), and a diversity of funding models at the institutional level, such as programs that will pay the supplemental tuition fees for international students; programs that give international graduate student awards equal to the difference between domestic and international tuition; internal fellowships that facilitate the inflow of international doctoral students; and models based on cost-sharing agreements between institutions (some Canadian universities have agreements with foreign funding agencies whereby an agency in a foreign country pays half of the cost for a student to come to the Canadian university, which pays the other half). Moreover, international students are permitted by Canadian Immigration to take part-time employment on university campuses, although they are required to obtain employment authorization (a work permit)[10]. The largest Canadian universities are able to attract talented international students and provide them with financial support[11]. Foreign students who choose to go to smaller universities, however, may have to be more creative in finding funding solutions for their education.

At the provincial level, Quebec has adopted policies to help decrease the financial burden of foreign students enrolled in the province's universities. Aware that foreign students must pay higher fees, Quebec provides exemptions for some foreign students and some universities. Quebec has established more than 45 country-level agreements, and these usually comprise quotas on the number of students that can benefit from these exemptions (Julien, 2005). Another provincial

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[10] http://www.anso.ubc.ca/International_Student_Employme.1183.0.html

[11] In order to attract international students, some universities have made a wide range of funding programs available to them. For example, excluding external grants from SSHRC and CIHR, 98% of the scholarships administered by UBC are available to its foreign students. Foreign doctoral students who study in SSH disciplines have access to a pool of funds equalling about $2.6 million, in addition to being eligible for merit-based University Graduate Fellowships (UGF) worth $16,000, research assistantships, teaching assistantships and other on-campus work.

initiative is the government-created British Columbia Centre for International Education (BCCIE), which offers exchange-student scholarships (BCCIE, 2000; Bloom, 1999).

Undoubtedly, SSHRC has been on the receiving end of suggestions to make its funding program accessible to international students who wish to acquire a PhD in Canada. However, if SSHRC decided to support international students but was not able to obtain a larger budget, its current budget would have to be stretched in order to support international students at the cost of Canadian students. Ultimately, the resolution of this issue would have to be in line with SSHRC's goals.

4.2   Outflows of Canadian Students

Data on the number of applications for SSHRC's doctoral scholarships to study abroad can be used as a proxy to obtain insight into Canadian doctoral students' demand to study abroad. Figure 4 shows that demand decreased between 1995 and 2000 and rose again between 2001 and 2005. Concurrently, the number of SSHRC awards for doctoral fellowships to study abroad remained largely unchanged during the period analyzed (Figure 4). Because students undertaking study abroad are not normally eligible for Canada Graduate Scholarships (which was established in 2003), only a relatively small proportion of SSHRC doctoral fellows study abroad.

Figure 4   Applications and awards for SSHRC doctoral fellowships to study abroad, 1995-2005
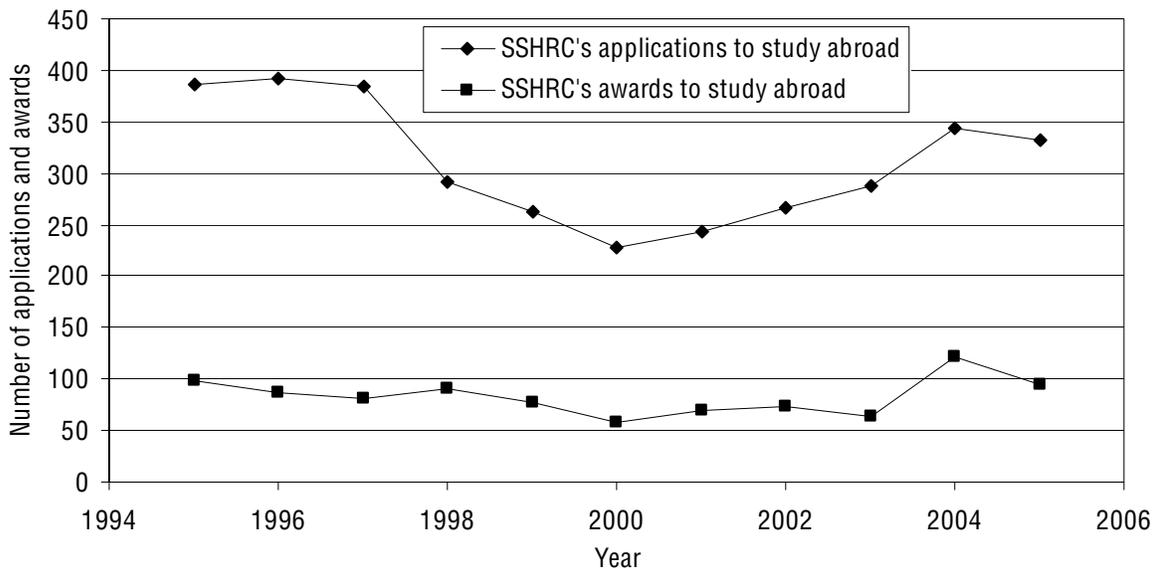
Source   Data from SSHRC

Some interviewees felt that there is an increased willingness on the part of Canadians to pursue their doctoral studies outside of Canada and that international recognition of Canadian universities has been increasing, making Canadian students more attractive to foreign institutions. However, some respondents also sensed that more students may choose to remain in Canadian universities because they feel that they cannot afford to study in another country.

The major sources of financial support for doctoral students wishing to complete their doctoral degrees abroad in the SSH include SSHRC's doctoral fellowships program; similar programs at the provincial level (e.g., the doctoral scholarships offered by the "Fond Québécois de la recherche sur la société et la culture"); Commonwealth scholarships (which provide Canadian students with the opportunity to undertake graduate studies in another Commonwealth country); the German Academic Exchange Service's graduate scholarships (DAAD scholarships), which give Canadian students the possibility to study in Germany; and the scientific mobility scholarships of the Agence universitaire de la francophonie. However, the scholarships provided by most of these programs, including SSHRC's doctoral fellowships program, are not adjusted to take into account the fact that international students tend to pay higher fees than national students, and even though many universities provide funding arrangements that will help to cover tuition fees for international students, the costs of living abroad are generally higher and remain a significant burden for students. Still, an interviewee mentioned that some of the larger and more renowned universities, such as those in the US or the UK, will look at students' financial needs based on the external funds available to them and will pay the balance.

Other funding opportunities for Canadian students to study abroad include scholarships targeting specific regions: this applies if the student's project matches a specific regional issue/need (e.g., developing economies of the South). The Canadian International Development Agency (CIDA), the International Development Research Center (IDRC), the receiving country and the foreign university (sometimes in collaboration with an institution from the originating country) will typically provide these types of scholarship. However, such sources of financial support are often small and not flexible enough to be useful for most students wishing to complete a doctoral degree in the SSH in a foreign institution.

A promising avenue for supporting Canadian students who would like to complete a doctoral degree in the SSH abroad would be to promote the development of joint PhD programs between Canadian and foreign universities, such as the agreements that already exist between Canada and France. Funds from the collaborating institutions and countries are usually put together to support students from both countries, and graduates earn degrees from both institutions. Similar types of agreements could be developed for shorter exchange programs (i.e., a few semesters abroad).

4.3 Exchange Programs

There are a number of programs for exchange students—that is, programs that simultaneously support the inflow and outflow of students. The Canada European Union Program for Co-operation in Higher Education and Training represents an example of a federal government initiative that promotes international education. This program recognizes and encourages student mobility and educational exchange as a means of strengthening mutual cooperation between the European community and Canada. More than 125 institutions in Canada and Europe have participated in this program[12].

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[12] See http://www.hrsdc.gc.ca/asp/gateway.asp?hr=en/hip/lld/lssd/iam/european/purpose.shtml&hs=iyp

Human Resources and Skills Development Canada and the Department of Foreign Affairs and International Trade sponsor the Program for North American Mobility in Higher Education and Training, which fosters exchange and collaboration between universities in Canada, US, Mexico and Europe (Bloom, 1999). The Foreign Government Awards (FGA) Program is another federal initiative offering scholarships to Canadian students wishing to complete graduate studies in Chile, Colombia, France, Germany, Korea, Mexico, the Philippines, Russia, Italy, Japan, the Netherlands, and Spain[13]. The Fulbright Program, which is supported by the Government of Canada through Foreign Affairs Canada and the US State Department, provides awards to Canadian and US graduate students in order to conduct study or research in the other country[14]. The Canadian government also supports Commonwealth Scholarships. This program primarily funds doctoral students, but also candidates wishing to undertake undergraduate studies, a second PhD degree, studies in medicine or dentistry, postdoctoral studies/research, or clinical training[15].

Moreover, many Canadian universities offer their own international exchange programs, in addition to awards and scholarships, to promote the international mobility of students, and some universities market their campuses at an international scale and set goals for attracting international students.

The Association of Universities and Colleges of Canada[16] (AUCC) and the Canadian Bureau for International Education[17] (CBIE) have been active in promoting international education programs and providing research and policy on the issue; they also provide scholarships and awards related to international education.

4.4 Financial Resources for Travelling

Respondents mentioned that students are under greater pressure than in the past to attend international conferences to present their work and obtain feedback from their peers. Conference participation can affect their chances of future success in competitions for fellowships, grants, and faculty positions. Travel grants would enable and encourage more student participation in such conferences and would reduce the risk of academic isolation. Graduate students would have more opportunities to share knowledge and interact with peers in their field of study (see Academic isolation in Section 2.3).

Several suggestions concerning the provision of financial support for doctoral students in the SSH for both research infrastructure and travel expenses came out of the interviews. Some respondents believed that institutions must provide this type of funding and resources for all students. However, this would necessitate universities receiving more core funding from government, foundations, or the private sector.

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[13] See http://www.scholarships-bourses-ca.org/fga/fgap-en.html

[14] See http://www.fulbright.ca/en/home.asp

[15] See http://www.csfp-online.org/about.html

[16] See http://www.aucc.ca/index_e.html

[17] See http://www.cbie.ca/about/index_e.cfm

Support could be provided to students in the SSH through advisors' grants, which could function in much the same way as NSERC's Research Tools and Instruments (RTI) grant. This would allow supervisors to request a grant specifically for infrastructure (i.e., specialized equipment and resources), giving supervisors the opportunity to obtain tools that could promote further research activities and, in turn, attracting more students into the particular program. According to some interviewees, funding would yield greater benefits if it were at the discretion of the supervisor rather than being awarded directly to the student. It was also suggested that monies for SSH programs should go to the institution, since this might allow equipment and resources to be used by students from a variety of departments and increase the 'shelf-life' of these resources beyond the course of one individual's degree program. These comments are in line with the recommendation made to SSHRC by CAGS in 2004: "CAGS recommends that SSHRC increase the level of research grant funding available to professors in order to provide graduate students with the operating funds necessary to accomplish competitive and innovative research" (CAGS, 2004: 2).

Some interviewees mentioned the model used by the Canadian Foundation for Innovation (CFI). However, one respondent pointed out that people in the SSH tend to be excluded from CFI grants because their needs are much smaller than those of students in the NSE. For example, this respondent believed that CFI is looking at applications for larger amounts ($250,000 and more) than those that are generally sought in the SSH ($30,000 to $50,000).

4.5 Evaluation of Degrees Earned Abroad

According to an estimate by the Conference Board of Canada (CBC) (Bloom & Grant, 2001), more than 340,000 Canadians possess unrecognized foreign academic credentials. At the present time, there is no central agency responsible for the assessment of foreign academic credentials in Canada, nor is there any coherent national framework. Responsibility lies with individual institutions, autonomous accreditation boards, professional regulatory bodies, and provincial and territorial departments, each of which has its own set of policies and procedures for foreign credential assessment (CICIC, 2002; Knight, 2004). At the provincial and territorial level, four types of organizations perform out-of-province and foreign credential evaluation (Knight):

- assessment services mandated by the provincial government: This type of mandate exists in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, and Quebec;
- private assessment services;
- post-secondary institutions;
- professional regulatory bodies.

In all provinces/territories, post-secondary education institutions have complete autonomy and ultimately use their own discretion when assessing qualifications for the purpose of granting admission (Knight, 2004). Most of the foreign credential assessment services not affiliated to universities or professional licensing bodies act as information centres that direct students with foreign qualifications to the appropriate post-secondary institution or professional licensing body and are "an appendage to the credentialing system, not necessarily a great improvement on it" (Bloom & Grant, 2001: 11). Assessment agencies are useful for the provision of credential-related information, but they act in an advisory capacity only (CAETO, 2004).

Numerous departments have acknowledged the importance of designing a federal strategy for foreign credential recognition. Some of these (such as Citizenship and Immigration Canada, Human Resources and Skills Development Canada, Industry Canada, Human Resources Partnerships, and Canadian Heritage) are working both individually, and collaboratively to achieve policy change (CICIC, 2002; Knight, 2004).

NGOs and intergovernmental organizations and programs across Canada have also been identified as key players in the advancement of foreign academic credential recognition (Knight, 2004). These include the Canadian Information Centre for International Credentials (CICIC), the Council of Ministers of Education, Canada (CMEC), the Association of Accrediting Agencies of Canada (AAAC), and the AUCC (more information provided below).

Canadian standards for good practice in foreign credit evaluation have been established. The Quality Assurance Framework of the Alliance of Credential Evaluation Service of Canada[18] details the procedures for credential evaluation that will be upheld by all member institutions and organizations that provide these services in order to promote high quality and portable assessments across Canada. Membership of the Alliance is voluntary and is based on self-assessment and mutual trust. In addition, the CICIC, in collaboration with federal and provincial agencies, has produced a statement of "General Guiding Principles for Good Practice in the Assessment of Foreign Credentials"[19]. The "Criteria and Procedures for the Assessment of Foreign Qualifications" formulated at the Lisbon Convention resulted in a Canadian addendum, "The Canadian Guiding Principles for Good Practice", with which the five provincially mandated services act in accordance (Knight, 2004).

Organizations active in the advancement of foreign academic credential recognition

Canadian Information Centre for International Credentials (CICIC)
The CICIC, established in 1990, collects, organizes, and distributes information in order to support the recognition and portability of Canadian and international educational and occupational qualifications. It also acts as a national clearing house and referral service, providing individuals with advice and references to the appropriate institutions and organizations for specific assistance. A frequent participant in national and international meetings, the CICIC encourages collaboration between people, institutions, and government agencies. The organization participates in research projects and publishes a number of papers, brochures, reports, news bulletins, and fact sheets on its website. The CICIC is housed within the secretariat of the Council of Ministers of Education, Canada (below).

Council of Ministers of Education, Canada (CMEC)
The CMEC provides a forum through which provincial and territorial education ministers may discuss and collaborate on matters of mutual interest and consult with national education organizations and the federal government. The CMEC represents the education interests of provinces and territories internationally. CMEC members are jurisdictionally responsible for credential evaluation within the provinces/territories, and the organization assists jurisdictions in implementing the provisions of the Convention on the Recognition of Qualifications Concerning Higher Education. To date, the majority of Canadian universities have signed a CMEC-adopted protocol on the recognition of academic credentials for the purposes of admission to post-secondary institutions. In September 1999, the CMEC issued a Joint Declaration listing mobility as one of its focus areas.

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[18] http://www.canalliance.org/framework.htm

[19] http://www.cicic.ca/pubs/prncpen.stm

Organizations active in the advancement of foreign academic credential recognition
(Continued)

Association of Accrediting Agencies of Canada (AAAC)
The AAAC is a national organization whose members are professional associations that promote good practice in the accreditation of educational programs. The AAAC seeks to develop leading-edge models and benchmarks for accreditation; it also represents the interests of professional education accrediting agencies to governments, professional bodies, educational institutions, and the private sector. Members are provided with a forum where they can exchange ideas and methods, monitor national and international trends, and promote the importance and acceptance of accreditation.

Association of Universities and Colleges of Canada (AUCC)
The AUCC brings together 90 Canadian public and private not-for-profit universities and university-degree level colleges. It does not have a direct role in quality assurance but is involved in advocacy and research on internationalization, information services and dissemination to international students, the marketing of Canadian universities abroad, and international co-operation through the formation of partnerships. The AUCC is an active member of the Advisory Committee on International Students and Immigration and is well-positioned to engage in policy dialogue. The organization recently submitted a proposal to Human Resources and Skills Development Canada's foreign credential program, and plans are underway to perform a detailed survey of AUCC member institutions and an analysis of five case studies in order to develop a fuller diagnostic of Canadian universities' engagement in this area.

Post-secondary credential-awarding institutions in Canada are cautious in their assessment of the credentials and credits of foreign students or Canadian students who have earned degrees abroad (Bloom & Grant, 2001). Challenges to admissions policies and procedures at post-secondary institutions arise when applicants from little known institutions where no mutual recognition arrangement exists, submit applications. According to the CBC, post-secondary institutions have developed specific, even idiosyncratic, methods for dealing with these special circumstances.

Fifty-five Canadian credential-awarding institutions were surveyed for the CBC study (Bloom & Grant, 2001). Twenty-six of these institutions were "very confident" and 20 were "confident" about their processes for recognizing existing formal learning credentials. Forty of these institutions claimed to have a "formal" process in place (in post-secondary institutions, usually a written policy issued by the registrar's office) for recognizing learning. The process of recognition, however, is more likely to take place at the departmental level, where according to the CBC practices are very inconsistent. This finding corresponds with the perceptions of many of the key informants interviewed for this study that institutions deal with these students on a case-by-case basis. These informants believed that the primary process often involves a certain level of informal information-gathering or the use of databases or university websites. Other stakeholders reported the existence of indexes containing all accredited institutions. One respondent mentioned that any foreign student of a university that is not accredited has his or her application turned down, unless the department applied to can make a very strong case to those in charge of admissions for why the student should be admitted.

One college admissions administrator who participated in the CBC survey stated that "any systemic bias at the departmental level will be reflected in their choice and administration of the assessment system" (Bloom & Grant, 2001: 10). Many stakeholders interviewed for this study also felt that the assessment process involves biases. One respondent observed that, in a large number of cases, it is nearly impossible to assess foreign students' marks fairly; therefore granting councils focus more on

parameters, such as research potential, publications, and recommendation letters, in order to assess the student, which disadvantages foreign students at master's level. However, this focus could enable foreign students compete with Canadian students at the doctoral and postdoctoral levels.

The lack of a visible, standard protocol for the foreign recognition of credentials has a number of consequences. Firstly, it affects transferability which is defined by Bloom and Grant (2001: 9) as "the ability to get credits from one education or training organization accepted by another" and mobility, defined as "the ability to get credentials accepted in jurisdictions, such as provinces or countries, where they were not issued"; secondly, it impacts on the awarding of course credits, or advanced standing, to individuals with foreign education credentials, which will affect the ability of and incentives for these students to continue their education and obtain credential documents. The CBC study identified six major barriers to the transfer of learning related to foreign credential assessment: administrative barriers; the lack of a centralized regulatory structure; miscommunication and lack of coordination; incompatibility and lack of standards; conflicting institutional interests; and lack of learner awareness.

Participants at a hosted Conversation by the Metropolis Project and the Foreign Credential Recognition Division of Human Resources and Skills Development Canada in May 2005 stated that degrees conferred in other countries than Canada had less value in the Canadian labour market. However, they felt that this might be attributable to the increased entry of immigrants from "nontraditional source countries, which are more likely to be associated with lower quality education systems than traditional source countries" (Metropolis Project, 2005: 4).

Given that Canada has the highest ratio of foreign-born PhDs to native PhDs among the OECD countries (Gera & Songsakul, 2005), and given the goal of continuing to attract highly-educated immigrants to Canada, the development of a national, standardized system for credential recognition of foreign university degrees should be of great importance to stakeholders in Canada's higher education community.

5 Financial Support for Doctoral Students in the SSH

This section explores the current state of funding for Canadian doctoral students in the SSH and provides additional data to address some of the research questions identified in the design phase of this study. Section 5.1 presents the means by which doctoral students can obtain financing for their studies. Merit-based funding is the topic of Section 5.2. Section 5.3 discusses teaching and research assistantships and stipends. Student grant and loan programs are examined in Section 5.4. The final section (Section 5.5) discusses the sources of funding that can meet the specialized equipment and resource needs of doctoral students.

5.1 Means for Financing Doctoral Studies in the SSH

The means for financing PhD-level studies are diverse and often used in combination. They include: 1) merit-based fellowships, general scholarships, and grants[20]; 2) stipends; 3) research and teaching assistantships; 4) federal or provincial government loans and bursaries; 5) personal loans from banks; 6) employer-conferred grants and loans; 7) regular employment; 8) personal savings; and 9) various forms of "love money" from family, friends, and mentors (Gluszynski & Peters, 2005; McGill University, 2004; Statistics Canada, 2005). In this report we focus on the first four of these sources. Figure 5 shows the most commonly reported primary sources of funding for doctoral students by field.

Figure 5   Primary sources of funding for doctoral students by field of study
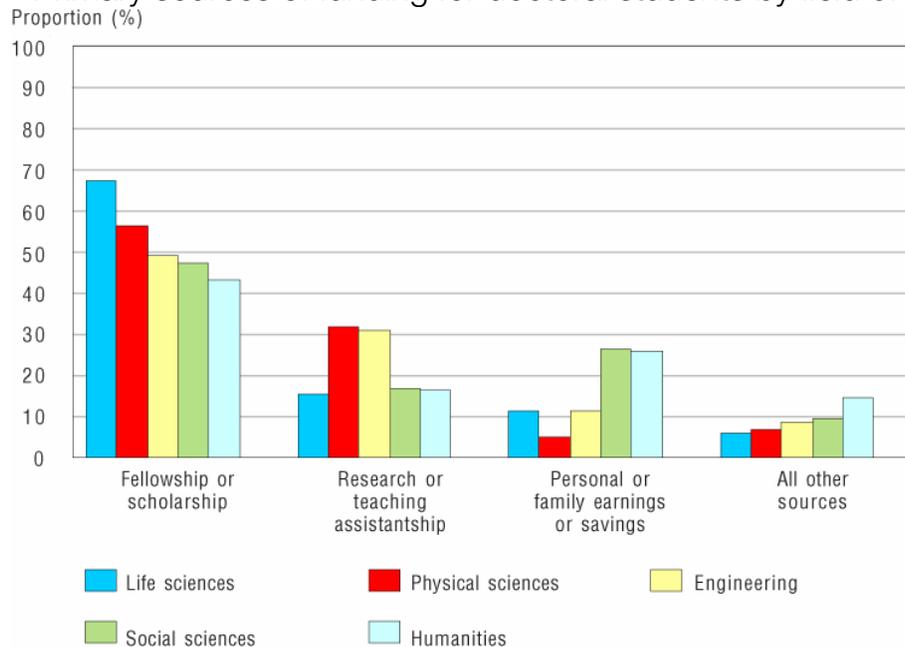
Source   Adapted by Science-Metrix from Gluszynski and Peters, 2005

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[20] These reward previous academic excellence and thus are given to the best applicants, selected according to academic merit criteria (though some awards are granted on the basis of both academic and non-academic criteria). Examples are NSERC, SSHRC, CIHR, and university-administered graduate fellowships.

Importantly, and perhaps in contrast to commonly-held perceptions, a sizeable proportion of PhD graduates manage to avoid going into debt in order to pay for their studies. According to a 2003 survey of earned doctorates performed by Statistics Canada (Gluszynski & Peters, 2005), 56% of all doctoral graduates completed their studies free of debt related to their graduate education. Specifically, 46.5% of students in the social sciences and 44% of students in the humanities graduated free of education-related debt. Only 23.6% of humanities students had debts of more than $20,000, and the proportion was even lower in the social sciences, 16.7% of students, indicating that the funding of graduate studies in the SSH is relatively healthy. Furthermore, almost half (46%) of all PhD graduates completed their studies without incurring debts related to either undergraduate or graduate studies. About 25% of all doctoral graduates had education-related debts, 10% had debts from their undergraduate studies, and 19% had incurred debt in relation to both. However, it is important to note that the Statistics Canada study was based on data for doctoral graduates and not for all doctoral students; it therefore does not take into account the debt loads of students who enrolled but did not complete their studies at the PhD level. This is especially important to consider because, as was mentioned in Section 2.3, difficulties in securing funding support for their studies are positively correlated with attrition among doctoral students in the SSH.

Statistics Canada's study of earned doctorates found that universities play a key role in student funding. The two most frequently reported sources of financial support were provided by universities: teaching assistantships (64% of graduates), followed by fellowships or scholarships from the institution (58% of graduates) (Gluszynski & Peters, 2005). In fact, universities, and particularly the largest research universities, have a great deal of leeway over providing funding (both internal and external) to graduate students. In larger universities, the work of distributing student awards often will involve two departments. For instance, at UBC, the Faculty of Graduate Studies administers academic merit-based funds to graduate students, while the Student Financial Assistance and Awards office administers academic merit-based funding to undergraduate students, and financial need-based funding (i.e., government loan and grant programs) to both undergraduate and graduate students[21].

5.2 Merit-based Funding

Fellowships are offered by a variety of providers. In addition to the federal and provincial governments, nearly all universities in Canada offer fellowships, as do a large number of other organizations including charitable trusts, non-governmental organizations, and private firms. However, typically, these latter awards are limited in number and the amounts awarded are small compared to federal and provincial governments' fellowships.

Merit-based fellowships and awards available to Canadian doctoral students in the SSH are numerous. An exhaustive list of these awards would likely include more than 1,000 types of fellowships. For example, UBC administers nearly 300 fellowships, many of which are exclusively for graduate students. To start with, UBC has a generous offering in the form of the Graduate Entrance

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[21] http://www.grad.ubc.ca/

Scholarship, which helps doctoral students to jumpstart their studies; in 2004-2005, approximately $400,000 was awarded by UBC to incoming doctoral students in the SSH. Even more substantive are the University Graduate Fellowships (UGF): in 2004-2005, approximately $1.15 million in UGF funding was awarded to doctoral students in the SSH. Finally, UBC also administers the prestigious Killam Predoctoral Fellowships and Affiliated UGF Awards, for which, on average, approximately $750,000 would be offered to doctoral students in the SSH in a given year. In addition to these mainstream fellowships, totalling $2.3 million in 2004-05, UBC doctoral students in the SSH are eligible to compete for 142 types of scholarships, 68 types of fellowships, 67 types of bursaries, 30 types of awards, and 39 different prizes. In most cases, only one or a few grants are offered per type but the total nevertheless amounts to about $1.9 million - counting only those awards for which SSH students can compete for. Therefore, the most various form of funding is merit-based funding.

The most substantial source of funding for which disaggregated data are available is the SSHRC-administered doctoral fellowship. As shown in Table IV, for the financial year 2004-2005, UBC doctoral students were awarded $2.7 million worth of SSHRC-delivered fellowships, an amount greater than that awarded by either the Natural Sciences and Engineering Research Council of Canada (NSERC) or Canadian Institutes of Health Research (CIHR) for their mainstream doctoral funding programs[22].

Table IV   Doctoral fellowships awarded to UBC students by the three Canadian research councils, 2004-2005 FY

Program	SSHRC	NSERC	CIHR
Doctoral Fellowships (main program)	$1,681,667	$1,155,000	$534,971
Canada Graduate Scholarships Doctoral Scholarships	$980,000	$1,120,000	$395,000
Total	**$2,661,667**	**$2,275,000**	**$929,971**

Source   Compiled by Science-Metrix from the councils' awards search engines.

These data reveal that the amount of doctoral student funding provided by SSHRC to UBC students is in the same order of magnitude as the amount awarded through the 300 or more fellowships, scholarships, prizes, and awards for which UBC students are eligible. Clearly, SSHRC emerges as the single largest external funding source for doctoral students in the SSH at UBC. Because smaller universities do not have access to the important financial resources of larger universities, such as UBC, SSHRC plays a much more vital role to smaller universities, especially in provinces that do not have funding agencies. The importance of SSHRC is also reflected by the fact that it funds about 14% of PhD students enrolled at UBC and 12% of enrolled PhD students in Canada[23]. However, although SSHRC may be the most important external donor to universities like UBC, universities

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[22] These data consider only the main doctoral fellowship programs and the Canada Graduate Scholarships for Doctoral Students. These constitute the core form of funding for doctoral students. However, there are other forms of funding available from the three federal granting councils.

[23] Calculated by Science-Metrix based on data from the SSHRC awards database and from Statistics Canada's Enhanced Student Information System for the 2003-2004 academic year. Proportions apply only to eligible students (i.e., Canadian citizens and permanent residents).

themselves are likely to be the principal contributors to the funding of doctoral students in the SSH, because universities also support students with various forms of assistantships, as covered in the next section.

5.3   Teaching and Research Assistantships and Stipends

The teaching assistantship (TA) is a form of student financial assistance provided by universities in return for work that is classified as teaching; similarly, the research assistantship (RA) is university-provided financial assistance offered in return for work classified as research (Babco, 2004). The stipend is the salary paid to the student in exchange for assistantship duties. In addition to the stipend, students with assistantships often receive other benefits, such as tuition discounts, waivers, and life or health insurance. According to a US study on graduate students' use of assistantships (NCES, 2002), about two-thirds of students with TAs or RAs receive tuition discounts or waivers.

Both TAs and RAs are common in post-secondary institutions across nearly all disciplines and provide students with practical teaching and research experience while offsetting the cost of their education. The University of Alberta, for example, offers more than $11 million in assistantships per year[24].

Stipends for RAs usually come directly from professors' research grants. Professors generally determine the amount of the stipend, although some research councils set minimum levels for stipend allocations (McGill, 2004). According to UBC's Faculty of Graduate Studies,

> Research Assistantships are co-ordinated and administered at the graduate program level. The stipend amounts vary widely, and are dependent on the field of study and the type of research grant from which the assistantship is being funded[25].

Research assistants are essentially employees of their professors; their thesis topics may be only loosely related if at all, to their work as a research assistant.

The National Center for Education Statistics found that doctoral students in the NSE were more likely to have assistantships and also to receive larger stipends than students in the SSH. Doctoral students in the SSH were more likely to have TAs than RAs, and students in the NSE were more likely to have RAs than TAs, a statistic attributable to the common practice in the NSE to grant RAs to "advanced students while they work in a laboratory assisting a faculty member or working on their own research projects" (NCES, 2002: 18).

5.4   Student Grant and Loan Programs

The Canada Student Loans Program (CSLP), administered by Human Resources and Skills Development Canada, is offered in every province except for Quebec, the Northwest Territories, and Nunavut, which offer their own student assistance programs and receive alternative payments from

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[24] http://gradfile.fgsro.ualberta.ca/awardsfunding/assistantships/index.htm

[25] http://www.grad.ubc.ca/policy/index.asp?menu=003,003,000,000

the Government of Canada for the support of those programs. The CSLP was created in 1964 as a statutory spending program under the Canada Student Loans Act[26], with the aim of improving access to post-secondary education for students with demonstrated financial needs, through the provision of loans and grants. It also aimed to promote and support participation in lifelong learning. Since it established the CSLP, the government has assisted over 3.8 million students with over $16 billion in loans.

The CSLP is managed as a federal-provincial-territorial partnership; the nine participating provinces/territories determine eligibility and assess financial need, based on federal criteria. The aid is provided in the form of a loan certificate, accompanied by a list of eligible educational institutions. The maximum amount that can be lent to a student varies by province/territory. For example, in Newfoundland and Labrador, the maximum amount is $350 per week of study, with the exception of medical students at Memorial University, who can be awarded up to $410 per week of study.

The CSLP includes seven grants, grouped under the Canada Study Grants (CSG) umbrella. Student loan application forms must accompany the grant application. The seven types of grants are[27]:

- *Canada Access Grant for Students with Permanent Disabilities*: These grants for up to $2,000 per loan year cover expenses related to tuition, books, accommodations, and travel, which due to the student's disability, are higher than typical allowances.

- *Canada Access Grant for the Accommodation of Students with Permanent Disabilities*: These grants for up to $8,000 per year for the duration of a student's program cover exceptional education-related costs that are not normally considered in the student loan assessment (i.e., equipment and services). Some provinces contribute their own support to this program; for example, students in Saskatchewan can receive up to $2,000 in additional funding.

- *Canada Study Grant for Full-time Students with Dependants*: These grants are available to full-time and part-time students whose assessed need exceeds the maximum loan funding available and who can demonstrate a financial need in excess of $275 per week, and applies to either the full-time or part-time loan programs. The maximum assistance is $40 per week of study for one or two dependants and $60 per week of study for three or more dependants.

- *Canada Study Grant for Women in Certain Doctoral Studies*: These grants, worth up to $3,000 per year (though some provincial governments, such as Saskatchewan, may contribute an additional $2,000 to this amount) for a maximum of three years, aim to increase the participation of women in eligible fields of study at doctoral level. This program is reserved to female students who have enrolled in full-time doctoral studies and who have also applied and qualified for financial assistance for the current year and who are studying full-time in non-traditional fields of study[28]. The grant is awarded in

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[26] This act was complemented on June 23 1994 by the Canada Student Financial Assistance Act. Guaranteed student loans are governed by the Canada Student Loans Act, while risk-shared and directly financed student loans are governed by the Canada Student Financial Assistance Act.

[27] See e.g., www.peigov.ca/educ/index.php3?number=1008017; http://osap.gov.on.ca/eng/not_secure/contents.htm; www.edu.gov.nf.ca/studentaidsystem/grants.htm

[28] This definition varies from province to province. In Saskatchewan, for example, study areas considered for the Canada/Saskatchewan Study Grant for Female Doctoral Students in the Arts, Social Sciences, and related fields are: business administration; commerce; management; administrative studies; economics; music; philosophy; political science; and religious and theological studies. In British Columbia, doctoral scholarships for female students in the SSH are available in : administration studies; business administration; commerce; economics; management; music; philosophy; political science; religious studies; and theological studies.

conjunction with student loan assistance. Successful candidates may access the grant for a maximum of three years. Applications for the grant must accompany the student loan application.

- *Canada Study Grant for High-need Part-time Students*: These grants provide a maximum of $1,200 per year (though some provincial governments, such as Saskatchewan, may contribute an additional $800 to this amount) to a limited number of high need students who are enrolled in part-time studies because they are unable to carry 60% of a full course load and who fulfill a specified set of further criteria. Eligibility is determined during the assessment of the Part-time Canada Student Loan Application.

- *Canada Study Grant for Part-time Students with Dependants*: These grants, which offer assistance of up to $1,920 per loan year, aim to assist eligible students studying on a part-time basis who continue to demonstrate financial need after receiving the maximum Canada Study Grant for High-need Part-time Students and the maximum Canada Student Loan for Part-time Students. Students with one or two dependants can receive up to $40 per week; students with three or more dependants can receive up to $60 per week.

According to a study by Statistics Canada, about 38% of Canadian doctoral students who graduated in 2000 were in debt as a result of *government loan programs* (Allen & Vaillancourt, 2004). The study also found that debt levels linked to student loans had increased, and fairly significantly, over the 1990s. Doctoral students who graduated in 1990 and had taken out a government-backed student loan owed about $5,000; those who graduated in 1995 owed an average of $14,000; and doctoral students who graduated in 2000 owed $20,000 (all figures in 2000 constant dollars). Thus, in 10 years, the average doctoral student loan debt rose fourfold.

Figure 6 highlights the wide differences between fields; it also indicates that government-backed student loans are more common among students in the SSH than the NSE.

Figure 6   Debt owed and percentage of doctoral graduates with debt linked to governmental loan programs by disciplinary field, 2000
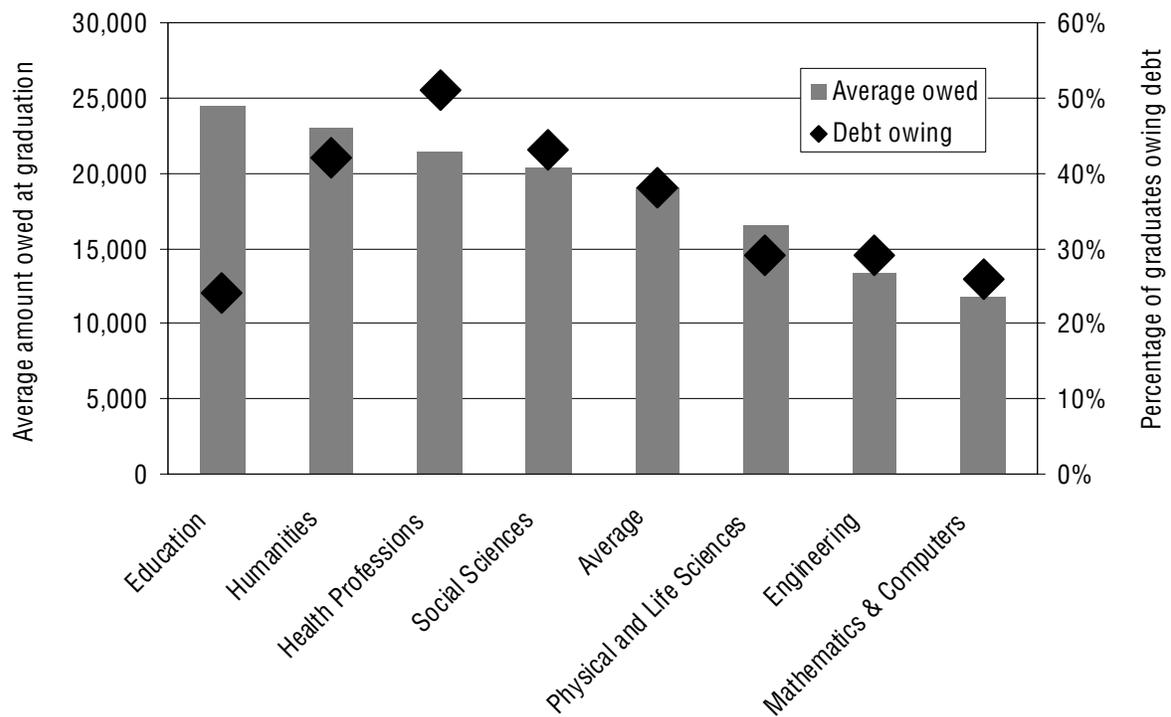
Source   Compiled by Science-Metrix from Allen and Vaillancourt, 2004

5.5 Financial Support Available for Specialized Equipment and Resources

During the design phase of the current study, the issue of students' changing research needs was raised. It was noted that students in the SSH may have more difficulty securing support for the acquisition of equipment and for travel than students in the NSE. In this context, interviewees were asked: 1) Are needs changing regarding doctoral students' use of specialized equipment or resources in the SSH? and 2) What are some of the solutions that are available or that could be developed for providing financial support for the equipment or resource needs of doctoral students in the SSH?

Overall, the requirements of doctoral students in the SSH with respect to specialized equipment and resources appear to have evolved concurrently with the development of information technology (IT), digitization, and computer science. Although their impact has been greater in the social sciences, a majority of informants in both the social sciences (about 85% out of 31 key informants) and humanities (about 85% out of 26 key informants) believed that students' needs have changed.

The primary needs that have emerged as a result of the new technologies are specialized software, access to digital archives, databases, computers, and the Internet. Although doctoral students in the SSH have access through their universities to equipment and resources (e.g., libraries, computers, some databases, scholarly journals, and high speed Internet connections), which are sufficient to support most research, there is little financial support for those who require more advanced equipment for specific research. According to CAGS (2004: 2), "like research in health and the natural and engineering sciences, the influence of technology has reshaped the nature and subsequently the cost of research in the social sciences and humanities" such that "current levels of funding are insufficient to support the standards of excellence in research that SSHRC has been long committed to". However, because electronic resources are so expensive, many university libraries are progressively cutting back on their monograph budgets in order to meet the expense of offering students access to specialized databases. The prevailing focus on electronic resources at the expense of books may be detrimental to students in the humanities, who rely heavily on books for their research.

For example, there is a variety of specialized software (e.g., transcription and linguistic software) that is extremely useful for research in the SSH, but is generally inaccessible due to its high cost. One respondent noted that some of the best data are the most expensive to access because they are collected by and are under the control of major international corporations (e.g., banks, insurance companies, and political risk analysts). While these data are available, most universities cannot meet the prices of these specialized databases. This respondent felt that it would be useful if SSHRC could negotiate agreements with some of the more specialist information sources to enable students to have access to some of these databases. Some of the smaller universities cannot afford to subscribe to the electronic data sources that may be standard at the larger universities, and not all universities can afford the expensive digitization and hardware equipment needed to convert and store information (for example, the digitization and storage of cultural music in ethnomusicology programs).

6 Conclusion

This investigation drew on data from Statistics Canada and current research literature, both from Canada and around the world, for evidence of change in the doctoral education environment. There were a number of areas in which the needed Canadian data was either nonexistent or inaccessible; in addition, certain specific lines of enquiry were hampered by a dearth of quality investigative research—especially that relating to a Canadian context.

Also used were interviews with stakeholders, which lent crucial personal, experiential, and practical insight to the study; in some cases, they were also (when compared with statistical indicators) helpful for determining which developments are taking hold in an important way. Due to the study's principal focus on change in doctoral education, a number of the research points required interviewees to comment on fairly recent trends. However, many of the interviewees were not comfortable making assertions about trends, resulting in an overwhelming number of "Don't know" responses.

Again, the treatment of some research topics ultimately suffered from a lack of data. For example, the time-to-completion of doctoral students has been an area of tremendous focus and speculation, but the Canadian data is uneven. Fast-track entry into PhD programs in Canadian universities has not yet been the subject of a comprehensive nationwide survey or study, nor do individual institutions make statistics readily available. Even less clear is the availability of support options for fast-track students. Indeed, data on the differing models of support for specific areas of doctoral education were the most difficult to procure (for example, data pinpointing exactly how Canadian students pay for their studies in the years before and after they are supported by the granting councils or on specific types of support for students in interdisciplinary or professional programs).

Other areas did not lend themselves to quantitative study, and answers to these questions were thus greatly bolstered by the reflections of the interviewees. For instance, the day-to-day observations of those who have been functioning for some time within the doctoral education environment or interacting with PhD students are most useful for determining whether students' needs for equipment and resources have changed in recent years. Also, establishing whether there are changing patterns of research in the social sciences and humanities relies primarily on anecdotal evidence, as does whether interdisciplinary research or programs are on the increase in doctoral education. The responsiveness of universities, and specifically doctoral programs, to the needs of society and to private interest, can be measured only in financial terms—in how public and private sources of funding impact the way in which PhD programs are designed and modified—though it is clear that incidences of funding can not be used to fully explain the influence that these external factors have on graduate education in the SSH. "Levels of demand" for support for studies abroad could also only be measured by applications for the funding of studies abroad, though this is not a clear indicator of demand.

Despite these limitations, this study has gathered evidence that sheds light on the majority of the issues raised by stakeholders in the design phase of the project. It is noteworthy that findings sometimes contrasted with perceptions and this suggests that more on-going monitoring of the evolution of doctoral research in the SSH may be necessary to help stakeholders and decision-makers maintain a clear, evidence-based view of this environment.

Appendix

Key research questions identified during the design phase

Q1 **A.** How long do students take to complete their doctoral studies (historically and vs. NSE students)?

        B. What are the factors affecting time for completion of SSH doctoral degrees?

        C. How do students finance their studies beyond those years that they are supported by the granting councils?

Q2 **A.** How prevalent are fast-track programs in the SSH?

        B. What are the models available for the provision of financial support to fast-track students?

Q3 **A.** Are needs changing regarding the equipment and resources used by doctoral students in the SSH?

        B. What are the solutions available for providing financial support for equipment and resources required by students for their research?

Q4 **A.** Is there a changing pattern of doctoral research in the SSH involving greater interaction with supervisors and with other students?

        B. What are the models available to finance these groups of students?

Q5 **A.** How prevalent are interdisciplinary studies and professional degrees in the SSH?

        B. What are the solutions offered to support these students?

Q6 **A.** What is the pattern of international mobility of doctoral students in the SSH and what is the level of demand by foreign students to study in Canada?

        B. What are the models available to finance foreign students?

Q7   How do granting councils assess the value of degrees earned abroad, especially those awarded by lesser-known universities?

Q8 **A.** What is the level of demand from Canadian students for study abroad (both for degree completion and for travel as visiting students)?

        B. What are the models available to support these students and to support study abroad?

Q9 **A.** What are the demographic, economic, and social changes experienced by SSH doctoral students?

        B. How do these changes affect their funding needs?

Q10 **A.** How important are trends in the opening of universities, in the case of SSH doctoral studies, to the needs of society and of private interest?

        B. How does this impact upon doctoral student funding?

Q11 **A.** What are the variations in the supply of new financial assistance programs?

        B. What is the impact on availability and access to funds for SSH doctoral students?

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