

PHD DEGREE COMPLETION IN CANADIAN UNIVERSITIES

FINAL REPORT

***FRANK J. ELGAR
DALHOUSIE UNIVERSITY***

**PHD COMPLETION IN CANADIAN UNIVERSITIES:
FINAL REPORT**

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**Frank J. Elgar
Dalhousie University, Halifax, Nova Scotia, Canada
tel: (+01) 902 429 6917 e-mail: fjelgar@dal.ca**

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EXECUTIVE SUMMARY

Retention and completion times in PhD programs is an issue of shared interest by university professors, students and administrators. It takes considerably longer today than 30 years ago to complete the PhD degree and only about half of all students who enter PhD programs in Canada actually complete. This report reviews the available data on times-to-completion and completion rates in Canadian PhD programs, and presents the results of a survey of graduate deans on output statistics maintained on PhD programs, perceived problems in times-to-completion and completion rates, and steps taken toward helping students complete PhD programs in a timely fashion. The results of this survey indicate that the majority of deans do not maintain such statistics, that they tend to perceive that they have higher completion rates and shorter times-to-completion than other universities, and they tend to prefer external reform (e.g., increasing public funding to universities) over internal reform (e.g., changing degree requirements). Remedial change is recommended along with directions for further research. Central to these recommendations is the establishment of a national database of times-to-completion and completion statistics in graduate programs and collaborative development of quality and productivity standards for graduate training by the Canadian Association of Graduate Schools, Graduate Students' Association of Canada, and Canada's major research councils. Other recommendations include outlining the rights and responsibilities of graduate students and their supervisors, augmenting the structure of PhD programs, and improving thesis support services at universities.

INTRODUCTION

Each year, more than 100,000 students enrol in masters and doctoral programs at over 40 universities across Canada (Canadian Association for Graduate Studies [CAGS], 2001a). It is unclear how many of these students are aware of the length of time it normally takes to finish a doctor of philosophy (PhD) program or how many of them are likely to complete the degree. It is widely recognised that completion rates and times-to-completion “relate directly to the quality of the graduate education experience” (CAGS, 2001b, p. 19), but it is unknown how many universities actually have such information to provide to students. Data on the capacity of universities to train PhD students are needed in order to set productivity standards for graduate education. However, aside from anecdotal reports, there is scant information available on (1) the degree to which senior administrators of graduate studies are concerned with or aware of completion rates and times-to-completion in the PhD programs they oversee and (2) what steps they have taken to improve these outcomes.

The objective of this report was twofold. The first objective was to review completion rates and times-to-completion in Canadian PhD programs and to interpret these data in the context of historical, social and economic factors that shape the degree itself. The second objective was to collect and present new data from a survey of graduate deans that assessed, among other things, whether deans could generate statistics on completion rates and times-to-completion in the PhD programs they oversee, and what initiatives (if any) have been implemented at their universities to help students complete their programs in a timely fashion. An integrative discussion of these two data sets is then presented with recommendations for future research and educational change in graduate studies.

I. REVIEW OF THE LITERATURE

History of the PhD. The doctor of philosophy (PhD) degree is widely recognised as the most important postgraduate qualification for graduates wishing to pursue academic and research careers but not much is known about its history. The PhD is actually quite new to Canada compared to other postgraduate degrees. It derives from Germany and was imported to North America during the

19th century when new scholars in the U.S. took faculty positions upon their return and brought with them the German emphases on freedom of thought, intensive research, and the reporting of results (Cude, 2001). These ideals became the cornerstones of the PhD as the degree took hold in North American universities during the late 19th century. The first PhD awarded in North America was at Yale University in 1860.¹ Following the Yale example, other universities throughout the United States and Canada established PhD programs by the turn of the century, and by the 1960s, the degree was available in universities across Canada.

The basic elements of the PhD have not changed much since its inception at Yale University. With some variation among disciplines and institutions, the degree still requires (1) specialised courses with a minimum residency of one year and at least two or three years of doctoral enrolment, (2) a qualifying or comprehensive examination, (3) a dissertation of original research and (4) a public, oral defense of this research. There has long been debate about the necessity of each of these elements, but none has been dropped. Some contend that each of these components is necessary to cultivate research skills and research mentality and thus cannot be taken away without compromising the quality of the degree (Buchanan & Herubel, 1995). There is also reluctance from humanists who follow the traditional “magnum opus” format for the PhD thesis (Monaghan, 1989). However, advocates for reform express a more critical view of the PhD, questioning the necessity of the thesis now that there are many more peer-reviewed journals available to publish students' research than during the 19th century and the adequacy of PhD training to foster creativity and prepare future professors (Buchanan & Herubel, 1995, Monaghan, 1989).

The 1960s and 1970s was a time of rapid growth for universities and was also a time when concerns began to emerge then about the long and lengthening periods of time required to attain the PhD and about the many students who were leaving graduate school before completing the degree. These issues posed serious challenges to universities at a time when new professors were in high demand to handle the rapid growth in student enrolments. Graduates of new masters programs and alternative doctoral programs (e.g., doctor of arts) entered the ranks of future professors but the demand for PhD graduates continued to grow (Dressel & Thompson, 1977).

¹The first recipient, James Morris Whiton, took just one year of postgraduate study and submitted a six-page dissertation on the Latin proverb, “Brevis vita, ars longa.”

A growing appetite for PhD graduates. The last decade was a trying one for Canadian universities, with new pressures to reduce expenditures and to control rising student tuition fees. In just one decade, between 1991 and 2001, university revenues from government funding fell from 69 to 55% while revenues from student fees rose from 12 to 19% (Statistics Canada, 2002). Tuition fees alone increased an average of 8% each year since 1991 while stipends and fellowships to graduate students remained stagnant, shifting the financial burden of postgraduate studies onto the backs of students (Junor & Usher, 2002; Statistics Canada, 2002). The variability that now exists between universities in PhD tuition suggests that some universities (and provinces) have been able to protect students from this trend while others clearly have not (see Table 1). This change in how graduate education is financed in Canada has inevitably led more students to incur crippling debt loads and to seek employment before degree completion (CAGS, 2001b).

Table 1
Annual tuition costs at five Canadian universities (full-time PhD)

McGill University	\$1,668.30
University of British Columbia	\$2,165.01
University of Saskatchewan	\$5,295.01
University of Toronto	\$5,630.75
Dalhousie University	\$6,201.00

Source: 2001/02 University Course Calendars. Cited by CIHR, 2002; reproduced with permission.

Today, amidst a trend towards the privatisation of Canada's universities, the demand for PhD graduates continues to grow. One source of such demand is private sector industry. The PhD degree (appropriately or not) has become the premier job qualification in non-academic sectors. In fact, some 60 to 70% of all PhD graduates in Canada work outside universities (Association of Universities and Colleges of Canada; AUCC, 2002). 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.

Second, with a deluge of faculty retirements over the next decade, there is a concerted effort to train future professors. The Association of Universities and Colleges of Canada (AUCC, 2002) reported that despite a projected 30% increase in university student populations over the next decade, and the fact that one third of all faculty are now over the age of 55 and face mandatory retirement by the end of the decade, PhD enrolment has grown little since 1994, and doctoral degree production has remained constant since 1997. The AUCC warns that the number of PhDs produced in Canada is

insufficient to meet the faculty renewal needs of its universities (AUCC, 2002).

Third, to make any progress in meeting the human resource needs of academic and non-academic sectors, Canadian PhD production must outpace a “brain drain” of graduates to other countries. A Statistics Canada study of post-secondary graduates showed that 12% of PhDs and 3% of masters graduates moved to the U.S. alone (Statistics Canada, 2000). Nearly half of these movers ranked themselves near the top of their graduating class in their field of study and those who left were more likely to have received scholarships or other academic awards than their counterparts who stayed. Of the over 4,600 post-secondary graduates from the class of 1995 who moved to the United States, 15% had a master’s degree and 8% held a doctorate. In contrast, among graduates who stayed in Canada, 7% had a master’s degree and only 1% had a doctorate (Statistics Canada, 2000).

Because universities are under greater pressure today, compared to three decades ago, to control expenses while training more PhDs, one may expect to find a concerted effort among the administrative ranks of graduate education to use resources as frugally as possible and to take steps to ensure that as many PhD candidates as possible finish their degrees in a timely fashion. There is an urgent need for optimal retention of PhD students such that the majority of students who enter programs succeed in completing the degree. Why then do these programs lose nearly half of all incoming students before graduation? Why does it take longer to complete the PhD today as compared to three decades ago?

War of attrition. In contrast to the PhD degree that was imported to North America over a century ago, the ideal of three years from bachelors to doctorate is now nearly impossible for students to achieve. Most PhDs in Canada are conferred after 7 to 9 years of study after the bachelor's degree (CAGS, 1997).² Median time-to-completion of the PhD has nearly doubled during the last three decades (from 6.5 to 11 years). Furthermore, lengthening times-to-completion coincide with falling completion rates, which now hover around 50% in most disciplines and even lower in the arts and humanities (Baird, 1990). Despite a century of experience with recruiting students and developing

²Time-to-completion includes, in most cases, a master's degree and is based on *registered* time-to-degree, or the number of semesters enrolled at a university, not accounting for temporary leaves of absence. *Total* time-to-completion is normally two to three years longer (see Figure 5).

postgraduate curricula, universities struggle to retain even half of its PhD trainees.

The most recent statistics on completion rates in Canadian programs were collected by the Canadian Association for Graduate Studies (CAGS) from a 4-year cohort of students who entered masters and doctorate programs at member universities between 1985 and 1988 (CAGS, 1997). CAGS followed over 52,000 students until they all left their program, with or without the degree. These data were the first their kind in Canada but they elicited very little discussion and almost no media coverage – possibly because the report conspicuously lacked any sort of summary table or figure or any interpretation of what the data meant. The CAGS (1997) report included only raw tables of data on completion rates and times-to-

completion parsed by program, sex, and full-time/part-time studies.

Therefore, to facilitate the interpretation of this data, they are compiled in this report to better portray overall completion rates and times-to-completion in masters and doctoral programs in each of the four CAGS classifications (arts and humanities, social sciences, natural and applied sciences, and life sciences).

As can be seen in Figure 1, more masters than doctoral students in the 1985-88 cohort completed their programs. However, fewer than half of all students who entered arts and humanities doctoral programs (44.7%) and social sciences doctoral programs (48.5%) completed their programs. By comparison,

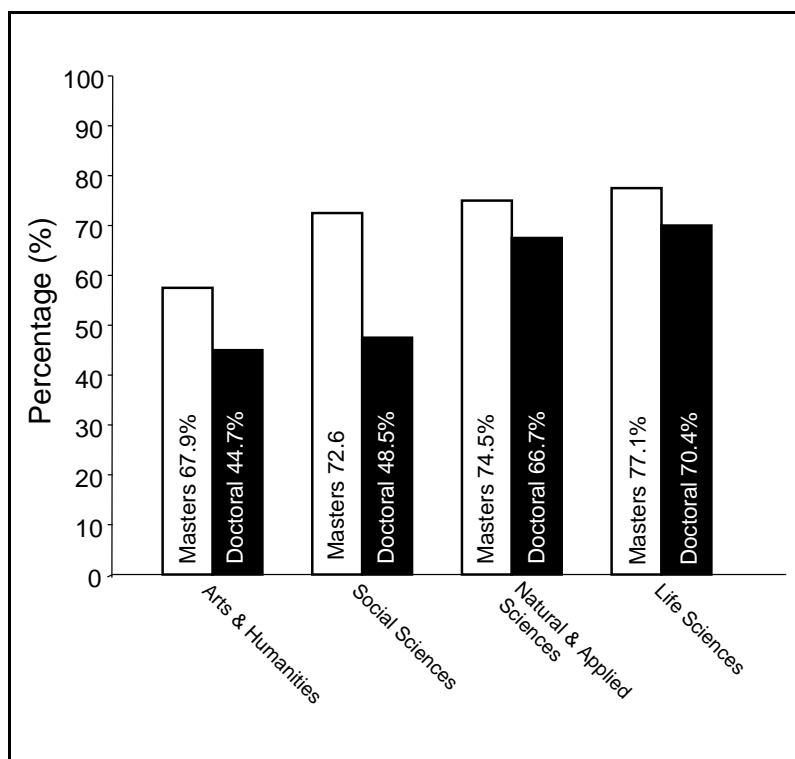


Figure 1. Completion rates in masters and doctoral programs in Canada for the 1985-88 cohort (N = 52,402).

approximately two-thirds of students who entered doctoral programs in the natural and applied sciences (66.7%) and life sciences (70.4%) completed. As bleak as these figures may seem, because they include data from all postgraduate programs (including highly-structured professional degrees such as the MBA, MD, and EdD), they are quite likely an *overestimate* of completion rates in thesis-based PhD programs. Therefore, to more accurately portray completion rates in PhD programs, 16 disciplines were selected from each of the four CAGS classifications. In Canada, doctoral programs in these 16 disciplines currently include only the PhD degree, and based on student enrolment, they were the largest doctoral programs in each classification. In all 16 disciplines, with the exception of Biochemistry, more students completed master's programs than doctoral programs (see Figure 2). The lowest PhD completion rates were in the arts and humanities programs (English 39.6%, History,

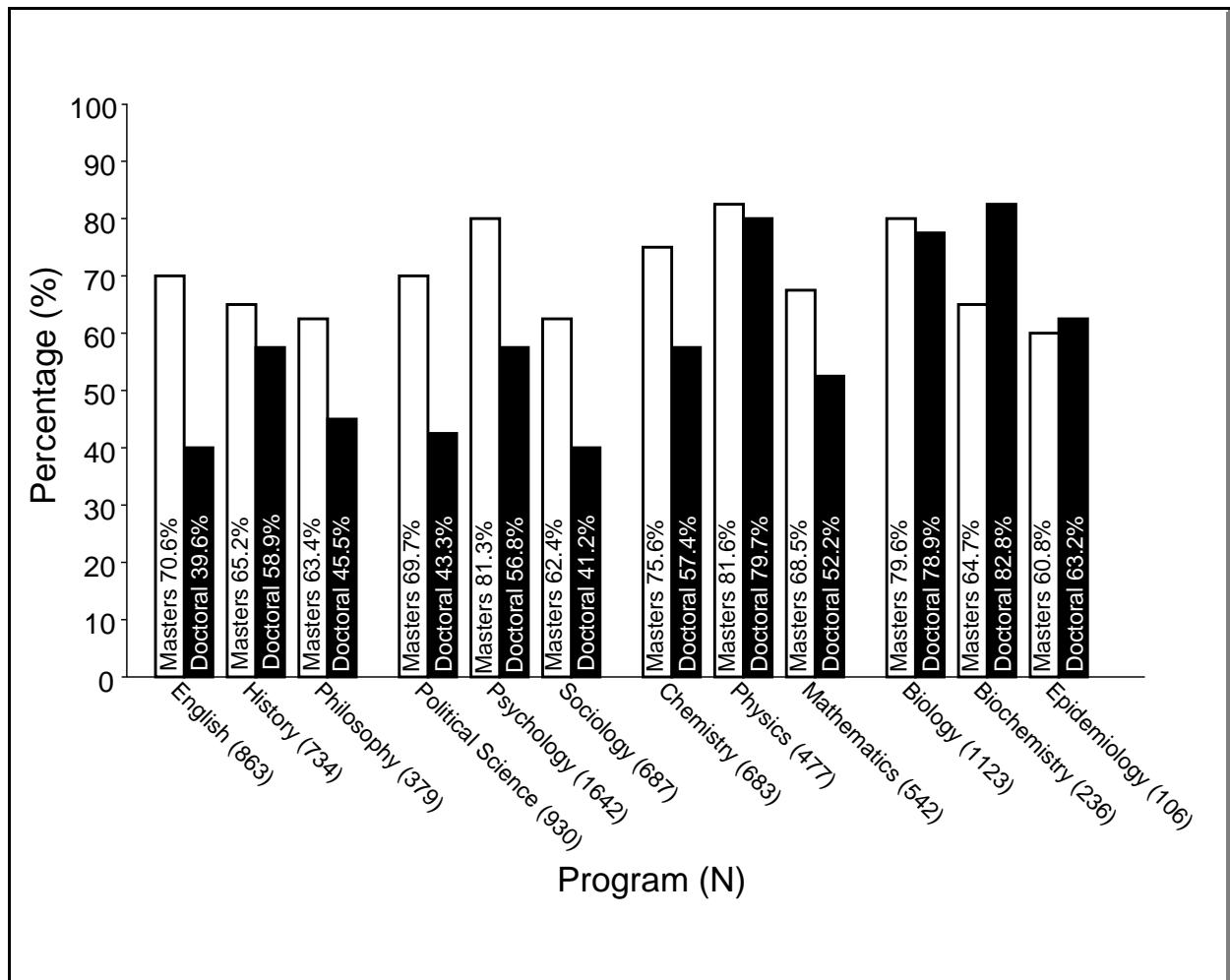


Figure 2. Mean completion rates for masters and (PhD) doctoral programs in selected disciplines (N = 14,402).

58.9%, Philosophy 45.5%). There was marginally higher completion in the social sciences (Political Science 43.3%, Psychology 56.8%, Sociology 41.2%). The highest completion rates were in the life sciences (Biology 78.9%, Biochemistry 82.8%, Epidemiology 63.2%).

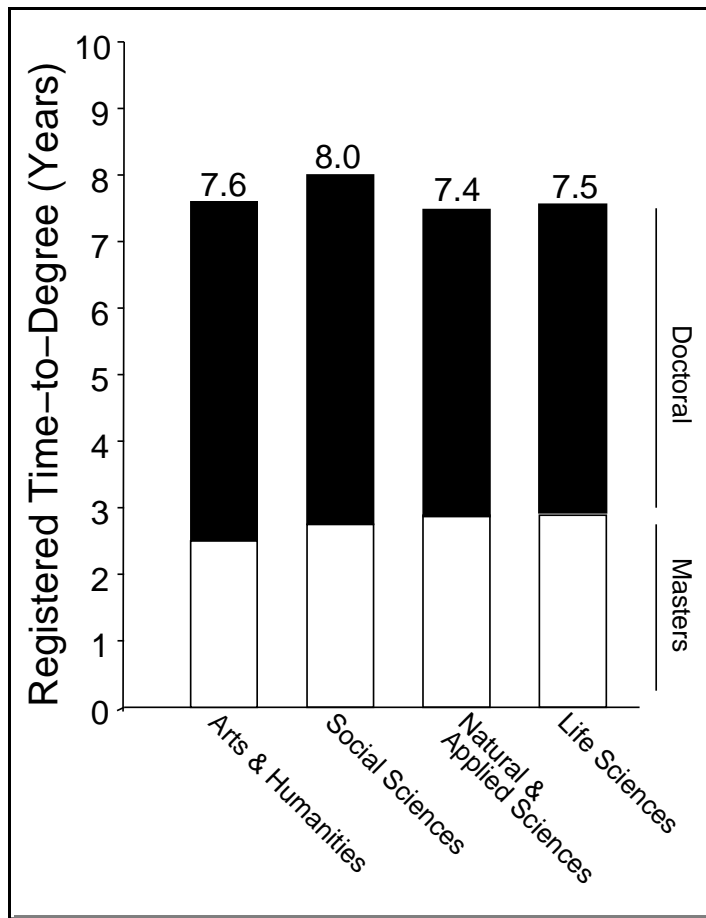


Figure 3. Mean registered time-to-degree in masters and doctoral programs (N = 52,420).

Attrition of students during the early years of PhD programs should not be considered problematic, as some students, quite appropriately, leave once it is apparent that their work is unlikely to meet acceptable standards in their disciplines. However, the painfully slow attrition of all-but-dissertation (ABD) students that occurs years after all other program requirements are successfully completed is expensive to universities and exerts a significant toll on students and their career prospects. Unfortunately, statistics on when dropout tends to occur is lacking for Canadian universities. Data on times-to-completion of the successful finishers are available, however, and they reveal a long (and lengthening) road to the PhD.

The Long Road. The CAGS (1997) cohort study of completion rates is currently the most comprehensive assessment of times-to-completion for graduate programs in Canada. By collapsing the data on completion times across masters and doctoral programs, one finds mean times of about 3 years for masters programs and 4 to 5 years for doctoral programs (see Figure 3). It should be noted that these figures reflect only *registered* time-to-degree, not *total* time-to-degree. Therefore, they do not account for temporary leaves of absence from study or for time off between degrees. Data from the United States has shown that total time-to-degree is considerably longer than registered time-to-

degree (National Research Council, 1995). Because a masters degree is a prerequisite for *most* doctoral programs, times-to-completion data from masters and doctoral programs were summed. Of course, masters programs are not required for all doctoral programs, as some students enter doctoral programs directly from undergraduate programs, or “fast-track” after a year or so masters-level study. For this reason, this configuration of the data may exaggerate the true registered time-to-completion of the doctorate.

As in Figure 1, the data shown in Figure 3 were from all doctoral programs and not just the PhD. Therefore, times-to-completion data from the 16 selected masters and (PhD) doctoral programs were compiled and displayed in Figure 4. Times-to-completion of thesis-based masters plus PhD degrees

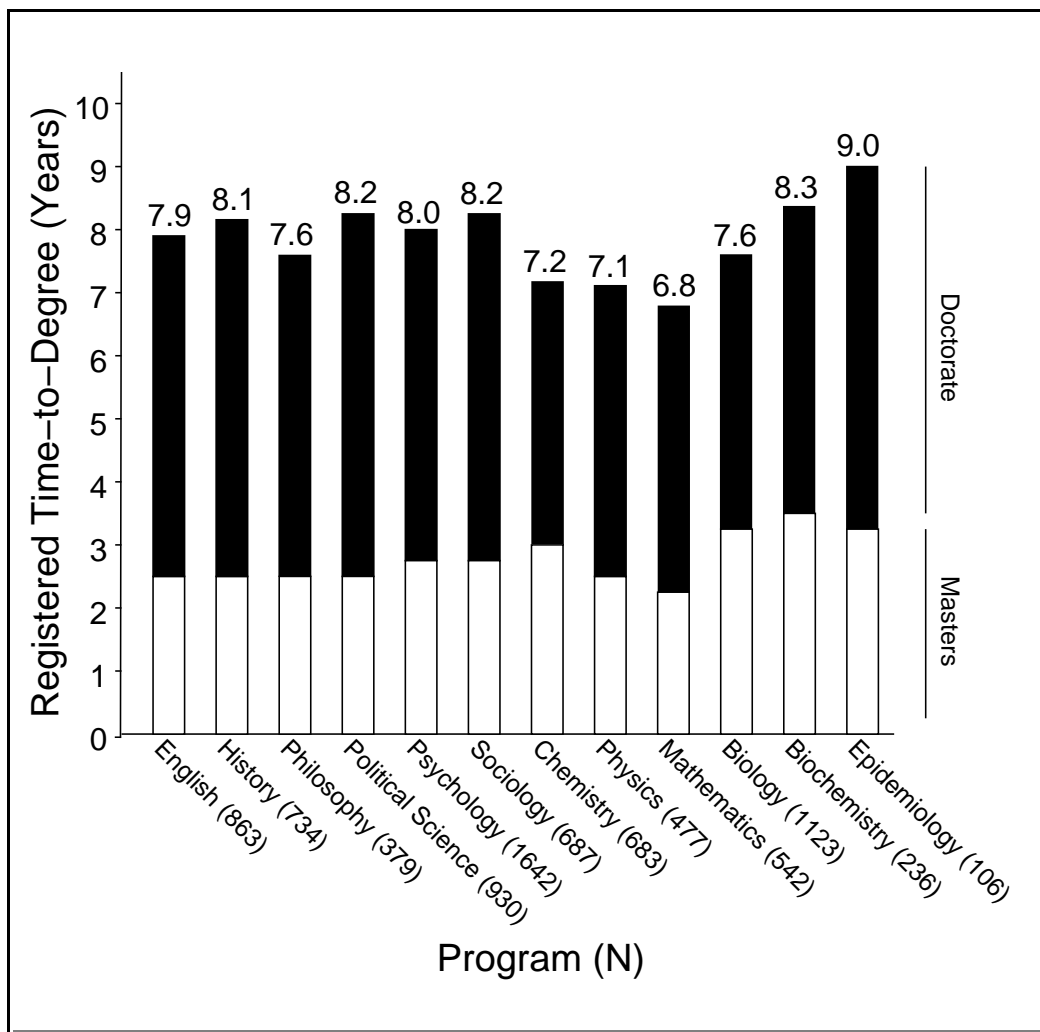


Figure 4. Mean registered times-to-completion in selected masters and doctoral programs (N = 14,402).

was shortest in the natural and applied sciences – Mathematics (6.8 years), Physics (7.1 years), and Chemistry (7.2 years) – and longest for programs in social science – Sociology (8.2 years), Political Science (8.2 years) and Psychology (8.1 years).

The CAGS (1997) report on time-to-degree was the first of its kind in Canada, so it is not yet possible to determine whether times-to-completion of Canadian PhD programs are changing over time. However, reports from the National Research Council in the U.S. provide clear evidence that mean time-to-degree in PhD programs is increasing – particularly in the arts, humanities and social

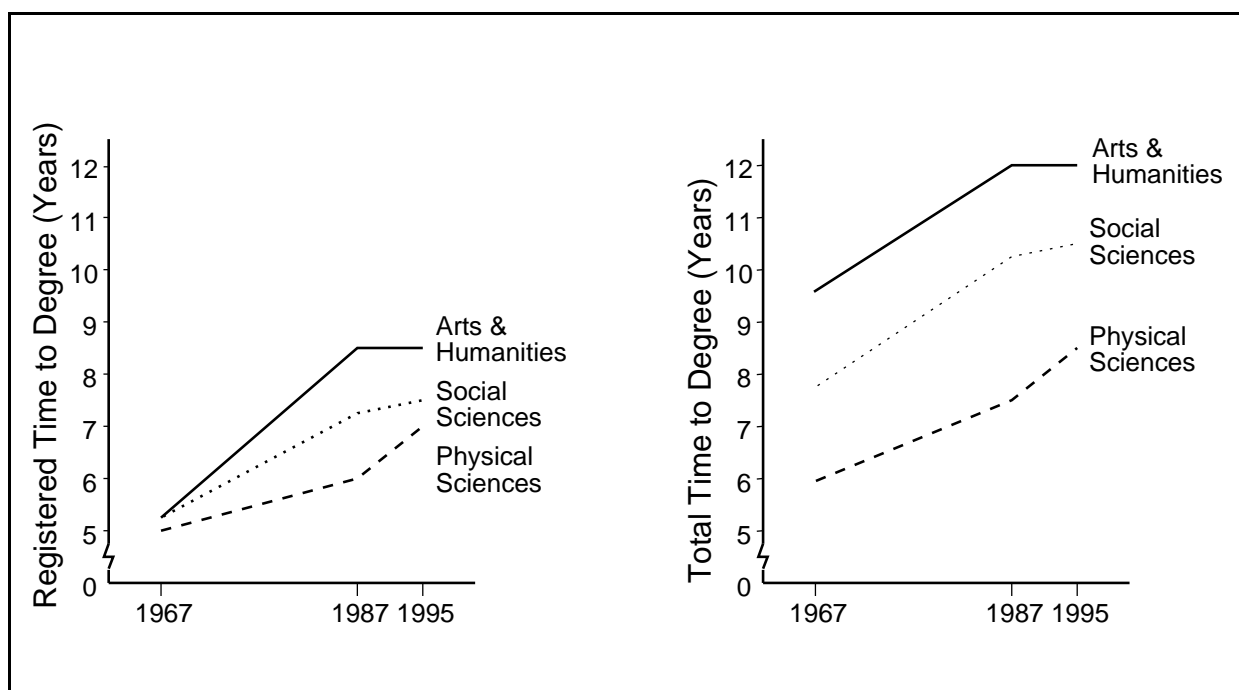


Figure 5. Mean registered and total time-to-degree in PhD programs in the United States (1967-1995).

sciences. Data from two National Research Council reports, Coyle and Thurgood (1989) and Henderson, Clarke, and Reynolds (1996), on trends in times-to-completion in PhD programs in the U.S. are summarised in Figure 5. The U.S. data show a 30% increase in times-to-completion over the last three decades. Accordingly, these studies also found that the age of PhD recipients has increased but also varies widely across disciplines. For example, in 1995, the median age of PhD recipients in Chemistry was 29 years. In Education, where it is common to see teachers returning to university to upgrade their training, the median age of PhD recipients was 39.8 years (Henderson et al., 1996). Given that PhD programs in Canada were modeled from (and are still similar to) PhD

programs in the U.S., it is reasonable to expect that similar lengthening of times-to-completion has occurred in Canada. As seen by comparing Figures 4 and 5, registered time-to-completion are about equal in Canadian and American PhD programs.

The PhD Trap. The data on completion rates and times-to-completion show that PhD students in the natural sciences, compared to those in the arts, humanities and social sciences, are more likely to complete the degree and tend to do so within a shorter time period. This is a trend, found in Canadian and U.S. data, may be attributed to basic academic distinctions between disciplines. Graduate study in the natural and life sciences, compared to arts and humanities, is typified by more external grant funding, more cohesive and competitive of research environments, and more frequent contact between students and supervisors. These advantages are characteristic of most disciplines where there is ample funding for student stipends and a direct link between the student's research activities and the career goals of the supervisor (National Research Council, 1995).

Taken together, however, these data portray a rather inefficient system of training PhDs that some have labelled the “PhD Squid” (Ziolkowski, 1990) or “PhD Trap” (Cude, 2001). Although there have been many important advances in the quality of PhD training over the last century, there is clearly room for significant improvement in completion rates and times-to-completion. There is a lack of empirical research and constructive debate on the causes and consequences of high rates of PhD student attrition, but it is evident that such losses are wasteful of campus resources and deleterious to students (Evangelaue, 1989; Kerlin, 1995; Tuckman, Coyle, & Bae, 1990). Low completion rates deter prospective graduate students, thus creating long-term staffing and academic consequences, and long times-to-completion reduce the time graduates may potentially spend in gainful employment, which is particularly hurtful in an era of crippling student debt loads.

To illustrate how these effects may operate, consider the typical new graduate student in an English department who has just completed a four- or five-year honours undergraduate degree. She already carries student debt load of over \$21,000 (Junor & Usher, 2002), but must take out more loans to cover living expenses because for the past decade at her university, tuition increased 76% while student stipend levels have remained stagnant (Junor & Usher, 2002). This student begins postgraduate studies, probably unaware that the likelihood of her finishing the PhD is below 40%

(Figure 2), that even if she does finish, she will likely take more than three years to complete the two-year masters program and another five years to finish the PhD (Figure 4), that she will be ineligible for most fellowship awards throughout the second half of her program (Canadian Institutes for Health Research, 2002; Natural Sciences and Engineering Research Council of Canada, 2002; Social Sciences and Humanities Research Council, 2002), and that the mean times-to-completion for students in her program might increase by as much as 10% during the course of her studies (Coyle, & Thurgood, 1989). It is worth considering whether this student would have even entered graduate school had she been aware of the obstacles ahead.

ABD Syndrome. The existing research literature on PhD completion difficulties has identified several factors that contribute to the “ABD syndrome,” including inadequate supervision, unmanageable thesis topics, unsustainable funding of student stipends, and inadequate thesis structure and support (e.g., Association for Support of Graduate Students, 1993; Hahs, 1998; National Research Council, 1995; Ramos, 1994; Tluczek, 1995). In an era of eroding campus services, it is not clear how to respond to these issues. Even the demographic profile of ABD students has changed dramatically in recent years. As Smith (2000) describes, most ABDs are in their mid-30s or early-40s, most are married or in a relationship with at least one child, 70% are employed in areas unrelated to their discipline, and most live too far away from campus to meet regularly with professors or to utilise campus services. They are burdened with multiple commitments, live a non-commutable distance from campus, and poor. As Ziolkowski (1990) notes, in light of the social and economic plight of ABD students, it should not be surprising that most report feeling isolated and “left behind.”

Other contributing factors in PhD completion difficulties that have been identified pertain to personality traits and work habits of the student (e.g., Ramos, 1994; Tluczek, 1995). Indeed, not all students have the self-discipline required to adjust from highly-structured undergraduate studies to less structured (or sometimes chaotic) graduate studies. Personal and social factors do influence students’ ability to complete the PhD, and these are important to consider in designing PhD curricula. However, a research literature that has considered only the link between personal and social characteristics of students and PhD completion rates carries with it an assumption that institutional factors may not matter, that high student attrition and long times-to-completion are a necessary cost to graduate studies, and that “students who have difficulty finishing should simply accept their

responsibility and get the job done” (Smith, 2000, p. 7). Research on student personal and social factors has led to modest improvements (if any) to admission requirements, program structure and supervision practices. However, studying institutional factors that relate to thesis completion outcomes may help identify areas for educational reform. One such institutional factor that is the focus of the present report is the knowledge and beliefs of graduate deans regarding PhD completion.

A number of provocative critiques have emerged in recent discussions of factors contributing to low completion rates and long times-to-completion in PhD programs. Among these charges is a pervasive indolence among the high ranks of university administration towards poor and worsening trends in PhD production (e.g., Cude, 2001; Smith, 2002). Although this attack is generally unsubstantiated, it does speak to an undercurrent of unease with trends such as those shown described above. Examples include Smith's (2002) fiery article in IMP Magazine, *Done is better than perfect: The current crisis in US higher education, its multiple consequences, and the universities' unwillingness to fund a possible solution*, and Cude's (2001) critique, *The PhD Trap*, which outlines a series of failures on behalf of universities to reform graduate studies. While there is insufficient evidence to prove such charges, there is also insufficient evidence to reject them outright. Smith and Cude introduce an important question that have not been addressed by higher education policy researchers: to what degree are senior administrators of graduate schools concerned with completion rates and times-to-completion in the PhD programs they oversee, and is this concern linked to special program characteristics or support programs that are designed to aid students? To fairly study such questions, one must also assess the extent of deans' knowledge about PhD completion outcomes. Smith and Cude both overlook a key distinction between inaction due to lack of awareness and wilful neglect of a well-known problem.

II. SURVEY OF GRADUATE DEANS

Study objectives. The notion that administrators are dissatisfied with trends in PhD completion is certainly not new, but is based primarily on anecdotal reports (e.g., *Graduate deans unhappy about time taken to finish degrees*, 1988; *Graduate student conundrum*, 2003). There is a lack of research on this population and a specific lack of data on the prevalence and nature of such dissatisfaction. A survey of graduate deans was conducted to address this issue. The goals of the study were:

- to determine whether graduate deans could report completion rates and times-to-completion in PhD programs at their universities;
- to examine the degree to which these administrators perceived completion rates and times-to-completion in PhD programs to be problematic;
- to evaluate the initiatives (if any) their universities have undertaken during the past decade to help PhD students finish their programs in a timely fashion;
- to solicit suggestions for other changes they felt were needed to improve productivity outcomes in PhD programs;

A survey questionnaire was constructed to address these objectives and was distributed to all graduate deans in Canada and to a comparison sample of graduate deans in the United States and the United Kingdom. Previous studies and policy reports did not lend themselves to firm research hypotheses. Still, it was expected that most deans would be able provide data on (or at least estimate) completion rates and times-to-completion and would show a general concern about low PhD completion rates and lengthy times-to-completion. Whether a link would be found between such concern and actual change to graduate programs (either already implemented or desired) was unknown.

METHODS

Participants. Survey participants were senior administrators (deans, vice chancellors, or vice presidents) of graduate studies in universities in Canada, the United States, and the United Kingdom. In all, 168 institutions were invited to participate, including all 48 Canadian universities with

graduate programs plus 120 randomly selected universities in the United States and United Kingdom with graduate programs. The Canadian sample was identified using the CAGS online membership directory (<http://www.cags.ca>). A sample of 60 American universities, stratified by student enrolment, was obtained using the online membership list of the Council for Graduate Schools (<http://www.cgsnet.org>). This list was sorted by student enrolment divided into equal quadrants and 15 universities were randomly selected from each quadrant. Likewise, a list of universities in the United Kingdom with graduate programs was obtained from the online membership list of United Kingdom Council for Graduate Education (<http://www.ukcge.ac.uk>). A random sample of 60 universities, stratified by graduate student enrolment, was selected using the same procedure as with the American sample. A list of the universities contacted is provided in Appendix A.

Survey Questionnaire. Two focus groups including a total of ten graduate students, three postdoctoral research fellows and two faculty members from Dalhousie University (Halifax, Canada) met to discuss factors relating to PhD completion difficulties and what may be done to address them. The purpose of these discussions was to develop items to use in a mail-in survey questionnaire. Responses were organised around four main themes: (1) awareness of and concern for completion rates and times-to-completion in PhD programs, (2) changes made to PhD programs, (3) attitudes towards other changes to PhD programs, and (4) whether completion outcomes was perceived as a significant challenge facing PhD programs. The survey questionnaire that resulted from the focus groups is included in Appendix B.

Procedure. Using the Total Design Method (Dillman, 1978), the questionnaire was mailed to the senior administrator (dean, vice chancellor or vice provost) responsible for all graduate programs at each university. These individuals were identified using university web pages and online academic calendars. Three weeks after the initial mailing, e-mail or postcard reminders were sent to all nonresponders. Six weeks after the initial mailing, a second copy of the survey questionnaire was mailed to all nonresponders. Finally, nine weeks after the initial mailing, an e-mail or telephone call was used to contact nonresponders. This procedure was carried out during the Summer and Fall of 2002.

RESULTS

Response rates to the survey were 24/48 (50.0%) in the Canadian sample, 19/60 (31.7%) in the United States sample and 16/60 (26.7%) in the United Kingdom sample. Reasons for not participating were received from 11 institutions. These reasons included not having the time or resources to provide data ($N = 7$), not having PhD programs ($N = 3$), and lack of involvement in the study design or questionnaire composition ($N = 1$). No differences were found between responding and nonresponding institutions in graduate student enrolment or total operating budgets.

Awareness of completion outcomes. When asked whether or not they kept updated statistics on completion rates in all PhD programs, 62.5% of respondents indicated yes, including 60.9% of Canadian respondents, 42.9% of the American sample, and 84.6% of the British sample. Differences in these proportions across the three samples were marginally significant, $\chi^2 (df = 2) = 5.3, p = .07$. However, when specifically asked, only 32.1% of the sample provided actual completion percentages. Another 8.9% indicated that their completion statistics are either more than 10 years old or not available on all PhD programs and 28.9% indicated that they do not keep any completion statistics.

When asked whether their office kept updated statistics on times-to-completion in PhD programs, 67.4% indicated yes, including 50.0% of Canadian respondents, 76.9% the American sample and 81.8% of the British sample. The difference in these proportions between the Canadian sample and the American and British combined sample was significant, $\chi^2 (df = 1) = 5.1, p < .05$. Also, 6.0% reported that times-to-completion statistics were available for some of their programs and 34.0% indicated that no such statistics were available.

When asked about the proportion of PhD students at their university who receive funding, 39 deans responded with a mean of 65.5% ($SD = 26.4\%$). There was a marginal difference in the percentage of funded PhD students in Canada (73.6%) as compared to the U.S. (65.7%) and U.K. (53.1%) combined, $F(1, 35) = 2.96, p = .09$. It was also found (albeit with limited data) that the percentage of funded PhD students predicted overall completion percentages ($\beta = .65, p < .01$), accounting for 65% of the variance. No relation was found between completion percentages and either the number of PhD students at the university or tuition costs. However, the number of PhD students at the

university did predict times-to-completion ($\beta = .56, p < .05$), accounting for 31% of the variance, but neither the percentage of funded PhD students nor tuition costs predicted times-to-completion.

Another item on the survey asked participants whether funding from research and training grants were contingent on how efficiently they produced PhD graduates. There was significant variation between samples whereby more deans from the U.K. indicated that external grants were linked to PhD completion rates: 15.0% (Canada), 30.0% (U.S.), 72.7% (U.K.), $\chi^2 (df = 2) = 10.6, p < .01$. Whether or not research funding was contingent on PhD completion rates was unrelated to either reported completion rates or times-to-completion.

Appraisal of completion outcomes. When asked how much of a problem they perceived attrition percentages to be at their university, respondents gave mean rating of 2.71 ($SD = .91$) on a 5-point scale that ranged from 1 = not at all to 5 = very much. This rating was unrelated to deans' estimated completion rates, $r(46) = -.22, p = .32$. Using the same scale to rate how much of a problem they perceived times-to-completion in PhD programs was at their university, respondents gave a mean rating of 2.89 ($SD = .86$). Similarly, this rating did not correlate significantly with estimated times-to-completion, $r(15) = .15, p = .60$. There was a tendency for respondents to perceive their university to have higher completion rates and faster times-to-completion than other universities. On a 5-point scale ranging from 1 = much worse to 5 = much better, respondents gave mean rating of 3.46 ($SD = .85$) for their relative PhD completion rate and 3.22 ($SD = .46$) for their relative PhD time-to-completion. Comparisons of Canadian, American and British participants showed no differences in these appraisals either between samples or as a function of whether they claimed to actually keep completion statistics.

Institutional responses. Most respondents agreed to an item that stated, "during the past decade, has your university taken steps to help PhD students complete their programs in a timely fashion?" – 100% (Canada), 85.7% (U.S.), 100% (U.K.). Differences were found in the types of initiatives taken by Canadian, American, and British universities. As shown in Table 2, most Canadian and American universities increased funding to students and established supervision guidelines, but most American universities also established thesis-writing workshops for students. Most British universities held thesis-supervision workshops for professors, but this was uncommon in Canada and the U.S.. There

were other international differences in funding increases for students and thesis completion fellowships.

On other survey items, it was found that fewer deans from Canada (13.6%) reported that their universities have thesis support groups than deans from U.S. (45.5%) and the U.K. (36.4%),

Table 2
Number of deans that have taken initiatives to help PhD students finish (%)

<i>Type of Reform</i>	<i>Canada</i>	<i>U.S.</i>	<i>U.K.</i>	χ^2
Increased funding to students	15 (75.0)	6 (50.0)	3 (23.1)	8.6**
Offered incentives to finish "on time"	3 (15.0)	1 (8.3)	4 (30.8)	2.3
Thesis completion fellowships	8 (40.0)	6 (50.0)	0 (0.0)	8.6*
Thesis support groups	2 (10.0)	4 (33.3)	2 (15.4)	2.9
Thesis-writing workshops	6 (30.0)	7 (58.3)	8 (61.5)	4.0*
Thesis-supervision workshops	8 (40.0)	1 (8.3)	11 (84.6)	15.0**
Set supervision guidelines	14 (70.0)	7 (58.3)	11 (84.6)	2.1
Policies setting supervision standards (e.g., student grievance procedures)	15 (75.0)	6 (50.0)	11 (84.6)	3.6
Revised program/thesis requirements	11 (55.0)	6 (50.0)	3 (27.3)	2.3

* $p < .05$. ** $p < .01$.

$\chi^2(df = 1) = 4.13, p = .04$. Similarly, fewer deans from Canada (33.3%) indicated that their universities offer thesis-writing workshops at their university than deans from the U.S. (69.2%) and the U.K. (81.8%), $\chi^2(df = 1) = 7.9, p < .01$.

Future change. Respondents were asked to rate their level of agreement to a list of ten potential areas of reform to PhD studies, including how granting agencies fund trainees, the structure of their

own graduate programs, and public influences. Mean and ranked agreement with these changes are shown in Table 3. Across all three samples, the most highly-rated strategy was increased public funding of universities. The lowest-rated strategies were changes to PhD programs themselves (i.e., reduction in program requirements, student contracts to set the duration of PhD studies, and replacement of the thesis with peer-reviewed work of equal standards). Moderate support was found for changing the involvement of granting agencies in PhD training – particularly the development of quality standards for supervision and productivity standards for completion rates and times-to-

Table 3
Mean levels of endorsement for changes to PhD training (SD). †

<i>Type of reform</i>	<i>Canada</i>	<i>U.S.</i>	<i>U.K.</i>	<i>Overall Rank</i>
<i>Granting councils</i>				
Extend eligibility period for external awards.	3.9 (2.0)	3.5 (1.4)	4.6 (1.7)	5 th
Award thesis completion fellowships to students beyond fourth year of study.	3.6 (2.2)	5.00 (1.6)	3.1 (1.8)*	6 th
Establish quality standards for PhD supervision.	5.9 (1.2)	5.9 (1.2)	6.2 (.87)	2 nd
Establish productivity standards for completion rates and times-to-completion.	4.8 (1.7)	4.9 (1.9)	5.4 (1.5)	3 rd
Promote productivity standards by awarding more grants to universities that achieve them.	3.7 (2.2)	4.4 (1.9)	4.7 (1.8)	4 th
<i>Local Change</i>				
Reduce PhD program requirements.	3.5 (1.7)	2.9 (1.6)	1.5 (1.0)**	9 th
Replace the thesis with peer-reviewed work of equal standards.	2.7 (1.8)	2.8 (1.8)	2.0 (1.9)	10 th
Use student contracts that set the duration of PhD studies.	3.5 (1.8)	2.7 (1.7)	3.9 (2.2)	8 th
<i>External Change</i>				
Greater public scrutiny of costs associated with high attrition in PhD programs.	3.9 (1.6)	3.0 (2.2)	3.8 (1.6)	7 th
Increase public funding to universities.	6.3 (1.2)	5.9 (1.3)	6.6 (.9)*	1 st

†Response scale: 1=not at all, 4=neutral, 7=very much.

* $p < .05$. ** $p < .01$.

completion. Moderate support was also found for extending periods of eligibility for student fellowship awards and for thesis completion fellowships awarded to ABD students beyond their fourth year of study.

Qualitative data. In addition to fixed-response questions that were used to assess levels agreement with potential changes to PhD training, data were also collected from open-ended items that asked deans to describe other desired changes. In response to a question about other change in how granting agencies fund trainees, 16 responses were received of which all expressed a need for increases in either the amount, number, or duration of external awards. In addition, two deans indicated that more awards were needed for masters-level students as well as PhD students, and one dean recommended that granting councils award “early completion bonus payments” to students.

Twelve deans responded to a question about other local changes in PhD programs at their own universities. The majority of these wanted better training and incentives for supervisors and others wanted more of their programs to use apprenticeship models of instruction, better evaluation of students' progress, and feasible alternatives to the traditional dissertation.

Ten deans responded to a question about other external factors that may improve PhD training, expressing a need for more training awards to small universities, more multidisciplinary research centres, more international cooperation, more joint programs with other institutions, and further research on the types of careers that PhD graduates pursue.

Finally, 43 responses were collected from an open-ended question that asked “What do you feel is the single greatest challenge facing graduate programs over the next decade?” Thirty-one deans referred to a lack of funding – either directly to students or to graduate studies and universities in general. Five deans referred to a lack of qualified supervisors or to changes in the composition of teaching faculty (e.g., from tenured professors to part-time instructors). Five deans referred to challenges in integrating technology into graduate programs and in transforming the PhD into a more “work ready” degree that is suitable to non-academic sectors. Four deans indicated that too few graduates were entering the job market while one expressed concern about the overproduction of PhDs. Finally, just two deans referred to poor student retention and long times-to-completion (e.g.,

“getting students out the door to replace retiring professors”).

DISCUSSION

The aim of the survey was to evaluate deans' knowledge of and attitudes towards completion rates and times-to-completion in PhD programs. While the response rate was not as high as was hoped, it was found that the majority of deans who participated showed a lack of knowledge of and access to actual completion statistics in PhD programs at their universities. Consequently, this lack of knowledge may have affected deans' appraisal of completion difficulties in the context of other issues facing graduate education.

Knowledge about completion rates. About one third of graduate deans who responded to the survey were able (or chose) to report completion rates and mean times-to-completion. This proportion was significantly less than those who claimed to have updated statistics available. It is possible that in several of the institutions that participated in the survey, completion statistics are kept but in a fragmented or decentralised fashion and not made available to graduate deans. Also, there were no differences found between deans with and without updated statistics on PhD program completion in terms of how they evaluated completion trends as challenges to their programs. Still, for deans without access to such data and for the 38% of the sample with either incomplete or outdated data or no data at all, it is worth considering whether better information may facilitate better administration. Furthermore, it appears likely that students at the majority of universities that participated in the survey are unable to obtain information on PhD completion rates and times-to-completion from their dean of graduate studies.

Regression analyses revealed that completion rates were higher at universities that funded more of its students and that times-to-completion were longer at smaller universities with fewer PhD students. It can be tentatively deduced from these findings that larger universities that fund more of its students outperform their smaller, poorer counterparts. A cautionary note about these findings is that they are based on a limited number of respondents and it is unknown whether similar relations exist in universities whose deans neither responded to this item of the survey, nor participated in the study altogether.

Beliefs about completion rates. The majority of deans surveyed tended to downplay the significance of completion rates and times-to-completion as serious issues facing graduate studies at their universities. This tendency was demonstrated in deans' above average comparisons of completion outcomes at their universities in relation to other universities. Nonresponders to the survey may have actually had lower completion rates and longer times-to-completion than those who participated. Given this caveat, and the lack of data these deans provided to support their evaluations, appraisals of completion outcomes may have been shaped by a lack of knowledge. Due to just familiarity, graduate deans may perceive issues that they deal with often (e.g., funding) as more important than issues that they hear less about (e.g., times-to-completion). Cognitive psychologists describe this memory bias an "availability heuristic" (Tversky & Kahneman, 1973). As is shown in deans' responses to open-ended questions about challenges facing graduate education, funding – not completion trends – was clearly at the forefront of their list of concerns.

When asked to identify what steps have been taken at their universities to help PhD students finish their programs, most deans reported to have provided supervision guidelines and, with the exception of U.K. deans, increased funding to students. These were encouraging signs, given that funding and supervisor difficulties are common barriers to PhD completion (Association for Support of Graduate Students, 1993; Kerlin, 1995). However, there were differences between Canadian, American, and British samples in other initiatives. Thesis-writing workshops for students were found to be common in the U.S. but not in Canada or the U.K., and thesis support groups and thesis supervision workshops for professors were common in the U.K. and U.S. but not in Canada. With the exception of increasing student funding, Canadian deans were less likely than their American and British counterparts to have carried out any of the reforms listed in the survey. Of course, these data may not reflect what programs and workshops are organised at the departmental level – only the direct involvement by deans with such support services. Nonetheless, Canadian PhD students may be at a relative disadvantage with regard to thesis support services. Compared to the majority of U.S. and U.K. deans, only one in ten Canadian deans acknowledged the existence of thesis support groups at their universities, and only a third acknowledged the existence of thesis-writing workshops.

Remedial action preferences. When asked to indicate their level of agreement to a list of avenues for change to graduate education, participants showed a clear preference for external change (e.g.,

increasing public funding to universities) over internal change (e.g., changing PhD program requirements). Clearly evident was reluctance to altering general PhD requirements, such as cutting course requirements, fixing the duration of PhD studies, or replacing the dissertation with other peer-reviewed work of equal standards. This was an unexpected result, given the ongoing debate within several disciplines about the purpose and value of the PhD dissertation in achieving the goals of the degree (Anderson, 1961; Monaghan, 1989). A study of graduate schools in Europe by the UK Council for Graduate Education (1998) found that approximately half of universities in the U.K. have a second set of regulations for the award of the degree of PhD which allow the candidate's thesis to consist entirely or largely of published work. Although it was not fully explored in this study, it appears that the appetite for further change in PhD requirements may not be as great as the desire for external factors to better support the current training model. Still, a renewed emphasis on production of graduates compels administrators and scholars to reevaluate the purpose and structure of the PhD degree in light of its economic and historical context (Council of Graduate Schools, 1990). To this end, deans face an unenviable task of expediting students' progress through the dissertation process without adversely affecting the quality of the research itself. Whether deans are cognizant of a link between greater productivity in PhD training (through higher completion rates and shorter times-to-completion) and greater productivity is unclear and worthy of further research.

Moderate support was found for greater involvement by external granting councils in establishing and promoting quality and productivity standards. Whereas many PhD students and supervisors are financially supported by external awards, it was recognised by most deans that the task of setting standards for how these awards are used is a shared responsibility of host universities and granting councils. A similar viewpoint has emerged from the trainees themselves. Recently, PhD and postdoctoral fellows of the Canadian Institutes for Health Research (CIHR) tabled recommendations for changes to CIHR training awards (CIHR, 2002). Among these recommendations was the formation of quality standards that describe the basic rights and responsibilities of both trainees and supervisors. In the present study, deans were moderately agreeable to the establishment of such standards but there was no clear endorsement of their enforcement through sanctioning universities with poor completion rates, as has occurred in the U.K.

Finally, more deans from the U.K. than from Canada and the U.S. indicated that funding from

granting agencies are contingent upon their universities meeting predefined standards in PhD completion times. This difference may help to explain the greater number of supervision workshops for professors in the U.K. universities compared to Canada. There has been greater scrutiny in the U.K. over completion rates since the early 1980s when the Conservative government instructed public granting councils (e.g., Economic and Social Research Council, Medical Research Council) to limit training awards to universities with low PhD completion rates (“Universities: Towers of babble,” 1993). Amidst the ensuing uproar among academics, these policies demonstrated how constriction of PhD program duration may have negative consequences for the quality of student theses, and ultimately the degree itself (Cude, 2001). Such a policy may not be warmly received in North America.

Conclusion. Results of the survey showed a prevalent lack of knowledge and some sense of complacency regarding completion rates in PhD programs. There was a preference found for increasing public funding of PhD training over changing the degree to accommodate funding realities or to improve completion trends. Also, some graduate deans reported having taken proactive steps to help PhD students complete their programs in a timely fashion, including thesis-writing workshops and thesis support groups.

III. FUTURE DIRECTIONS AND RECOMMENDATIONS

Based on the available data on completion rates and times-to-completion in PhD programs, and on the results of the international survey of graduate deans, a set of recommendations is put forth to describe future directions for higher education research and for improved administration of PhD programs in Canada. The recommendations are relevant to graduate deans, granting councils and student organisations and they are presented no particular order, but many of them are contingent upon the first: improved data on PhD completion. Other recommendations deal with the need for better funding, quality standards for PhD training, more structure in the dissertation process, and better educational and social support for students. Finally, directions for further research are presented to address the knowledge gap in PhD program evaluation.

ADMINISTRATIVE RECOMMENDATIONS

- i. *It is recommended that the Canadian Association for Graduate Studies establish a national database of completion rates and times-to-completion for all graduate programs in Canada.*

It was apparent from the results of the survey that many graduate deans share a general lack of empirical data on completion rates and times-to-completion in the PhD programs they oversee. It is recommended that the Canadian Association for Graduate Studies (CAGS), the national body representing graduate deans in Canada, create a national database to track the progress of all graduate students in Canada and to monitor the productivity of graduate schools. This system should be sufficiently robust to aid in local administration and should be standardised across universities to allow efficient aggregation of data. Such data are urgently needed to monitor trends in PhD completion, to assess the impact of local and national economic and political factors on PhD training, and to evaluate the impact of future changes to programs.

- ii. *It is recommended that all students making acceptable progress in PhD programs remain eligible for sustainable funding to the end of their studies and that every effort be made to supply this funding.*

It has been expressed by scholars and student advocacy groups that increases in both PhD tuition fees and the rising cost of living in major Canadian cities are prohibitively expensive for students and may contribute to low completion rates and extended times-to-completion (Cude, 2001; Graduate Students' Association - University of Alberta, 2001; Ramos, 1994). When students are forced to seek outside employment to support themselves, they are unable to devote full time to their studies. Unsustainable funding and high tuition fees are major reasons why PhD students leave programs before finishing, and this is a problem that hits students in the arts and humanities the hardest. Unfortunately, with inadequate baseline data, it would be impossible to measure the impact of changes to PhD student funding on Canadian completion outcomes. However, anecdotal accounts have suggested that through better completion outcomes, improvements made to student funding may actually reduce costs per *completed* PhD.

An illustrative example of this policy is Washington University, which financially supports all PhD students essentially to degree completion. With the number of new admissions offers linked to the amount of continuing student support required, its Graduate School of Arts and Sciences has been able to support every continuing student for six years or until the dissertation is completed, and still not overspend its budget. Thach (2000) reports that this policy has improved PhD student morale and reduced time-to-degree to an average of five years – well below the national average. Such a policy may be piloted at Canadian universities or at a larger scale by research councils that award student fellowships.

Such an approach must not be likened to simply throwing money at a problem. Canadian PhD students are, by international standards, well-funded as a whole. Albeit, a redistribution of current funding may better serve to increase Canada's research capacity. Therefore, it is recommended that universities and granting councils work together to: (1) increase the number of awards to underfunded disciplines (particularly the arts and humanities), (2) eliminate periods of eligibility for student applicants, (3) increase the amount of these awards to sustainable levels and index these awards to changes in tuition and inflation, and (4) fund all students who make satisfactory progress in their programs through to the end of the dissertation process – not just the first two or three years. As an initial step towards supporting students to thesis completion, it is recommended that the duration of awards be immediately extended to four years and that additional funds be directed to thesis completion fellowships and early completion incentives.

iii. It is recommended that CAGS, GSAC, and Canada's research councils (SSHRC, NSERC, and CIHR), collaborate to outline the responsibilities of PhD students and their supervisors.

Both students and supervisors must have safeguards in place to help them quickly resolve any conflict or disagreements that may occur. Incompatibilities of work styles and personalities are inevitable, and in such a lopsided balance of power, difficult student-supervisor relationships can quickly become volatile. To help reduce the risk to students of having to change supervisors and thesis topics, standardised sets of ethics codes, responsibilities, and grievance procedures are recommended for both students and supervisors. Once these are set in place, both groups are protected when difficulties arise. Currently, such guidelines are, at best, vaguely described in

voluntary guidelines set forth by some departments at some universities. It is recognised that as equal stakeholders in PhD training, professors, students and research councils share the collective responsibility to develop uniform policy in this area. Thus, it is recommended that a joint task force representing the three bodies work pragmatically towards formulating these policies.

iv. *It is recommended that graduate deans enhance the educational structure of PhD programs.*

The survey of graduate deans indicates that the dissertation requirement is unlikely to change any time soon, and clearly, lacking educational structure and lax deadlines in the dissertation process contribute to long times-to-completion. Therefore, greater structure is needed in the dissertation process to help keep tabs on students' progress and to facilitate regular contacts with supervisors. Innovative solutions have been tested in this area as well. The Philosophy Department at the University of Michigan uses a "thesis-orienting requirement," which ensures that students who achieve candidacy have significant momentum towards the dissertation (Darwall, 2000). Students first write a literature survey in consultation with an advisor, and then a candidacy reading paper, a "proto-prospectus," that describes the main questions of a projected thesis. These steps give the student established dissertation plans and relationships, a grasp of the relevant literature, and a body of writing that can be drawn on in the dissertation. Similarly, the University of Minnesota uses a formal defense of thesis proposals to allow students and their committees to interact in suggesting improvements, considering risky approaches, and trimming the scope of the research if needed (Davis, 2000). Alternatively, Bloom (1981) recommended incorporating units of thesis research into required coursework, thereby providing realistic but firm deadlines for completing sections of the thesis. Other universities have found structured course-like supervision has helped students make steady progress and facilitated supervisor accountability (Garcia, 1988; Yeatman, 1995). As Parkinson's Law dictates, work expands to fill the time available (Parkinson, 1958) but approaches such as these add workable parameters to students' time, thereby improving the quality of research and encouraging timely completion of the PhD.

v. *It is recommended that graduate deans in Canada establish more thesis support services to students and supervisors.*

It was found in the survey that Canadian universities have fewer thesis writing workshops and thesis support groups than universities in the U.S. and U.K. – a disconcerting result given that Canadian PhD students are just as likely to become trapped in a “ABD purgatory” than their American and British counterparts. Addressing the problems of financial support, supervision, and educational structure are all necessary, but not sufficient, to deal with thesis completion difficulties. On the other hand, too much structure and pressure by supervisors can also have a negative impact on students.³ Even though the thesis-writing process has a profound influence on the quality of graduate student life, it is a process for which few PhD students are given adequate guidance and support. The responsibility of universities to aim to meet the social and emotional needs of graduate students is no less significant than the provision of funding and supervision.⁴ Unfortunately, because graduate deans have not traditionally involved themselves with student affairs, these services are typically oriented to undergraduates and have little to offer the fledgling thesis writer. Graduate deans should adopt a proactive, comprehensive approach to meeting students' needs by providing thesis support services in the form of writing workshops and support groups.

FUTURE RESEARCH

Examination of how institutional characteristics of universities and its administration influence PhD degree completion trends is a fruitful area for further research. The survey of graduate deans described in this report only scratches the surface of our understanding of how the knowledge and attitudes of graduate deans may influence their administrative decision-making and practices. Given the many factors that affect the influx of students to graduate programs, the difficulties they encounter, and the time and rate at which they complete, it is evident that longitudinal and experimental research is needed to adequately examine how the attitudes and practices of graduate deans affect student outcomes. Also, more qualitative, phenomenological studies will further our

³For discussions of graduate student suicide and violence toward supervisors, see “Colleges learn to ease pressure on grad students,” 1998, “Debt, isolation can break grad students,” 1998, “Grad student faces charges in slaying of WSU professor,” 1998 .

⁴ For a case example at Memorial University, see *Student support services for graduate students* (Elgar, 1998).

understanding of the political, economic and social contextual forces that influence graduate studies administration. Such research will serve deans in evidence-based administration of PhD programs and, ultimately, improve the quality and numbers of graduates that enter Canada's workforce.

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APPENDIX A: LIST OF SAMPLED UNIVERSITIES***Canada:***

University of Alberta
 Athabasca University
 Brandon University
 University of British Columbia
 Brock University
 University of Calgary
 Carleton University
 Concordia University
 Dalhousie University
 University of Guelph
 Lakehead University
 Laurentian University
 Université Laval
 University of Lethbridge
 University of Manitoba
 McGill University
 McMaster University
 Memorial University of Newfoundland
 Université de Moncton
 Université de Montréal
 École Polytechnique de Montréal
 Mount Saint Vincent University
 University of New Brunswick
 University of New Brunswick
 Nipissing University
 University of Northern British Columbia
 Université d'Ottawa
 Saint-Paul University
 University of Prince Edward Island
 Université du Québec à Montreal
 Université du Québec à Rimouski
 Université du Québec à Trois-Rivières
 Queen's University
 University of Regina
 Royal Military College of Canada
 Ryerson Polytechnic University
 Saint Mary's University
 University of Saskatchewan
 2500, boul. de l'Université
 Simon Fraser University
 University of Toronto
 Trent University
 University of Victoria

University of Waterloo
 University of Western Ontario
 Wilfrid Laurier University
 University of Windsor
 York University

United States:

University of Michigan
 University of Texas at Austin
 University of Wisconsin-Madison
 University of Illinois at Urbana Champaign
 Ohio State University
 University of Minnesota
 University of California Los Angeles
 Stanford University
 Harvard University
 Texas A&M University
 Pennsylvania State University
 Nova Southeastern University
 Massachusetts Institute of Technology
 University of Maryland
 Cornell University
 University of Arizona
 University of Pennsylvania
 Michigan State University
 Rutgers, The State University of New Jersey
 University of North Carolina at Chapel Hill
 University of Pittsburgh
 University of Virginia
 University of Iowa
 Indiana University
 North Carolina State University
 University of Colorado at Boulder
 Yale Graduate School
 Florida State University
 University of Cincinnati
 Princeton University
 Boston University
 University of Kansas
 University of Illinois at Chicago
 University of California, Irvine
 Oklahoma State University
 Case Western Reserve University
 University of Oklahoma

University of Alabama
 University of New Mexico
 Washington State University
 University of Hawaii
 Auburn University
 University at Albany - SUNY
 Carnegie Mellon University
 University of California, San Francisco
 Walden University
 Lehigh University
 Loyola University Chicago
 Virginia Commonwealth University
 University of Louisville
 University of Massachusetts - Lowell
 American University
 Baylor University
 University of Nevada
 DePaul University
 University of Northern Iowa
 Appalachian State University
 Southern University - A&M College

United Kingdom:

University of Birmingham
 University of Leicester
 University College London,
 University of Cambridge
 University of Strathclyde
 University of Nottingham
 University of Leeds
 University Of Warwick
 University of Manchester
 University of Westminster
 University of Bristol,
 Manchester Metropolitan University
 University of Sheffield
 University of Oxford
 University of Liverpool
 City University
 University of Edinburgh
 King's College London
 University of Ulster, Coleraine Campus
 University of Reading
 University of Southampton
 Sheffield Hallam University
 University of Surrey

University of Newcastle-upon-Tyne
 University of Glasgow
 University of Salford
 Imperial College of Science, Technology &
 Medicine
 South Bank University
 Brunel University
 Middlesex University
 Cardiff University
 University of Bath
 Queen's University of Belfast
 De Montfort University
 Canterbury Christ Church University College
 Loughborough University
 London School of Economics and Political
 Science
 University of Hull
 University of Exeter
 Cranfield University
 University of East London
 University of the West of England, Bristol
 University of Durham
 University of Dundee
 University of East Anglia
 University of Plymouth
 Lancaster University
 Heriot-Watt University
 Coventry University
 London Guildhall University
 University of Aberdeen
 University of Teesside
 Thames Valley University
 Liverpool Hope
 University of Gloucestershire
 Trinity College
 Falmouth College of Arts
 Stranmillis University College
 Kent Institute of Art & Design
 Scottish Agricultural College

APPENDIX B: SURVEY QUESTIONNAIRE

THESIS COMPLETION IN PHD PROGRAMS

Please answer ALL questions and return the survey using the stamped addressed envelope provided.

1. Supply the following information about your school or faculty of graduate studies:

a) Number of students: Masters: _____
Doctorate (years 1-4): _____
Doctorate (years 5+): _____

b) Number of doctorate programs: _____

c) Percentage of PhD students who receive funding: _____

d) Cost of tuition per year (PhD full-time): \$ _____

2. Does your office keep statistics on the percentage of students enrolled in thesis-based programmes who complete their programmes?

- Yes, we keep updated statistics on all programmes
- Yes, but our latest figures are more than 10 years old
- Yes, but not on all our programmes
- No
- Not sure

3. If yes, and you have these figures readily available, please supply them below (PhD only):

Arts/Humanities _____% Natural Sciences _____%

Social Sciences _____% Life Sciences _____%

4. How big a problem do you feel attrition rates in PhD programs are at your university?

1 2 3 4 5
Not at all Somewhat of Very much
a problem a problem a problem

5. Compared to other universities, how well do you think your university fares in the completion rates of students enrolled in PhD programs?

1 2 3 4 5
Much Little About Little Much
worse worse average better better

6. Does your office you keep statistics on mean times-to-completion for graduate programs at your university?

- Yes, we keep updated statistics
- Yes, but our latest figures are more than 10 years old
- Yes, but not on all our programmes
- No
- Not sure

7. If yes, and you have these figures readily available, please supply them below (full-time, PhD only):

Arts/Humanities _____years Natural Sciences _____years

Social Sciences _____years Life Sciences _____years

8. How big a problem do you feel times-to-completion in PhD programs are at your university?

1 2 3 4 5
Not at all Somewhat of Very much
a problem a problem a problem

9. Compared to other universities, how well do you think your university fares in its time-to-completion of PhD programs?

1 2 3 4 5
Much Little About Little Much
worse worse average better better

10. Is funding from research and training grants at your university contingent on how efficiently you produce PhD graduates?

- Yes
- No
- Not sure

11. During the past decade, has your university taken steps to help PhD students complete their programs in a timely fashion?

- Yes
- No
- Not sure

12. If Yes, check all that apply:

- Increased funding for graduate students (adjusted for changes in tuition).
- Offered incentives to students who finish “on time”
- Offered thesis completion fellowships.
- Established thesis support groups.
- Held thesis-writing workshops.
- Held thesis supervision workshops for faculty members.
- Established graduate supervision guidelines.
- Implemented policies intended to improve the quality of graduate supervision (e.g., code of ethics for supervisors, student grievance procedures)
- Revised graduate program or thesis requirements
- Others: _____

13. Is there a thesis support group at your university?

- Yes
- No
- Not sure

14. Are there thesis-writing workshops at your university?

- Yes No Not sure

15. Indicate the degree to which you would support each of the following reforms in how granting agencies fund PhD trainees:

a) Extend the period during which PhD students are eligible for scholarships:

1 2 3 4 5 6 7
Not at all Neutral Very much

b) Award thesis completion fellowships to students beyond their 4th year of study:

1 2 3 4 5 6 7
Not at all Neutral Very much

c) Establish quality standards for graduate supervision:

1 2 3 4 5 6 7
Not at all Neutral Very much

d) Establish productivity standards for acceptable completion rates and times-to-completion:

1 2 3 4 5 6 7
Not at all Neutral Very much

e) Promote productivity standards by rewarding universities that achieve them with more training awards.

1 2 3 4 5 6 7
Not at all Neutral Very much

f) Describe any other reforms you would like to see in how granting agencies fund PhD students:

16. Indicate the degree to which you would support each of the following changes in PhD programs at your university:

a) Reduce PhD program requirements (e.g., fewer courses).

1 2 3 4 5 6 7
Not at all Neutral Very much

b) Replace the dissertation with peer-reviewed work of equal standards.

1 2 3 4 5 6 7
Not at all Neutral Very much

c) Implement student contracts that determine the duration of PhD studies.

1 2 3 4 5 6 7
Not at all Neutral Very much

d) Describe any other changes you would like to see in PhD programs at your university:

17. Indicate the degree to which you would endorse each of these other avenues for reforming the PhD degree:

a) Initiate greater public scrutiny of costs associated with high attrition rates in graduate programs:

1 2 3 4 5 6 7
Not at all Neutral Very much

b) Increase public funding to universities:

1 2 3 4 5 6 7
Not at all Neutral Very much

c) Describe any other changes you would like to see in PhD studies in the future:

18. What do you feel is the ONE greatest challenge facing graduate programs over the next decade?

Check here if you wish to receive a working paper containing the results of this survey prior to publication or media release.