

Teaching, Research and the Canadian Professoriate: Findings from the 2018 APIKS survey

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Abstract. This paper presents the Canadian findings from the 2018 APIKS study focusing on the teaching-research nexus. The online, bilingual survey was administered to full-time professors at 64 provincially-funded universities in Canada between October 2017 and June 2018 (n=2968). Findings suggest the majority of full-time, tenure-stream professors prefer both teaching and research and are engaged in both throughout the academic year. These findings are considered in light of broader changes in Canadian higher education including enrolment expansion, the increasing valorization of research, the development of new categories of academic labour, and the growth in precarious contract employment.

Keywords: Canadian higher education, post-secondary education, precarious labour, research production, teaching, tenure-stream, teaching-stream, university teachers

Introduction

This paper examines professors' perceptions of the balance between research and teaching at Canadian universities. Canadian higher education is highly decentralized, with distinct, provincially regulated systems. The post-war evolution of these systems, and later emergence of unionization and government support for research, led to the development of a tenure-stream professoriate defined by teaching, research and service (Jones et al., 2014).

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Yet over the past decades, there has been a noticeable expansion of the categories used to define academic work at universities across Canada. Full-time professors exist alongside teaching-stream faculty, limited-term-full-time (LTFT) instructors and contract-based researchers. This expansion of academic employment categories is evidence of the “vertical fragmentation” Jones argues has split academic work between prestigious, full-time professors and a range of contract-based personnel who fill teaching and research gaps within the university (Jones, 2013). Professional associations and higher education scholars alike have highlighted the significant challenges, related to working conditions and job security, for those in precarious contract positions (Field et al., 2014; Rajagopaul, 2002). In response, some universities have developed a teaching-focused category of full-time faculty (Vajoczki et al., 2011). This new group of specialized faculty is reviewed for permanent status based on their teaching performance and teaching-related research activities, a distinct change from traditional tenure and promotion reviews (Gravestock, 2011).

Specialization is certainly not limited to professors’ teaching activities. In 2000, Canada’s federal government developed the Canada Research Chair program involving 2,000 new research professorships, frequently with reduced teaching responsibilities (Jones et al., 2014). These positions, combined with the newer Canada Excellence Research Chairs, continue to be an important mechanism for Canadian universities to retain top talent and maintain high levels of research productivity. However, the processes of hiring Canada Research Chairs are often led by upper-level administrators, which may diminish faculty autonomy in employment decisions (Metcalf, 2012). In addition, these positions have been critiqued for the lack of gender equity across the group of chair holders nationally (Drakich & Grant, 2011).

These broader changes in academic hiring raise several questions regarding the activities of full-time professors in Canadian universities. Research suggests that tenure-track appointments are still the main mode of full-time hiring across Canada (Field & Jones, 2016). However, with the increase in limited-term teaching positions, new teaching-focused permanent appointments, and specialized research chairs, it is important to examine how full-time professors perceive the balance between teaching or research and how this may differ for professors employed at different types of universities. Furthermore, the 2007 findings from the Changing Academic Profession (CAP) survey indicated that 69% of full-time professors at Canadian universities were more interested in research than teaching, but spent more time teaching than researching during the eight months when classes were in session. A decade later, as trends toward new forms of hiring become more pronounced, there is reason to re-examine the balance of teaching and research among full-time professors in Canada.

This paper presents the Canadian findings of the 2018 APIKS study as they relate to the balance between teaching and research. This paper seeks to answer three main questions of professors in Canada: a) Do professors’ interests lie primarily in teaching and/or research? b) How many hours do professors spend on teaching and research per week? c) Do professors perceive their institution as prioritizing teaching or research?

The first section of this paper explores the relationship between teaching and research in universities. The second examines the nature of academic work in Canada and the historic trajectory which shaped the current context. The third section presents national data on full-time faculty. The fourth section presents the findings of the APIKS survey, comparing it with the 2007 findings of the CAP survey and reflecting on the continued balance between teaching and research at universities in Canada.

The Teaching-Research Nexus

Investigating the relationship between teaching and research is central to comparative studies of academic work. The amount of time and money spent on each area reflects the priorities and aspirations of a higher education system. Changes over time are just as telling; Arimoto (2014) argues the deeply uncertain and complex rise of the knowledge society has limited the integration of teaching, research and service in higher education. Using the 1991 Carnegie Survey and the 2007 CAP Survey, Arimoto suggests the academic profession increased its focus on research by almost 10% within 10 years. However, useful analytic distinctions are visible in the data between types of institutions (university versus non-university) as well as the economic, political and cultural context of sites. These trends raise the question of whether teaching and research are, or should be, intrinsically linked at universities. Canada provides a distinct case study. In the Canadian context, data from 2007 indicates professors' preference for research, and time spent on research was above the international average. Yet most professors also indicate a strong interest in teaching (Jones et al., 2014). The question of whether the teaching-research balance has shifted will be explored later in this paper.

Professors in Canadian higher education

In 1867, when a federation of British colonies became the Dominion of Canada, there were only a handful of universities. These early universities were mainly small denominational colleges and the total enrolment at the time of confederation was estimated to be 1,500 students, most of whom were the children of elites (Cameron, 1991; Neatby, 1985). Thus, the earliest universities in Canada were primarily private, teaching institutions, accessible to only a small component of the population. These were very much institutions of a colonization process that was increasingly encroaching on the land, resources, and ways of life of the Indigenous peoples, a process that has continued to the current day.

These early universities were mainly influenced by the French, British and American models of higher education. The American influence gradually emerged as the strongest and, as Canada created new provinces in the West (Manitoba, British Columbia, Saskatchewan, Alberta), a version of the American land-grant model was adopted and universities took an active role in agricultural extension and industrial development for their region (McKillop, 1994). These new provincial universities, as

with the earlier elite institutions, still held teaching at their core mission. American adaptations of the German university model began to influence Canadian higher education at the turn of the twentieth century. The first doctoral degrees were launched by the University of Toronto and McGill University (Montreal) and the Government of Canada created the National Research Council of Canada, which took small steps to further research by offering small scholarships for graduate research.

Despite these changes, universities remained elite institutions prior to World War II and the work of Canadian professors was largely viewed as detached from society (Robson, 1966; Stortz & Panayotidis, 2006). The war, however, significantly altered the role and position of Canadian universities, and by extension their professors. The engagement of academics in social issues increased during the war and several universities became research and development centres for the war effort (Jones et al., 2014). The most significant change, however, was the increase in enrolment as veterans returned home and were offered free tuition and living costs to attend university. By 1947, 55,000 veterans had enrolled in university and Canada was moving rapidly toward mass higher education (Cameron, 1991; Jones, 2006). Both the federal and provincial levels of government began to make significant financial investments in higher education (Jones, 2006). One of the long-term impacts of massification was an increase in professor's prestige and job security as higher education grew in importance to national development goals. This change in prestige greatly improved professor's ability to bargain for better working conditions, and, throughout the 1970s and the 1980s, strong faculty unions were established at many universities in Canada. Faculty unionization played an important role in the development of explicit institutional policies related to professorial appointments, tenure and promotion, as well as defining academic work through collective agreements in terms of teaching, research and service (Jones, 2019).

By the end of the twentieth century, Canada's provinces had created high participation systems of higher education, with many of the characteristics noted in the recent work by Caldwell, Marginson and Smolentseva (2018). Canadian universities were also playing a key role in Canada's research and innovation system, in part because of relatively low levels of research associated with private industry compared with other OECD nations.

Contract-based instructors and researchers

During the 2000's the growth in university enrolment far outpaced the growth in hiring of full-time professors and universities increasingly employed contract instructors, often hired on a course-by-course basis, with little or no job security, to teach undergraduate students (Field & Jones, 2016). Research indicates that many of these precarious instructors aspire to be full-time professors but have not been offered employment in tenure-stream positions. Concerns with job security and working conditions have led to the increasing unionization of contract faculty, leading to some improvements in salaries and benefits. While there are significant variations in the working conditions of contract

instructors at different universities, one common factor is that these appointments focus exclusively on teaching.

As in most countries, research production in Canada has been flagged as an essential component of national development in the knowledge society. The university sector plays an important role in national research and development. Research in Canada is strongly linked to the university sector with 37.14% of all researchers working in higher education. Funding for research initiatives increased steadily starting in the 1980s with significant investments from the Federal government in the early 2000s. The federal government established the Canadian Research Chairs program, and the Canadian Foundation for Innovation offered infrastructure grants for research. Across Canada, investment in R&D increased by 30.16% between 1997 and 2017, representing 0.63% of the GDP (OECD, 2018).

Although formal affiliation with a recognized higher education institution is necessary to apply for national research council grants, contract-based personnel can be hired by the grant-holders on funded projects. In addition, based on Statistics Canada's National Household Survey, Edge and Munro (2015) reported that only 18.6% of employed PhDs in Canada were employed as full-time professors. A further 7.4% were employed as research or teaching assistants and 4.4% as postdoctoral researchers. An exploratory study by the Université Laval's Union of Research Professionals (SPPRUL, 2016) suggests there are approximately 20,000 non-student research associates in Canadian universities. At Université Laval, 72.5% of these employees have limited-term contracts and 27.5% have indefinite contracts. Like their counter-parts in teaching, these contract researchers have little job security or upward mobility. The increasing use of both teaching and research contract positions has furthered the vertical fragmentation of the Canadian academic workforce.

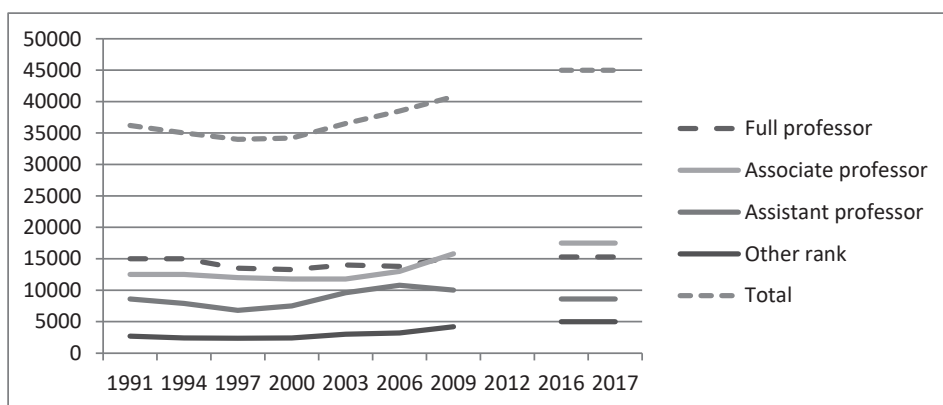
Tenure-stream employment

In Canada, due to the decentralization of higher education, universities are relatively autonomous institutions created by a legislative charter and operate as private, not-for-profit entities. Thus, each institution is responsible for its own human resource activities including their professors' terms of employment. Employment contracts are unique to institutions, usually the result of negotiation between faculty unions and senior administrators (Tudivor, 1999). Despite the decentralization of employment processes at Canadian universities, there is a relatively common system of tenure-stream ranks.

There are traditionally three ranks in tenure-stream career pathways: Assistant Professor, Associate Professor and Full-Professor. Professors at all ranks are expected to engage in teaching, research and service activities. Junior professors are normally employed at the rank of Assistant Professor and are then reviewed for tenure following a probationary contract period of between three and seven years (depending on the institution). The tenure review involves a detailed peer-evaluation of performance, and a successful result leads to permanent status, and often promotion to the rank of

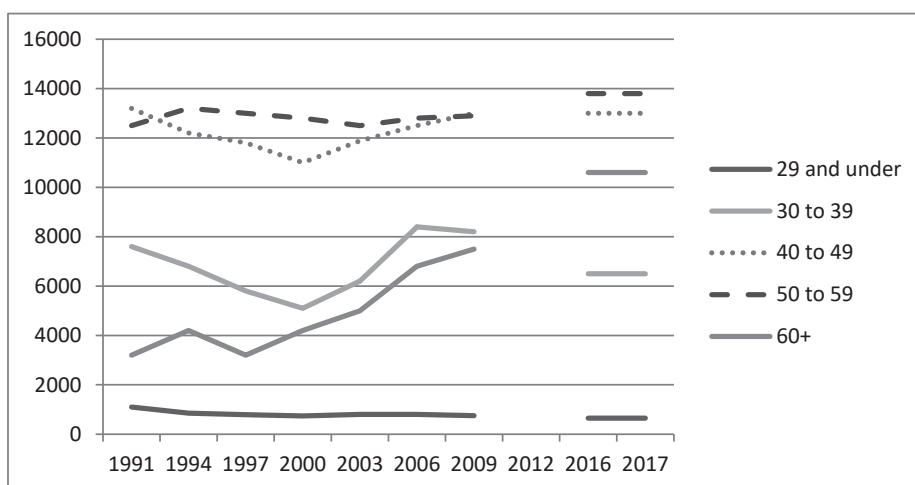
Associate Professor. Although the tenure review considers all three areas of academic activity, most Canadian universities have weighted the review process more strongly toward research production than to teaching or service accomplishments (Gravestock, 2011).

Basic demographic data on full-time (including tenure-stream) faculty is obtained by Statistics Canada through the University and College Academic Staff System (UCASS) survey. Unfortunately, for a period of time, the data collection was temporarily suspended and there is a data gap between 2010 and 2015. Figure 1 presents data on full-time faculty by rank before and after this gap. The number of full-time faculty declined during the 1990s but has increased steadily since 2000. In the absence of mandatory retirement, these data reveal the growth in faculty in senior ranks, while the number of assistant professors decreased by more than 15% between 2007 and 2016.



Data source: UCASS (2019)

Figure 1. Number of professors by rank 1991 to 2017



Data source: UCASS (2019)

Figure 2. Number of full-time academic staff by age groups, 1991 to 2017

The age profile of the Canadian professoriate is presented in Figure 2. The number of professors over 60 rose more than any other age-group between 2009 and 2016. Those in the 40 to 60-year age-group stayed relatively stable, while the number of faculty who are 40 and under – the age group associated with most junior appointments - dropped noticeably.

Since the elimination of mandatory retirement in 2006, it is not uncommon for professors to work well past the “normal” age of retirement, and some universities have developed policies designed to financially incentivize retirement or retirement phasing (Warman & Worswick, 2010; Rapoport, Finlay & Hillan, 2015).

This brief overview has highlighted a number of key trends related to the academic profession in Canada, including the increasing number of full-time faculty, the aging of the professoriate and the increasing number of faculty holding senior appointments, the increasing use of teaching and research contract appointments, and the emphasis on university research in the context of Canada’s research and innovation system. To what extent are these changes impacting the teaching-research balance for Canada’s full-time professoriate? This question will be addressed by reviewing Canadian findings from the APIKS study.

Methodology

The Canadian data for the APIKS study was collected via an online survey between October 24, 2017 and June 30, 2018. The 51-item survey was emailed to professors at 64 publically-funded universities, including universities located in all of Canada’s 10 provinces. A total of 45,437 invitation emails were sent out to professors in Canada, 31,728 of whom were eligible to complete the survey¹. The survey was offered in both French (n=725) and English (n=2243). A total of 2968 surveys were valid, a response rate of 9.4% (see Table 1).

Table 1. Valid response rate for Canadian APIKS survey

	Total	Valid
Email Address	45,437	31,728
Completed Surveys	3798	2968
Response Rate		9.35%

Scholars have confirmed that administering a survey online lowers the response rate (Fan & Yan, 2010; Saleh & Bista, 2017). The low response rate for the Canadian APIKS survey was mitigated by ensuring that the valid responses (n=2968) were representative of the larger population of Canadian faculty as reported by Statistics Canada (UCASS, 2018). Four demographic comparators were used to

¹ At several universities, the survey invitation was sent via the internal faculty email which contained librarians or part-time faculty.

conduct Chi-Square Goodness of Fit tests (χ^2): age, rank, discipline and gender. In three areas (age, rank, discipline) the χ^2 indicated the difference was not significant (0.3-0.7), confirming that the sample population was representative of the larger population of full-time professors in Canada. The final factor, gender, revealed that the proportion of women respondents was greater than the proportion of women in the population as a whole. However, research indicates men and women have very different patterns of survey completion and a higher response rate from women is not uncommon (Saleh & Bista, 2017).

The findings presented in this paper are from both the 2018 APIKS study and the 2007 Changing Academic Profession (CAP) study. The APIKS study is the 10-year follow up to the CAP study which examined academic work in 18 nations in 2007. The Canadian CAP survey was distributed across Canada at 19 publically funded universities in 10 provinces (n=1152). The findings have been widely published, providing a picture of the Canadian professoriate in a global context (Jones et al., 2012, 2014; Metcalfe et al., 2010, 2011; Padilla-González et al., 2011; Weinrib et al., 2013).

Findings: Balance between teaching and research

The majority of Canadian respondents to the APIKS study prefer some combination of teaching and research. Figure 3 indicates that 10% of full-time professors in Canada prefer primarily teaching. A further 25% prefer both teaching and research, but “leaning toward teaching,” while 48% prefer teaching and research but “leaning toward research.” A final 17% prefer primarily research. These findings indicate that the majority of professors in Canada prefer a scope of work in keeping with the traditional, tenure-stream roles of research and teaching.

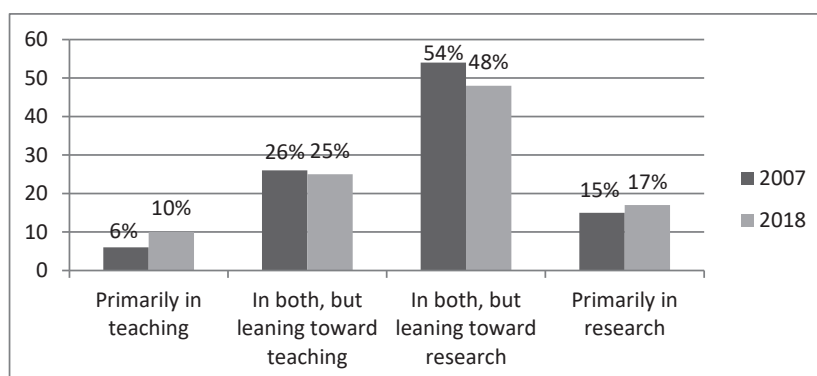


Figure 3. Percent of professors who prefer teaching and/or research, 2007 and 2018

Figure 3 also compares data obtained from the 2018 APIKS study with data obtained from the Canadian respondents to the 2007 Changing Academic Professions study (CAP). The percentage of professors who prefer both research and teaching, though “leaning toward research” fell slightly from 54% in 2007 to 48% in 2018. Correspondingly, the number of professors whose primary interest lies in teaching or research increased by 4% and 2% respectively. Although this may reflect some movement towards specialization, the change is minimal compared to the percentage of professors who still show an interest in both research and teaching (73%).

Although all public universities in Canada have a mandate to conduct both teaching and research, scholars have identified four categories of publically funded universities in Canada: research-intensive, comprehensive, primarily undergraduate and specialized.² Of the professors who work at research-intensive universities, 21% indicate they are primarily interested in research, compared with only 10% of those who work at a primarily undergraduate institution (see Table 2). Of those who work at primarily undergraduate institutions, 16% indicated they are primarily interested in teaching, compared with 8% at research-intensive universities and only 2% at four specialized institutions. Despite this variation between institutions, the large majority of professors at all universities still prefer both research and teaching, with approximately half leaning toward research.

The findings also suggest that professors see a strong connection between their research and teaching. When asked if their research activities reinforce their teaching, 78.7% of Canadian professors selected strongly agree or agree. This number varies significantly by discipline as Table 3 shows. Professors of law (92%), agriculture/forestry (86%) and teacher training/education science (85%) perceive a stronger connection between their researching and teaching than those in business/administration/economics (67%) or medical sciences/health/social services (71%).

Table 2. Percent of professors who prefer teaching and/or research by type of institution

	U15	Comprehensive	Primarily Undergraduate	Specialized
Primarily in Teaching	8%	8%	16%	2%
In both, but leaning to teaching	22%	26%	34%	23%
In both, but leaning to research	49%	52%	41%	62%
Research	21%	15%	10%	13%

N=2937

² These classifications employ three categories associated with Canada’s Macleans ranking of universities. The authors have classified a number of institutions that do not participate in these rankings, and added a “specialized” category to capture four institutions in Quebec that offer a distinctive, narrow range of programs in specialized areas of study.

Table 3. Percent of professors from each discipline who Strongly Agree/Agree that research reinforces their teaching

Discipline	Strongly Agree/Agree (%)
Teacher training and education science	85
Humanities and arts	79
Social and behavioural sciences	79
Business and administration, economics	67
Law	92
Life sciences	82
Physical sciences, math	75
Chemistry	77
Computer science	74
Engineering, manufacturing and construction, architecture	78
Agriculture, forestry	86
Medical sciences, health related sciences, social services	71
Social work and services	78

N=2968

Weekly activities

Despite Canadian professor's slight preference for research, teaching still commands the majority of their work time each week when courses are in session. As Figure 4 indicates, when classes are in session, professors report engaging in teaching-related activities for 21.1 hours each week, with only 14.5 hours spent on research activities. In contrast, when classes are not in session, full-time faculty spend 26.5 hours per week on research activities. For the remaining hours of work each week, both when classes are in session and when they are not, professors spend a significant amount of time (17 hours) involved in external activities, administration and other activities. When the year is examined as a whole, professors spend the majority of time on research activities, even with the decrease in research during class time.

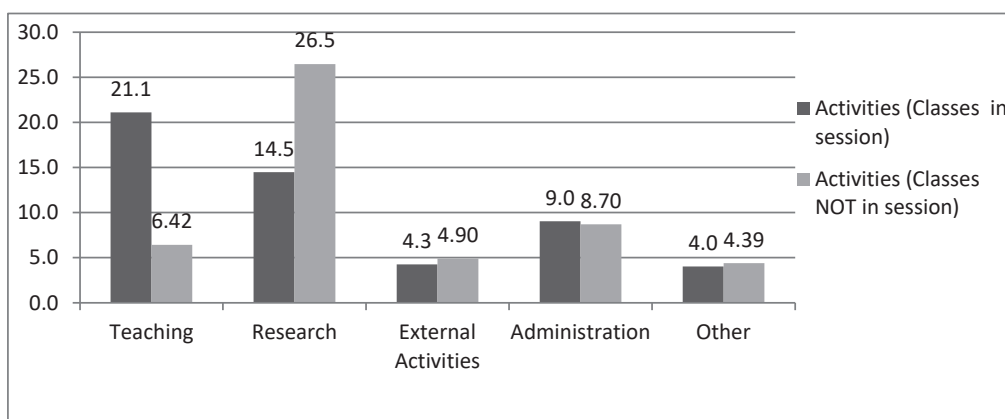


Figure 4. Hours per week spent on various activities

The strong expectation that most full-time professors are engaged in both teaching and research activities is further illuminated in Table 4. Looking only at the number of hours reported for teaching and research, the data suggest that there are only modest differences in the number of hours devoted to these activities for faculty employed at the three major categories of Canadian universities, while faculty employed at specialized institutions devote more time to research than their peers at the more traditional universities. It should be noted that this category includes two institutions offering only graduate programs as well as two engineering schools.

In Canada, full-time professors still spend the majority of their teaching time in face-to-face instruction. Table 5 suggests that 94.6% of professors teach in classroom or lecture settings while only 17.8% have been involved in ICT-based learning/computer assisted learning. In addition to classroom instruction or lecturing, 89.4% of professors are involved in face-to-face interaction with students outside of the classroom.

Table 4. Number of hours per week spent on teaching versus research

	Classes in session		Classes NOT in session	
	Teaching	Research	Teaching	Research
Research Intensive	20.13	15.45	6.11	27.04
Comprehensive	20.5	14.44	6.19	26.35
Primarily Undergraduate	24.98	11.51	7.73	25.21
Specialized	14.14	21.28	3.64	29.04

N=2968

Table 5. Percentage of professors involved in specific teaching activities

Have you been involved in any of the following teaching activities?	
Classroom instruction/lecturing	94.6
Individualized instruction	71.1
Project-based learning	52.8
Practice instruction/ laboratory work	35.1
ICT-based learning/computer-assisted learning	17.8
Distance education	17.6
Development of course material	83.5
Curriculum/program development	64
Face-to-face interaction with students outside of class	89.4

N=2921

Institutional context

Although professors in Canada are heavily involved in teaching, they perceive that their institutions prioritize research performance over teaching performance. Figure 5 reveals that the 56.7% of professors agree/strongly agree that their institution has a “strong research performance orientation” while only 39% feel the same about teaching.

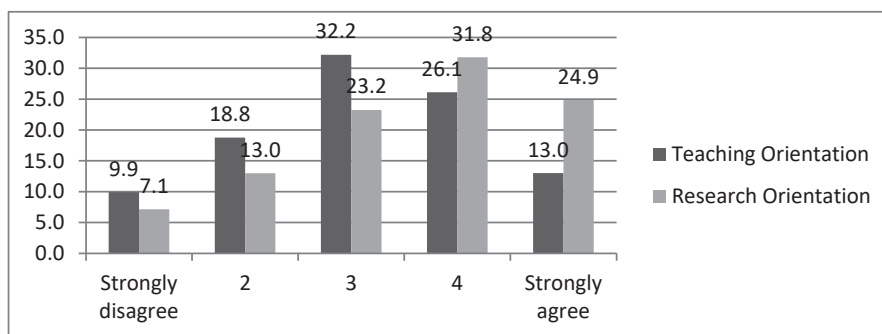


Figure 5. Faculty perceptions on the teaching and research performance orientation of their institution

Respondents were asked to indicate the degree to which their university emphasizes the quality of teaching and research in hiring and promotion decisions (Figure 6). Most full-time faculty (66.8%) report that their university places a high emphasis on research quality in hiring and promotions decisions, selecting a ranking of 4 or Very Much on the likert scale. This compares with 45.9% of Canadian professors ranking the importance of teaching quality in the top two categories.

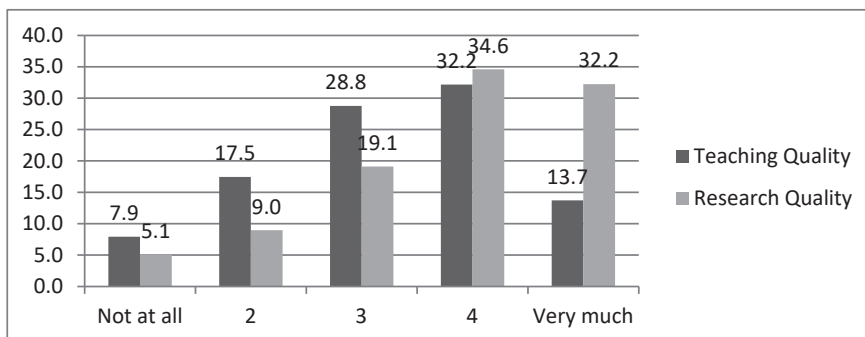


Figure 6. Faculty perceptions on the extent to which teaching and research quality are emphasized in hiring/promotion decisions

Junior faculty (assistant professors) were also asked to rate the degree to which their institution supports their independence in teaching and research (Figure 7). Approximately 84% of faculty in their formative years indicated their institution affords excellent or near excellent independence in teaching

and 82% indicate high levels of independence in research. Complementing this perspective, more than 80% of formative-year professors feel this independence is important to their professional work. In Canada professors have a high level of academic freedom. Full-time professors design their own courses and pursue research in their interest areas with little oversight from departmental or institutional administration. However, on the APIKS survey only junior professors were asked for their perceptions on teaching and research.

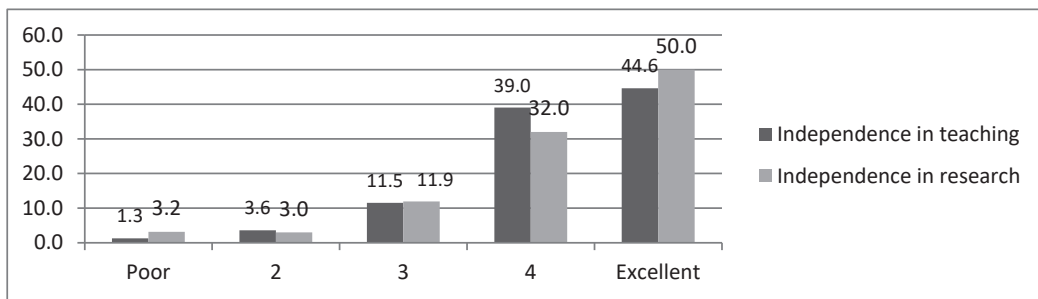


Figure 7. Junior faculty's rating of teaching and research independence

Concluding observations: The continued balance between teaching and research

Higher education in Canada has undergone rapid changes over the last few decades. University enrolment has continued to increase and Canada now has among the highest levels of participation in tertiary education in the world. It is very much a high participation system. As noted above, public universities have also been positioned as core components of Canada's national research and innovation system. There have also been important changes in the nature of the academic profession, including increasing vertical stratification associated with the creation of new categories of academic workers, and the increasing use of precarious labour.

Despite these changes and challenges, the findings of the Canadian APIKS study suggest that the work balance of teaching, research and service has remained relatively stable over the last decade. Professors show a slight preference for research over teaching, but the majority prefer to engage in both. Between 2007 and 2018, there was a small increase in the number of professors who prefer either teaching or research, but this increase is not statistically significant. The large majority of full-time professors in Canada still perceive a strong connection between teaching and research, accepting both as central to their professional work. Moreover, professors report that their institutions place more emphasis on the quality of research, relative to teaching, in hiring and promotion decisions.

It is important to note that this study focused on the perceptions of full-time, tenure-stream faculty only. At present, there are significant gaps in pan-Canadian data pertaining to part-time, contract-based faculty. However, some studies suggest that many part-time instructors aspire to tenure-stream positions where they can engage in both teaching and research.

The strong balance between teaching and research in Canada can be at least partly attributed to the existence of strong faculty associations/ unions and the continued institutional mandate for teaching and research at most universities. First, the unions that worked throughout the 1970s and 1980s to codify the nature of academic employment in Canada entrenched teaching and research as part of an academic contract and they have continued to maintain this emphasis through a well-networked system of advocacy. While unions are institution-specific, they collaborate and share information through umbrella provincial and national organizations, creating isomorphic pressures on institutions. By its very nature, unionization serves to limit administrative discretion, and therefore key academic personnel policies can only be modified through collective agreements (Jones, 2019). Organizational theory has long debated whether external pressures and constraints, such as fiscal austerity and increasing enrollment, are more influential than internal strategies. However, union activity presents a model in which actors form “a network of interdependencies and social relationships...[to] negotiate their positions within those constraints,” (Pfeffer & Salancik, 2003, p.xiii). The negotiating power of full-time faculty is furthered by their importance to the overall mandate of Canadian universities to engage in both research and teaching. Although universities in Canada are sometimes categorized into different groupings, the distinctions between institutions are much less pronounced than in the US system, for example. In Canada, all public universities, even “primarily undergraduate universities” have an explicit research function. Thus, professors’ value of teaching and research is fostered in an institutional culture that affirms a strong belief in the relationship between the two.

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