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Emergence of the Canadian Research University

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Abstract

The emergence of a research university model in Canada has increased significantly over the past few decades. From institutions that focused primarily on education, universities are striving to become large, research-focused centres. These changes have brought increased prestige to universities, greater graduate education, and more funding options. However, with increased research intensity come potentially detrimental effects on undergraduate education, added stress on faculty, and significantly-increased facility costs. In Ontario, differentiation of higher education is becoming limited, impacting student access. This paper examines the literature to understand the positive and negative impacts of Canadian universities' expanded focus on research and development.

The Emergence of Canadian Research Universities

Over the past few decades, higher education has experienced a significant change in the model of a research university (Ma, 2008; Grant & Drakich, 2010). More and more, universities are striving to increase the amount of research they undertake at their institutions. As the McGill University (2008) strategic research plan (SRP) states, “Our mission is to be ranked, by all indicators, among the top 10 public research-intensive, student-centred universities in the world” (p.1). The University of Toronto (2012), among others, has similar aspirations. Research universities see substantial benefits from undertaking more research. They hope to attract more first-class researchers and greater amounts of funding (Carleton University, 2011; University of Toronto, 2012), which lead to more prestige for the institution and its staff (Clark et al., 2009; Grant & Drakich, 2010). These enable them to establish partnerships with private industry which may result in commercialization and increased private funding (Ma, 2008; University of Waterloo, 2006). One of the driving forces behind this change in the research-university model in Canada was federal government increases in research and development funding (Association of Universities and Colleges of Canada, 2008; Grant & Drakich, 2010) consistent with the government’s goal of increasing Canada’s innovation and global competitiveness.

However, with this shift in research intensity also come consequences. Faculty expectations are high, and they need to juggle increased research with the need to continue their teaching and public obligations (Clark, Moran, Skolnik, & Trick, 2009; Grant & Drakich, 2010). Undergraduate teaching may no longer be the prime focus for the research institutions as it was in the past, which may result in poorer educational outcomes for students (Seifert, Salisbury, Pascarella, Blaich, & Goodman, 2010). Private

sector funding and collaboration increases investment and infrastructure, but could also negatively impact academic freedom and basic research (Clark et al., 2009). Furthermore, differentiation of higher education, especially in Ontario, is becoming more restricted (Clark et al., 2009) as more and more universities strive to become research-intensive, which may impact student education on the whole. Ultimately, with the shift to a greater focus on research innovation, institutional resources may be redirected as existing university structures and models are adapted to accommodate the research mandate.

In this paper, I will review and examine the literature and several Canadian university strategic research plans to gain an understanding of why Canadian universities are expanding their focus on research and development. I will discuss the positive and negative impacts this may have on many areas of university function, such as knowledge generation goals, undergraduate teaching, funding, differentiation, internationalization and globalization, the professorate, and researcher and institutional prestige.

Features of a Research University

The concept of the research university is not new. Von Humboldt and Flexner encouraged research in universities in the nineteenth and early twentieth centuries. In fact, von Humboldt's German university became the model of a research university for much of Europe and the United States (Anderson, 2010). Anderson (2010) states that "the central Humboldtian principle was the 'union of teaching and research'" (The Humboldtian ideal: a community of scholars and students section, para. 2). However, it wasn't until the late 20th century that Canadian universities, along with the federal government, put more effort and funding into establishing the research university as a key source for the nation's economic growth by fostering innovation. As a result, there currently seems to be a trend amongst the larger Canadian institutions in which research is of the utmost importance:" It is vital that universities vigorously promote basic or fundamental research" (University of British Columbia, 2011, p.3).

It would be useful for this discussion to gain a better understanding of what a global research university looks like. Based on a selection of Canadian university strategic research plans' goals and objectives, a research university offers more graduate teaching, employs more first-class researchers and faculty, publishes more research works, and displays more transfer of knowledge and technology both locally and globally (Carleton University, 2011; University of Toronto, 2012; University of Waterloo, 2006). Ma (2008),from the University of California at Berkeley, notes that global research universities have comprehensive academic programs, have updated university management practices, allow faculty to be more engaged in entrepreneurial research, and field a community that combines teaching with research. Ma further states that academic freedom and university autonomy are key attributes valued by research universities. Finally, Yong (2006) remarks that the "mission of the research university is to achieve

knowledge creation and academic advances" (abstract) and to attract top students in their fields. As we can see, there are many unique features that distinguish them from smaller, less research intensive, universities.

The Association of Universities and Colleges of Canada (2008) have outlined five drivers for change that impact research and development for Canadian universities. Their report discusses:

> how five drivers of change will impact university research in Canada and internationally in the years to come: the heightened recognition worldwide of the critical links between university R&D and national prosperity and quality of life; the global race for research talent; the growing costs and complexity of university research; the increased emphasis on measuring outcomes; and the strong impetus to partner across institutions, sectors and geographic boundaries. (Preface, p. iii)

In Canada, research conducted at universities is second only to that conducted in the private sector, and the majority of all basic research is conducted in the universities (Association of Universities and Colleges of Canada, 2008). This means that significant amounts of research need to continue at these institutions if Canada wants to continue to be a strong player in the global financial and knowledge economies.

Graduate education is one of the key features of a strong research university. Historically, Canada has trailed other nations in the number of doctoral students that they produce (Association of Universities and Colleges of Canada, 2008). However, through new funding initiatives, Canada has been able to increase its number of graduate-level education spots over the years (Association of Universities and Colleges of Canada, 2008; Clark et al., 2009). For instance, the Georges Philias Vanier Canada Graduate Scholarships program supports 500 Canadian and international doctoral students per year and the Canada Graduate Scholarships (CGS) program also financially supports many graduate students across Canada (Association of Universities and Colleges of Canada, 2008). The former program was developed as one way for the universities to help attract the world's best students in their fields. With this and other funding efforts put forth, graduate school enrolment at Canadian universities has increased over 60 percent between 1997and 2007(Association of Universities and Colleges of Canada, 2008). Yet, despite these efforts, Canada is still falling short on the number of graduates produced to fill labour market shortages. Could this be that we are still not training enough graduates or that they are leaving Canada to work in other countries? This reasoning is beyond the scope of this paper but is an important area for further discussion. With stronger research university development and administration, we may be able to address the needs of Canada's economic development and attract and retain future stars of the research community.

Flexner (1968) had the foresight to state that “the bulk of the world’s work in research and teaching will be done in universities” (p.20) and he felt that “the university is the active centre of investigation and reflection” (p.24). According to the Council of Ontario Universities expert panel consultation paper (2011), 43% of research undertaken on university campuses in Canada happens in Ontario and these Ontario universities and affiliated research hospitals generated $604 million in research contracts in 2008. Thus, it is safe to say that Ontario universities, and likely many other research oriented universities in the country, are strong contributors to research and development activities and, ultimately, strong contributors to “Canada’s economic and social well-being” (Council of Ontario Universities, 2011, p. 1). A comment from the University of British Columbia’s SRP (2011) notes: “One of the central roles of a large, research-intensive university is to carry out research that contributes to the educational mission of the university and also has an impact on society and the world” (p. 4).

Funding and Economic Issues

It seems clear that many attribute the growth of research innovation at Ontario and other provincial universities to the federal government’s establishment of, amongst others, the Canada Research Chairs (CRC) and Canada Foundation for Innovation (CFI) programs (Clark et al., 2009; Grant & Drakich, 2010; McGill University, 2008; University of Waterloo, 2006).These programs have led to significant funding for research and development at many institutions across Canada with the vision of strengthening “Canada’s performance in the global knowledge economy” (Grant & Drakich, 2010, p. 22). According to the Association of Universities and Colleges of Canada (2008), the federal and provincial governments contribute the largest portion of universities’ external research funding. Other external funding sources include the private sector, non-profit organizations and foreign investors. In total, external funders accounted for about 54.4% of total research funding in 2007. The monies that universities set aside from their own internal research budgets accounts for the other 45.6% of research funds received. In total, universities received about $10.4 billion for research in 2007 (Association of Universities and Colleges of Canada, 2008) from all sources.

But it is clear that the federal granting programs, and likely other research funding initiatives, have benefits as well as problems. Grant and Drakich’s (2010) research showed that the infusion of funding from these programs, specifically the CRCs, has been mostly positive, with benefits seen by both the research chair receiving the funding, as well as the institution with which they are connected. The authors also show that most CRC’s say their research was able to move forward to a new level and that new opportunities were made available to them. They noted that they received more prestige and credibility amongst their peers and that they could attract good students. Yet there are notable weaknesses, however, with the program, as not every chair’s experience was positive. The authors note that the funding programs have concentrated mainly on the sciences, technology and engineering, leaving only a small portion of the pie for the social sciences. These areas can provide just as significant an impact on

society as the core areas of funding can, however they may be overlooked due to their immediate lack of commercialization and ties with the private, funding-rich sector (Clark et al., 2009). Further, the teaching relief that is promised by the universities in keeping with their CRC positions is not always respected (Grant & Drakich, 2010). Teaching will be further discussed in the next section of the paper. And lastly, Grant and Drakich (2010) note that the presence of CRC positions has led to some inequitable practices at some institutions with regard to policies and integrity and in peer-reviewed publication efforts. While we can see that, with this federal funding program, there was mainly positive acceleration of research in the universities, there were nevertheless negative situations that could be improved upon at some facilities.

Financial benefits for research-strong universities also seem to come from partnerships and collaboration with private industry (Ma, 2008; University of Waterloo, 2006; Association of Universities and Colleges of Canada, 2008). As leading producers of research and development in Canada, the private sector is also the third largest contributor to university research funding in Canada, with approximately $881 million contributed in 2007 (Association of Universities and Colleges of Canada, 2008). And the investment into university research by the private sector has only grown since the mid 1990s. As the Association of Universities and Colleges of Canada (2008) report suggests this seems to imply that private industry sees value in this investment. I believe the private sector must then have faith in university researcher's abilities to produce quality work and results. They realize that basic, ethical research is being conducted, and with research comes knowledge production, and with knowledge production comes commercialization.

So, as research innovation develops, so too does the potential for commercialization. This is where private funding collaborations with universities can lead to commercial developments and financial success for both researchers and private investors. This has led to valuable developments in many fields of study. However, with commercialization and more private-industry funding for infrastructure, we could lose successful researchers to this more lucrative type of research at the expense of basic research (Clark et al., 2009). Academic freedom of faculty may also be challenged by the private sector as their prime interest is financial gain (Ma, 2008). For example, there seems to be the potential for the private partner to try to "direct" the research methods and outcomes despite the researchers' ethics and supposed "freedom" to pursue their own academic interests. Lastly, with commercialization, the greatest amount of private funding is usually geared toward the sciences and technology fields. This may lead to further tension between the social science and hard science fields due to inequitable commercial gains and funding opportunities available (Clark et al., 2009; Ma, 2008). Finally, Bok, in Clark et al. (2009), says that these endeavours may actually limit public benefit because of licensing of the discoveries. Licensing can result in greater limits put on public access. Yet, the community is supposed to benefit from our research endeavours. Therefore, there can be both benefits from private sector

funding and inadvertent consequences that need to be addressed and highlighted as potential issues during research university development and function.

An additional source of university research funding for comes from non-profit organizations and foreign investment (Association of Universities and Colleges of Canada, 2008). Non-profits include a significant number of health-related charities and foundations, who link with universities and university hospitals for research initiatives. Foreign organizations, such as the U.S. National Institute for Health, are also contributors to Canadian university research programs (Association of Universities and Colleges of Canada, 2008). Overall, as the external funding sources have increased over the years, internal funding directly from the universities has decreased. For ongoing research and development at universities, all of these sources are key to support of the faculty, students and infrastructure required. My only fear is that during times of economic recession, universities will struggle to maintain the already strained levels of research and education. And that the teaching and education piece may be the loser in any internal battle for funding.

Ultimately, Martin (1998) states that “indeed, universities make knowledge (basic and applied) available to the Canadian economy, thus increasing productivity” (p.682) in a number of ways. He states an “appreciable growth in GDP and employment” (p. 683) is attributable to such research, and it is with this reasoning that the federal government can justify funding research and development activities at the universities in Canada. And, in fact, they have increased their research-funding contributions to universities four-fold increase over the past decade — from $733 million (1997-1998) to $2,924 million (2007-2008) according to Clark et al. (2009, p. 57). Therefore, it seems both government and universities benefit from this more research-oriented role in higher education.

“Our universities will continue to face pressures as a result of increasing administrative, coordination, compliance and other institutional costs that accompany increased demand for research” says the Association of Universities and Colleges of Canada (2008, Preface, p. iii). As described similarly by both Ma (2008) and Altbach (2001), basic science research requires expensive facilities, libraries, and modern equipment, and it is generally the large, research-oriented universities that offer the most resources of these kinds. Overall costs and salaries are typically greater with these sorts of changes (Clark et al., 2009; Ma, 2008).Therefore, facilities wishing to focus more on research need investments into these types of budgets. Many developing countries and even smaller universities in industrialized nations lack these resources and, thus, do not rank amongst the top research universities in the world. However, universities in Canada are facing incentives, such as increased funding, to grow their research activities (Clark et al., 2009). This could lead to further homogeneity of the post-secondary educational system as will be discussed the next section. It seems a concern that with this push for research, the complexities and costs may become impossible for many of these

institutions to realistically attain or maintain. Careful consideration of these pressures should be undertaken, however, I am not sure where, or by whom, these are being addressed at this time.

Overall, we can see that there are significant financial benefits to universities, researchers, and the federal government from investment in research and development activities. However, there are equally significant financial strains with the increases to the student and staff population, faculty salaries, and infrastructure requirements. The threat of basic research loss to commercial research looms, and further division between academic program types (put simply, arts vs. science) is occurring. All of these are pressing and important issues that need to be addressed in the research university model of higher education.

Effects on Undergraduate Teaching

Despite the quest for a greater focus on research and larger graduate teaching populations, research universities still offer undergraduate education as a substantial part of their overall activities. As stated by the University of British Columbia's SRP:

> Much of the research work at UBC is conducted by graduate students, postdoctoral fellows and other research staff; accordingly, there is a very strong connection between research excellence and teaching and learning for those students. However, most of the students at UBC are undergraduates, many of whom are never directly connected to UBC's excellent research. There need to be more opportunities to allow undergraduates to participate in research at UBC. (University of British Columbia, 2011, p. 11)

The University of Waterloo SRP (2006) professes similar objectives of involving undergraduates in research activities. Despite the high levels of undergraduate teaching and the realization that research could be effective in undergraduate teaching, undergraduate education may actually be suffering (Clark et al., 2009; Seifert, Pascarella, Goodman, Salisbury & Blaich, 2010).

Seifert et al. (2010) found that the literature supported this concern whereby there was more exposure to good practice indicators for undergraduates at American liberal arts colleges than for those at other institutions (such as research universities). Their results indicated that liberal arts college undergraduates had greater experiences in "good teaching and high-quality interactions with faculty" and "academic challenge and high expectations" (pp. 12-13) than students at either research universities or regional institutions. These advantages were even stronger for students who scored lower on precollege academic preparation and had below average levels of high school involvement. However, many other measures of good practice had only chance advantages over these other

types of institutions of education. Ultimately, Seifert et al. (2010) suggest that their findings corroborate a widely held view that large universities (with research focuses) are less focused on supporting an ideal undergraduate education environment.

This trend can also be seen in Canada. Clark et al. (2009) report that Ontario's six G-13 universities (research intensive universities) account for approximately half of the undergraduate teaching in that province. However, based on NSSE (National Survey of Student Engagement) results from 2006, these universities did not score as well as smaller Ontario universities or as well as their US counterparts in quality of undergraduate education. In fact, five of the lowest scoring institutions are G-13 universities. This creates a significant concern for undergraduate education success as half of the graduates are coming from schools with poorer track records. It creates further concern when we see that many of the country's smaller universities are striving to become more similar to the G-13 schools. This is a reason that Clark et al. (2009),and others in the higher education sector, are discussing ways of transforming the current system as a means to support continued access, quality and funding for students.

Since federal funding is closely linked to research and graduate education, smaller universities or those with less-established research programs greatly fear being seen as second-tiered (Clark et al., 2009). As a result, the drive is on to introduce more graduate programming at these institutions. However, this will lead to less institutional differentiation in the Canadian higher education system, especially in Ontario. In brief, institutional differentiation is a state in which the post-secondary education system is designed in order to provide different programming and credentials. For instance, a homogenous system has all institutions offering a wide variety of programs and credentials. A heterogeneous model has each institution very specialized compared to each other. Ideally, it seems that a system somewhere in between these, with some degree of differentiation, is best for students. Clark et al. (2009) argue that differentiation is required to provide continued access to higher quality undergraduate education, improved quality of education and lower costs. The authors suggest that more government regulation (in Ontario) is required to mandate institutional differentiation. Thus, if smaller schools continue to drive forward to be like research universities, the differentiation will only become less. It seems that equitable federal and provincial funding and the regulation of all institutions is required to stop this creep toward "sameness." In this way, different institutions can provide superior education to various groups from undergraduate to graduate, from less advantaged to more advantaged students, and in small and large institutions and so forth.

In Ontario, we are using the highest cost model for most of our undergraduate education; the research university(Clark et al., 2009). This ultimately costs government, universities, and students more money. It seems counterintuitive to be spending in this manner when finances are continually strained. And, as I just described, there is less diversity among the types of environments available for undergraduates to learn in this province since a large percentage of undergraduate education is provided

by research universities. Thus, it seems that Ontario for instance, is not providing undergraduate education in a cost-effective manner. Add to this that research universities are not necessarily providing the best teaching opportunities for undergraduates, then there is both a financial and quality issue to be seriously addressed. In Ontario, we are concentrating undergraduate education into this one model. And with a diverse range of students and learning styles, one type of institution may not meet their assorted needs. This will ultimately affect not only student learning but the competency of the human intellectual capital that the government is seeking.

Another result of the increase in research at Canadian universities is the trend toward more teaching-stream positions. This has become a needed requirement as research chairs are being relieved of some of their teaching responsibilities in order to carry out their research responsibilities. Thus, faculty with teaching-only responsibilities are being hired to fill the gaps. Sanders (2011) reports that there are strengths and limitations to these positions. One such limitation is the fact that research productivity is often more valued than teaching activities, especially in a research university. She discusses how this can ultimately lead to a two-tiered system with the teaching-stream faculty being seen as less important than the research faculty. This is already noted in the differences in job security and wages. Further still, while PhDs are often hired for these positions, they may not necessarily want teaching-only positions — these are all that is available to them under in this two-tiered model. However, on a positive note, the teaching-stream faculty usually have stronger teaching abilities and could improve undergraduate education through greater teaching expertise and by being more available for curriculum development. It can also be helpful that, if by alleviating the researchers of some teaching time, the research faculty become more available to do graduate teaching, which is an important element of the research university model. Therefore, teaching-stream positions may be useful if used appropriately and fairly.

The issue of over-commitment by faculty in the research university certainly exists. “CRCs are generally allocated a substantially reduced teaching load” (Carlton University, 2011, p.4). Yet Grant & Drakich (2010) found that this is not always happening as promised. So, as there is an increased pressure placed on faculty for research activities, there becomes a conflict between research, teaching responsibilities and service to the community due to lack of time (Clark, 2009). This creates yet another strain on the research universities’ role in providing undergraduate education. Overworked faculty are finding themselves with too many responsibilities and too much pressure to perform well. Clark et al. (2009) state that over-commitment can threaten that “basic integrity of the institution as a whole” (p. 67). It seems that consistent information from administration and altered expectations of faculty are ultimately required to alleviate some of these strains.

In summary, large numbers of Canadian undergraduate students are being educated in large research universities. However, the literature shows that this teaching may be compromised to some degree due to institutions’

focus being diverted towards research. Best practice indicators for good teaching are higher in smaller, less research-focused institutions. Further, faculty are feeling the strain of their increased research roles when the promise of lightened teaching roles are not actually carried through. One solution may be the increased role and recognition for teaching-stream-only positions. Yet inequalities exist between these two different types of faculty. More research into the effects and solutions to these issues is needed in order to improve undergraduate education to a higher standard.

Prestige and Recognition

Yong (2006) notes that a research university is usually cited as the “top university of each nation” (p. 417).Yong further reports that nearly 80% of Nobel laureates are employed at world-famous research universities. The University of Toronto boasts 10 Nobel laureates (University of Toronto, 2012). Sanders (2011) describes an international measure of institutional excellence is increasingly by its research productivity. Further, Clark et al. (2009) state that “prestige is closely linked to research and graduate studies” (p. 45).Thus, universities are striving to reach this goal of excellence and recognition from local and international colleagues and from students by increasingly expanding their research capacity.

For a research university, a substantial benefit of this “excellence” is the ability to attract elite researchers and faculty(Yong, 2006). Additionally, the CRC chair positions have the ability to attract talent and make positive impacts on universities. Overall, individuals with CRCs see positive effects in their research productivity and their careers are often rewarded for maintaining the prestige value of the CRC (Grant & Drakich, 2010). Grant and Drakich (2010) further noted in their research that “retaining and luring research stars lends prestige to the institution in quite tangible ways” (p. 39). Many are able to get their research into better journals and have the ability to acquire their needed infrastructure and administrative supports. Therefore, both the researcher and the institution can benefit from the funding programs that are in place as a way to improve their global status.

Related to the institutions’ ability to attract first-class faculty is the ability to then attract top-rated students into their programs (Grant & Drakich, 2010, Yong, 2006). Many students pick the graduate school they want to attend based on the prestige and programs available at that institution. It is easier for top-rated schools to attract top-rated students. This seems to lead to a reciprocal benefit for both students and the institution. Further, first-class faculty have a greater ability to achieve collaborations with private sector and global partners (Grant & Drakich, 2009; Ma, 2008). External partners respect the institution’s and faculty’s prestige and expect more successful collaborations to arise from their partnerships. Therefore, global recognition can lead to more prestige by bringing in more external funding and partnerships, along with more accomplished academics and students, to their programs.

Yet, despite attempts at improving their rankings and international appeal, only two of 19 Canadian universities improved their positions in the Times World Rankings this past year – the University of Ottawa and the University of Montreal (Dehaas, 2012). The others actually fell in position, likely the result of stronger performance by schools in other countries who have been similarly trying to improve their international recognition. However, Canada still has more schools on the list than many other countries, ranking in the top five for countries who have the most schools in the top 200 (Dehaas, 2012). The Times Higher Education World University rankings 2012-2013 are based on performance in teaching, research, knowledge transfer and international outlook (Times Higher Education World University rankings website, 2012). It seems that Canada has definitely made a mark on the global community; however, if the desire to compete at top levels continues (i.e. to be ranked in the top 10 as described in the introduction), we will have to identify areas in which universities are struggling and determine new ways to solve the problems that will arise from further pushes toward global research university success.

Despite the increasing drift toward being a research university, institutions need to realize that there are other difficulties that come with the new complexity of the university administration. Ma (2008) notes the rapid turnover of presidents and management in American research universities demonstrates that these types of campuses are more challenging to lead. Thus, universities that aspire to such heights have to be prepared for the difficulties and issues that can arise. They will require strong leadership as well as strong academic voices. As previously discussed, research innovation calls for more infrastructure, such as buildings and technology, as well as more staff. This also translates into more funding. Ma (2008) notes that an “emerging global research university is not only labor (labour) intensive but also very costly” (p. 75). It seems inevitable then that some areas may suffer depending on where the monies are being allocated. Clear expectations from the university will help faculty and researchers attain their research goals and guidance from government may help to keep a variety of educational environments available. With suitable choices, more students and faculty may be able to find institutions that meet their individual needs.

Overall, some Canadian institutions seem to be faring well in terms of prestige and global recognition compared to other nations. With this continued commitment to research and to understanding the complexities of this type of institution, some may be able to climb the global rankings and continue to attract high calibre students and faculty. However, with this desire for prestige comes the potential for overlooking other quality institutions and programs. If ‘excellence’ is only considered with research, other factors, such as teaching, will always be unfairly overshadowed.

Globalization & Internationalization

Clark et al. (2009) argue that there is a belief in Canada that the prosperity and quality of life of its citizens is linked to the knowledge obtained through post-secondary education and that this ultimately drives our economy globally. Similarly, universities feel that they want and have

strong links to the globe —“research at U of T has global impact” (University of Toronto, 2012, p. 3). Thus, Canada increased this drive for more research and post-secondary education as it discovered that its place in the global economy could not be maintained on commodities and natural resources alone (Clark et al., 2009). The government realized that intellectual capital needed to form the foundation of the country. To be more globally collaborative is increasingly a greater part of most universities’ research objectives. Ma (2008) describes the advantages of this collaboration as opening access to international resources, allowing for more research collaborations and providing a global aspect to student learning. However, he notes that, with more globalization, comes more competition between research universities around the world. Thus, there is a greater need for investment and interest in the growth of the global research university in Canada, should this goal be realized.

Canadian fears about “brain-drain” of the 1990s, where strong researchers and academics left for opportunities in other countries, was another factor that led to the federal government’s launch of the CRC and other similar programs (Jones & Oleksiyenko, 2011). Knowing that the country’s future economic success had strong ties to human intellectual capital, they could not risk losing some of our greatest scholars to other countries. Currently, there seems to be signs that Canada has an increased ability to retain and attract more top scholars to the country and reverse the “brain–drain” effect. The Association of Universities and Colleges of Canada (2008) note that, of the 1,829 CRC positions available in 2008, 582 of these positions (32%) were held by faculty attracted from abroad. This demonstrates Canada’s increasing prominence in the global academic field and hopefully, an end of the 1990’s “brain–drain”.

The McGill University SRP (2008) states that with “20% of non-Canadians coming from 160 countries, McGill is both the most national and the most international among G-13 institutions“(p.1) and that the institution is “committed to pursue the internationalization of our activities” (p.2). It seems that they are not alone. Not only does attracting international students (and faculty) provide more opportunity for cross-cultural activities, it brings with it additional funding. And in terms of international alliances, Jones & Oleksiyenko (2011) note that only recently have there been signs that the federal government will support international research collaborations and coordination. However, there is not always the practical support for these alliances at each institution. Therefore, although international collaboration is recognized as important, more emphasis is still placed on local, rather than global, needs. More research and analysis into best methods for aiding universities in these endeavours is warranted.

Altbach (2001) discusses in his paper on the world knowledge system that, like Westernized countries, many developing countries also want to build their scientific capacity in order to compete and contribute to the world’s knowledge base. This appears to be the trend around the world, universities and governments striving to make significant, and thus economical, contributions to the worlds’ pool of knowledge. Globalization and internationalization will continue to have a place in the research

university and in reaching this goal. However, I am not convinced whether clear benefits or risks have been adequately addressed in the literature to date.

Conclusions

Flexner (1968) said that “successful research institutes are no substitute for universities” (p. 35).This statement illustrates that research should not undermine the importance of universities providing sound educational opportunities. Yet it seems that the growing presence of research and development at certain Canadian universities has had both positive and negative impacts. On a positive note, we see greater economic development and more human capital. These universities receive significant funding from the government and private sectors and, thus, research output and graduate student teaching has increased. Much of this research output benefits society at large. There is greater commercialization of research outcomes and greater prestige awarded for the researcher and the university. However, there are seemingly negative impacts on undergraduate teaching and pressures on the researchers to do ever more. There is a risk of losing the tradition of basic research to instead do more lucrative research endeavours. And there is also an imbalance of funds and recognition going towards certain areas of research, specifically science and technology, with minimal funding provided to studies in the social sciences.

Clark et al. (2009) may in fact be accurate with their suggestion for increased institutional differentiation. It seems to be one solution that will allow for varied educational and research opportunities for students and faculty alike. However, unless funding and status remain equitable, this may not be achievable. No institution wants to be considered second-tier. Thus, further inquiry into ways to achieve successful global research universities without sacrificing undergraduate education, acquiring exorbitant costs, and causing faculty over-commitment, must be explored. I feel that teaching should not become secondary to research, as universities were initially established for teaching and education purposes. However, I do recognize the importance of research and its place in the educational and global system. It seems plausible that Canada and its universities can achieve their goals without increased systemic homogeneity and compromised educational quality. It is clear from this analysis that there are substantial benefits of research innovation produced by universities but also important problems that need to be addressed within the research university model.

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