

The internationalization of Canadian university research: a global higher education matrix analysis of multi-level governance

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Abstract To date, much of the research on internationalization and globalization of higher education has focused on the institution or higher education system as the unit of analysis. Institution based studies have focused on the analysis of institutional practices and policies designed to further internationalization. System-level studies focus on state policy initiatives or approaches. In this paper we explore the inter-relationships among multiple levels of authority within a higher education system through an analysis of research policies and activities related to internationalization. While we are interested in the internationalization of university research, our primary objective is to explore the relationships between policy initiatives and approaches at different levels. Using the “Global Higher Education Matrix” as a framework, we discuss the policy emphasis on the internationalization of research at the federal, provincial (Ontario), and institutional levels of authority, as well as the international research activities associated with two large professional schools operating at the under-structure level. By focusing on the inter-relationships among initiatives at different levels of authority, this study explores the complexity of policy perspectives within the internationalization of research in the context of multi-level governance.

Keywords Internationalization · Research University · Globalization · Global higher education matrix

The interdependencies among global, national and local are of increasing interest in the higher education literature. Researchers seek a more integrated framework of analysis in

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order to understand the complexities caused by the internationalization of university research (Marginson and Rhoades 2002; Enders 2004). A more scrupulous investigation of each plane in the new framework reveals a series of fragmented elements that suggest that the internationalization of research is an incoherent and sporadic process, rather than an amalgamated and planned course of actions (Oleksiyenko 2008). The inter-relationships among federal, provincial and institutional policies are one of the areas where such disconnections transpire. This paper sheds more light on the nature of such interdependencies. Before delving into the depths of the multifarious policy linkages in the internationalization of university research in Canada, we consider the broader global perspective of higher education internationalization.

Connections between global and local in the process of internationalization

Interdependencies among global, national and local in higher education evolved through an interesting sequence of mutual impacts that are reflective of creative, if not antagonistic, tensions. Many scholars argue that the tradition of cross-border academic exchanges goes back to spontaneous, continuous and organic processes cultivated within the nascent universities of medieval Europe (Altbach and Teichler 2001; Enders 2004; de Ridder-Symoens and Rüegg 2003). *Academica peregrinati* transferred scientific expertise across geopolitical borders, restricted in their movement only by employment frameworks and personal circumstances (Haskins 1966). Similarly, the early academic activities in Asia and the Middle East include travel and cultural investigations as integral components of emerging scholarship (Hayhoe and Pan 2001).

The institutionalization and regularization of academic mobility came about at a later stage, with the advancement of the nation-state (de Wit 2002). Concurrently, subsidies and institutional diversification were used by the ascending nation-states to regulate university loyalty and adherence to local needs (Scott 1998; de Wit 2002). Indeed, many universities took on the role of local knowledge agents to respond to the needs of local political, cultural and economic elites (Anderson 1995; Eldersveld et al. 1995). With nation-states and national corporations pursuing expansionist goals, universities gave into global ambitions and became nodes in the emergent global networks of production and trade (Altbach 1998). Changes in the environment influenced many academic institutions to adopt new organizational survival skills. Only some universities, however, embraced a global perspective as their core mission (Altbach and Balán 2007; Marginson 2002, 2006).

Having initially evolved within academic walls as an independent add-on process spearheading acculturation and diversification of university populations and programs (Knight and de Wit 1995), over time internationalization became a “systematic effort” (van der Wende 1997). Some researchers point out that institutional thinking has acquired more weight in the process. As trade and mobility of resources became global, internationalization came to be increasingly interpreted as a change process requiring a “comprehensive strategy” (Taylor 2004). Moreover, Söderqvist (2007) argues that it is not merely an “educational change process” (van der Wende 1996) but “a change process from a national HEI into an international HEI” (p. 31). The role of peer research universities in shaping a more competitive and focused response is undeniable (Bacow 2002). Globally, both higher education systems and the comprising universities have adopted a more competitive mode of operations in order to secure their positions in the evolving global hierarchies of knowledge (Altbach and Balán 2007). The “nation-building universities” (Marginson 2002) experience pressure with regard to internationalization, which

moves to the core of the university agenda and triggers a more complex set of policy tensions between global and national.

This paper focuses on the complex and dynamic interactions of multi-level policy perspectives within the internationalization of university research and, hence, advances some earlier studies in this area (Marginson and Rhoades 2002; Enders 2004). We sought to supplement the theoretical construct with an evidence-based holistic policy framework of internationalization of university research. This paper is organized into three major sections. We begin with a review of the core concepts underscoring the framework employed in the study. This is followed by a case-study analysis of policies and activities associated with the internationalization of research at each level of authority in the province of Ontario. Finally, we offer a number of conclusions by looking at the inter-relationships between the emphases on the internationalization of research by level of authority within the explored higher education system.

The study

This paper employed the “Global Higher Education Matrix” as a mechanism for exploring the complex, multi-layered relationships among policy arrangements at different levels of the Canadian higher education system (Jones 2008). The matrix combines Burton Clark’s classic observation on the importance of understanding higher education policy in terms of multiple levels of authority (1983) and Marginson and Rhoades’s notion that higher education can be analyzed along global, national, and local planes of activity (2002). Rather than positioning the global as in opposition to the local, Marginson and Rhoades argue that higher education systems operate on multiple planes. Institutions can be both provincial and international in orientation at the same time.

We used this matrix as a framework for our analysis of the internationalization of research within Canadian higher education. Given Canada’s federal structure, we decided to focus attention on four levels of authority. Under Canada’s constitutional arrangements, the responsibility for higher education policy is assigned to the provinces, though the Government of Canada has come to assume a central role in a number of related policy areas, including research and development. While the federal government is the major sponsor of university research, most Canadian provinces have now developed university research initiatives and funding mechanisms (Fisher et al. 2006; Shanahan and Jones 2007). We therefore focused attention on the two levels of authority associated with research policy at the superstructure level of Canadian higher education, and we reviewed policy initiatives associated with the federal Government of Canada and with the government of a single province, Ontario. Much of this analysis draws on previous policy research (Bond and Lemasson 1999; Fisher et al. 2006; Jones 2006; Jones and Young 2004; Shanahan and Jones 2007).

We also focused on two levels of authority within a single university in the province of Ontario that we call Major Research University: the institution level of authority; and the understructure, or local academic unit, level of authority represented by two professional schools. This component draws heavily on a previous study (Oleksiyenko 2008) and was informed by 47 semi-structured interviews with representatives of the academic, senior administrative and service units at the institutional and understructure levels at this institution. The two professional schools selected for this study were education and medicine. The interview data were triangulated with institutional materials that included academic plans, annual reports, departmental web-site materials, as well as strategic

planning documentation developed between 1997 and 2007. The data were codified to track down contextual, structural and programmatic variables within organizational approaches that the two professional faculties used in the process of defining and implementing their internationalization strategies over time.

Focusing on two professional schools provided a useful basis for analysis, given their scale of programming, levels of structural complexity, and differences in epistemic norms, as well as the diversity of values integrated throughout the process of international partnership building. The two were chosen because they hold contrasting positions within the broader discussion of research in the context of globalization. Medicine is an example of an area of research that is highly competitive and well-funded. Education is closely aligned with the social sciences and humanities, and is usually viewed as distant from the marketplace. Both professional schools are subject to provincial regulation so we were interested in seeing whether local educational mandates (related to the licensure of professionals) led to differences in their research activities along local, national, and global dimensions. As part of a major research university, the two schools offered an opportunity to compare the complexity of their traditional responsibilities, determined by provincial mandates, against the new responsibilities, shaped by global stakeholders.

There are many limitations associated with this study. While our design allows us to look at the relationships between levels of authority within a complex higher education system, our analysis is limited to the analysis of data obtained within a single institution within a single Canadian province. The number of units in each dimension of the matrix is admittedly arbitrary; one could have expanded the matrix to include additional levels of authority (such as academic department or research institute) or planes of activity. At the same time, the study makes an important contribution to the literature on internationalization by looking at the relative emphasis on research across multiple planes of activities (Marginson and Rhoades' notion of "Glonacal" 2002) at different levels of authority.

Research policy and internationalization by level of authority

The Canadian research infrastructure system is driven by the funding priorities of the federal government. At the same time, constitutional responsibility for education is assigned to the ten provincial governments that play the major role in the legislation, regulation, and direct funding of universities. There is no federal ministry of education or higher education, and no explicit national higher education policy. Albeit unparalleled to the roles in the expansion of postsecondary education after the WWII, the federal government continues to carry out a number of important, if largely uncoordinated, responsibilities in student financial assistance, aboriginal people's education, cultural and bilingual language initiatives, in addition to university research (see Fisher et al. 2006; Jones 2006). The paragraphs below look into interdependencies between policies and activities associated with the internationalization of university research at each of four levels of authority within the Canadian higher education system: the federal level, the provincial level, the institutional level (represented by our review of activities at Major Research University) and the understructure level (represented by two professional schools).

Federal level: the Government of Canada

The Government of Canada has been the single largest source of support for university research since 1945. The major mechanisms for supporting university research in 1990

were the three major granting councils, and the national centres of excellence program. The three granting councils¹ support researcher-initiated projects based on the recommendations of an elaborate peer-review process, as well as supporting research in areas viewed as nationally strategic by each council.

The mid-1980s ushered a drive towards a national research and development strategy that spearheaded the networks of academic scholarship focused on technology transfer and commercialization. The federal government's strategy to address the national deficit in the mid-1990s included major cuts in transfers to the provinces for postsecondary education. When annual deficits became annual surpluses, the federal government made major investments in an innovation strategy that included a number of major new initiatives focused on university research and research infrastructure. Concerns about a possible brain-drain of Canadian academic forces to the United States was one of the factors that led the federal government to launch a number of innovative programs such as the Canadian Research Chairs initiative to stimulate the return and retention of intellectual power. The CRC program provided support for the creation of 2,000 research chairs at Canadian universities.

Federal policies and funding mechanisms associated with university research were clearly focused on a national agenda and, to a lesser extent, provincial or regional interests. Examples of the latter include recent initiatives designed to encourage research focusing on the Canadian North, or to encourage partnerships and collaboration between scholars working in different regions in Canada. However, federal policy for research has clearly emphasized the national dimension and the local or provincial dimension has received only moderate attention at best, though, as we will note below, one of the implications of these federal government initiatives has been to leverage the development of new research initiatives at the provincial level.

Federal government policies and funding mechanisms have placed relatively little emphasis on internationalization. As Trilokekar and Jones have noted:

In a 1994 report the Department of Foreign Affairs and International Trade estimated that Canada's per capita investment in international cultural relations and education was \$3.08 (CDN) while France spent \$26.58, Germany \$18.49, UK \$13.37, and Japan invested \$12.60. There has been almost no support for international student recruitment, and the budgets for international scholarship programs are frequently threatened (2007, p. 12).

Research council funding mechanisms have supported the research activities of Canadian researchers, and these funds might support international travel for data collection or research dissemination, but, until quite recently, there were no clear mechanisms to support international research collaboration or the development of major international research initiatives. The emphasis has been on supporting Canadian university researchers, and there has been a concern that investments in international initiatives might displace national investments in the work of Canadian universities (see Jones 2009). In the absence of any national research funding mechanisms promoting international initiatives, the Canadian International Development Agency became a major source of support for international activities through the government's development agenda, but CIDA obviously focuses on development, not international research. The scarcity of federal

¹ The three granting councils in 1990 were the Medical Research Council, the Natural Sciences and Engineering Research Council, and the Social Sciences and Humanities Research Council. The Medical Research Council was later transformed into the Canadian Institutes of Health Research.

funds for international research creates the impression among universities that international partnerships “are pushed [rather than supported] by the government”, as one of the interviewees in this study remarked.

As Trilokekar (2006) has noted, the Government of Canada’s major initiative in the area of internationalization and research has been the Canadian Studies Abroad program which supports the development of Canadian studies research and academic programming at universities outside of Canada. The program is not designed to support the international dimension of Canadian research, but rather to support the Canadian dimension of research taking place in other countries. The international programs at other federal agencies remain scattered. Coordination across various departments has been sporadic, with inconsistencies between intentions and practical measures looming large. According to one study participant, “They are looking at India, Brazil and China, and they have 6 million dollars over 5 years? That’s not enough. Governments have to provide a sense of their focus and provide some real money”. The federal government’s approach of “throwing peanuts in order to spread the peanut-butter evenly across the country” was criticized by a number of the interviewees in this study. A medical researcher travelling to one of developing countries on a regular basis disappointedly noted: “And on the visits I’ve made to [that country], you hear when you meet the Canadian Counsellor, or whatever is the right title, she has no idea of how many Canadians are working there, on what projects, and what agencies are funding...overlap is unbelievable. It’s not strategic”.

Recent changes in federal government policy represent modest steps in the direction of encouraging the coordination of international research. In the last few years the granting councils have experimented with international initiatives, but the most concrete change was outlined in the 2007 federal budget. The budget provided an explicit argument for the relationship between local research needs and international partnerships, and the granting councils have initiated modest programs designed to support some international research activities. While the federal government’s emphasis on the international dimension in research policy is still quite low, there are signals that the situation will be changing in the near future, given the pressures from the provincial and institutional levels. These are discussed below.

Provincial level: the Government of Ontario

The provinces have come to assume the central role in higher education policy in Canada, and there are different legislative foundations, regulatory arrangements, and institutional types by province (see Jones 1997; Shanahan and Jones 2007). The provinces, however, differ in terms of their support of university research, with Quebec operating a provincial research granting council supporting research-initiated projects (in parallel with the federal granting councils) while some provinces have largely assumed that sponsoring university research had become a federal responsibility.

The Government of Ontario devoted little attention to supporting university research until the early 1980s when it became interested in finding ways of encouraging interaction between provincial universities and local industry. The province created a modest matching-grants mechanism to support university-industry collaboration in the early 1980s. Later in the decade, the Ontario government created an innovative Centres of Excellence program which would later provide a model for the federal initiative of the same name. Under the Ontario initiative, a series of research centres were created in select fields of study deemed to be strategic in terms of research and economic development. Each centre involved multiple university and industry collaborators who worked together

in these separate legal entities under complex contractual relationships with universities and government. The province made substantive investments in these centres as a means to further provincial economic development (Jones 1991).

Ontario's policy approach to university research began to change at the turn of the 21st century in response to the major investments in research infrastructure that were initiated at the federal level. Federal initiatives emphasized competition and matching grants, and there were concerns that the absence of provincial support was decreasing the competitiveness of Ontario universities under these new national programs, especially the Quebec government's longstanding investments in this area. The province created a mechanism for providing part of the required match for infrastructure grants under the Canada Foundation for Innovation—essentially in an attempt to leverage additional federal dollars (Jones and Young 2004). There were also new awards designed to recognize and profile the work of outstanding early career researchers in Ontario.

The McGuinty (Liberal) Government, elected in 2003, has viewed postsecondary education and university research as key components of economic development. The province has supported a major expansion in undergraduate enrolment (an expansion that had been initiated and supported by the previous Progressive Conservative government), graduate enrolment, and trades. A separate Ministry of Research and Innovation was created under the leadership of the Premier, and a number of new funding mechanisms were introduced to encourage university-industry linkages, facilitate commercialization, and reward research excellence and entrepreneurship. Although the provincial government did not consider internationalization as its primary sphere of responsibilities, the exposure of Ontario-based industries to the processes of globalization has stimulated provincial agencies to adopt a more collaborative approach in higher education. One of the international genomics consortia with a significant budget and over a hundred research staff located at a research university is enthusiastically co-sponsored by the new Ministry of Research and Innovation and the Ontario Genomics Institute, a private non-profit corporation. Initial funds have been also provided by the Ontario Research and Development Challenge Fund and the Ontario Innovation Trust.

One of the Ministry's new initiatives, the International Strategic Opportunities Program, is explicitly designed to encourage international research collaboration as a mechanism for recruiting excellent researchers to Ontario, furthering economic development, and strengthening Ontario's international profile. The Program is highly competitive, and will only provide up to 50% of the costs of a project to a maximum of \$150,000 over 3 years.

The major emphasis of the Ontario government's research policies and initiatives is on furthering Ontario's economic development and the province's competitiveness in an increasingly knowledge-based economy. There is clearly a high emphasis on local/provincial needs. Stimulated by the interests and influences of major corporations, the provincial government continues to seek collaborative initiatives that make sense to the local providers. Being aware that the provincial funds cannot substitute federal contributions for research, the provincial government seeks meaningful co-funding patterns. For example, in an attempt to further provincial interests, the provincial government has taken steps to assist institutions in competing in federally funded programs. The province is clearly interested in increasing the share of research support provided by the federal government to provincial institutions, and this has led to a moderate emphasis within provincial policy on the national plane. However, in sync with the federal programs, the provincial policy statements remain ambiguous about international directions. One of the researchers argued,

Look at the Ministry of Research and Innovation's focus on partnerships, at the Ontario government's focus right now. They have some programs that they've lined up where the economic development offices are lined up. Their programs are lined up behind the general MOUs they have signed with other jurisdictions... [However], they are sort of ambiguous on the set of programs that speak to partnerships. So they are giving mixed signals about what they are willing to support. They have very limited money for support.

Some university researchers still have a high level of expectations from the government and have been urging the provincial policy-makers to take a stronger position in the relations with foreign providers. The modest International Strategic Opportunities Program is the only initiative that focuses explicitly on the internationalization of research and research collaboration, suggesting a low emphasis on the international domain in terms of provincial research policy. One of the observers made the following remark: "for governments, they've got to do two things. They've got to do more than lip service to the value of partnerships. They've got to put some resources behind that. And they actually—I hate to say this because it's constricting—but they have to give a signal about where in the world they think partnerships are important". Although most participants in the study agree about a better streaming of resources for international research within the governmental coffers, the academics' message about the responsibilities of individual researchers in the constructed schemes is full of concern. A significant number of researchers are quite resistant to the top-down directions. One of the commentators argued that "the Ontario government through its funding of commercialization is trying to engineer partnerships. And the engineered partnerships might succeed only if the fabrication evolves into an organic relationship. If it's not an organic relationship, there won't be any [partnerships]".

Institutional level: Major Research University

In the absence of government support for the internationalization of research, the Major Research University in our case-study was left on its own to decide whether to make major changes in budgeting and management structures, or to encourage market-oriented mechanisms. Finding few convincing arguments for a major university-wide or division-wide restructuring of the budget in favour of internationalization, the university has followed a principle of "steering from a distance". Over the years, this translated into allocating a very limited amount of internal funds for seed grants by raising some money from private donors, establishing a support unit for faculty members seeking external support for their efforts in writing grant proposals, creating a portfolio (i.e., a selected list of initiatives that promised to provide the highest return on investment politically or economically), or devolving the authority over internationalization efforts to lower institutional levels within the understructure (see below).

With globalization increasing the demand among faculty members for more access to international settings, institutional authorities often encountered "demand overload". This overload usually resulted in a rapid depletion of any available seed grant funds, the role strains of support units, and the increasing frustration of faculty members. The creation of portfolios involved the complicated and often politically-charged process of prioritizing and selecting a few initiatives (which generally meant singling out a few trusted individuals from a large research community), while seed funds ultimately offered a limited opportunity to create a sustainable initiative. As one of the medical faculty members noted:

each and every department or office in [our division] has its own international projects. They do speak to each other but not as much as they should be in an internationally known university and the university with amazing infrastructure such as [this]. There have been embarrassing instances where researchers in the same division carry out projects in the same country without talking to each other and coordinating the efforts. You have a plethora of international initiatives with very little coordination between them. And they are often carried out at individual level.

At various times and in different incarnations, university-wide coordinating offices of Major Research University failed in their attempts to develop unified institutional priorities and select a strategic group of international partners (Oleksiyyenko 2008).² It is quite clear that the central administration of Major Research University places a high emphasis on research. The growth in research support from the national and provincial governments, which, in turn, emphasize the national and provincial priorities, has required the University to become increasingly strategic along these two dimensions. The University's share of research grants from the three federal granting councils now has an impact on federal overhead transfers and the allocation of Canada Research Chairs to each institution. Success in competitions at one level of government can, in some specific situations, leverage funding opportunities at the other.

Although the Major Research University emphasizes the value of international research, the level of practical support at the institutional level is quite modest. The University provides administrative guidance for all funded research activities, provincial, national and international, but its attempts to develop strategic approaches to international research and development activities earlier in the decade were not viewed as successful. The lack of federal and provincial funds for international research initiatives or collaboration often implies that there are no practical means to leverage or reward strategic projects. Changes in other policy instruments such as performance evaluation or structural adjustments are perceived as unjustified, given the experimental nature of international initiatives. The result is considerable agreement among interviewees that the internationalization of research is a low priority at the institution level of authority of the University. One of the researchers remarked,

while the university may say, 'international work is important, and we want it to flow, and we want to support it', [at the divisional level] we were clearly told that, 'you know, we have to work with the resources we have and so the internal servicing of the university, the teaching, should be a priority over international initiatives'. Yes, university wants an international profile, but when it comes down to the pragmatics, they are doing nothing to build the capacity of the faculty to do that.

As a result, according to another participant, "you only have the keeners doing partnerships if there is no institutional support for this". The details of the nature of policy decisions at the lower levels are elaborated further.

² There would be more research required to understand how connections between federal funding and institutional policies of internationalization vary across universities. Tendencies towards decentralization of international research are also observed at major research universities in other jurisdictions, even though federal funding for global engagement is relatively high there (see Edwards 2007).

Understructure level: the Faculty of Education and the Faculty of Medicine at Major Research University

The Faculty of Education and the Faculty of Medicine are at a complicated cross-roads of research interests and allegiances drawn apart by local, national and global planes of research and education.

The two divisions both place a high emphasis on the local dimension in their policies and activities. They operate professional programs that require strong relationships with sites of professional practice (elementary/secondary schools, or hospitals) that are directly associated with both the teaching and research mission of these understructure units. Both faculties are accredited by provincial agencies and maintain strong relationships with the provincial government ministries that regulate and fund professional practice (the Ministry of Education and the Ministry of Health). The administrative leadership of both units have very strong relationships with provincial and local professional officials and considerable emphasis is placed on responding to local/provincial rather than global needs in education. One medical faculty member asked,

do we really want to be an international player? Do we really want to use parts of our infrastructure, whether it's a human or physical infrastructure to help other countries develop their infrastructures? That's a question that is vague and not clear to me. You have to know that in many education units and more so in Medicine that they would tell you that their first commitment is to the Canadians and Canadian trainees. Being a public university, the time of educators is to deliver to local trainees, so if you say "let's go and develop a program outside", they would say "how can you justify using the time of this educator of this physician when he is being paid from the public purse for the development of international projects?"

In terms of research, the two divisions have varied perspectives and emphases. There is a strong national medical research community that the Faculty of Medicine plays a leadership role within, there are national research funding foundations and agencies that the Faculty maintains strong relationships with, and there are national professional associations that facilitate a national conversation of medical practice and encourage a national perspective within medical research. The Faculty of Education receives considerable research support from federal granting councils too, despite the lack of a national Ministry of Education. There is a national educational research community that is an active participant in international research networks and communities. However, the research emphasis within the Faculty of Education is more strongly focused on the local and the international dimensions, in part because there is a quite limited national conversation of education given the central role of the provinces in education (and higher education) policy.

Despite the lack of centralized support, both faculties have high levels of international research activity. There are many international research collaborations and international research and development projects, emphasized within faculty publications, graduate student recruitment initiatives, and policy documents. Individual faculty entrepreneurs have obtained funding for international research or are working as collaborators on projects funded by foreign governments, NGOs or international agencies. The pursuit of funding from outside of the federal and provincial framework becomes their major concern. "We rely in big part on national funding, the tri-council, and our capacity to increase that kind of funding is limited over time, and if we want to increase [international] research

revenues in general we need to tap into other sources which are not federal or provincial sources but that go beyond that”, stated a Faculty of Education senior administrator.

While the level of international research activity, collaboration and dissemination were high in both faculties, and the administrative leadership at the faculty level placed a high emphasis on the international dimension within policy, there were differences between the two units in terms of the capacity of the leadership to stimulate or coordinate international research initiatives.

In terms of environmental pressures, primary/secondary schools and teaching hospitals are different institutions requiring from university faculties different missions and organizational approaches. In the words of a study participant: “The education part is a lot more diffused...because your customers are not clearly identifiable...your community of learners may be in rural [schools] and not as easily identifiable as the scientists sitting in a [medical] lab at some other university. So what you mean by international and who your customers are, who your partners are, may be very different”.

In terms of alternative policy instruments probed by the faculties in response to the government and institutional failures to support international activity at the ground level, organizational differences can easily transpire too. Market approaches and business templates of organization have a larger number of advocates in Medicine than in Education. Medical faculty members have to go beyond traditional forms of autonomy, since their field calls for a higher level of engagement with private and public agencies important in the networks of public health and medical practice. A medical researcher described his approach to an initiative as: “entrepreneurial, because I am treating the whole program as an entrepreneur...meaning that you have to treat it as a business, really, as a start-up business. You have to find distribution channels, funding, you have to do marketing”.

At the same time, a claim by a director of an entrepreneurial unit at the Faculty of Education that “our time is money... so we are always thinking about examining our costs” finds a different resonant response from academics in the same division, “[their department] sells everything, it does on the basis of cost and a profit—it’s a consulting firm. It’s fine. There is obviously a market. So be it, but don’t mix it up with the academe”.

While Education faculty members primarily emphasized individual research, medical researchers argued that team work was becoming a necessity in their field and was spearheading organized research. As one of the academic leaders in Medicine remarked, “Increasingly, we are looking at the team as a vehicle, and not an individual practitioner. So, how do you educate a team to provide more effective care? What are the roles everyone has on the team? What do they need to know? What kind of knowledge do they need to know? How’s knowledge shared in a team? That’s the real world, more and more [for us]”. Another medical researcher added, “it’s also consistent with the nature of how science is being advanced in medicine, which is largely through teams—an effective team functioning; collaborative sharing and also the sorting out of the quite competitive environment that exists among researchers.”

Although the Faculty of Medicine was farther along in terms of using the existing dispositions to develop non-traditional approaches in organizing an international strategy, the understructure level in the internationalization strategy is primarily sustained by individual researchers and leaders. The faculty members in both divisions enjoy a high degree of autonomy and organizational flexibility which define the success of their research projects. This autonomy is not only a process granted to researchers by the university; it is also a tradition embedded in the individual and pioneering culture. “There is something about the people that choose to do this kind of work that’s sort of ‘out there’, away from the kind of infrastructure, bureaucracy or whatever else the university provides

or inhibits you to do. These are often a little bit of the maverick kind of person who gets attracted to do this. They are also independents, independent personalities”, remarked a medical researcher. One Education faculty member made the following comment:

There are a lot of people here in our institution that do international work. But they do it on a pretty liberal university consultancy type of work outside policy as long as they are not exceeding a certain number of days per year and as long as they are discharging their expected responsibilities here.

The adventurous attempts of some divisional leaders to pull together these researchers for faculty-wide initiatives (usually to raise extra revenue) are usually met with resistance. One of the Education faculty members in charge of a large collaborative research project made the following remark about his unit’s efforts to develop a common faculty-level strategy:

Strategic for whom? It can be strategic for the university but it’s not strategic for me... We live in a tradition of academic freedom that is sort of unfettered—I get to pursue what interests me and what I want. I am expected to be productive in doing that, but I am not really expecting the university to tell me to do research on this because it’s a strategic direction for us.

While education faculty were recognizing a growing influence of a competitive research environment, they also noted the importance of autonomous professors in the process of internationalization. “The [university] did not get involved in China, nor [the Faculty of Education] because there was some institutional mandate saying we ought to increase our work with China. They got involved in China, because individual academics and graduate students had connections of one sort or another, and they got involved working with China, and the portfolio of China relations built over time”, explained an Education scholar.

The diverging views about disciplinary, geographic and cultural interests of individual researchers often drive decision-makers at administrative offices to various conclusions about the directions that need to be taken. A faculty administrator at the Faculty of Medicine described a dilemma in the following way:

in our office, the first priority is to build capacity outside and help low and middle income developing countries build their own training programs, using our expertise. If you move to another office, let’s say to research, their priority is not to look at low and middle-income developing countries, but rather to build partnerships with the top one hundred institutions in the world. Can you see what I am saying? Two different conflicting strategies within the same Faculty.

Consequently, the administrative units at the understructure level essentially follow the same decision-making route as those at the institutional level (i.e., recognition of “demand overload”, selection of a few trusted individuals, and a search for opportunities to shift responsibility to a lower level). Finally, responsibility is ultimately devolved to researchers. Individual researchers become the “champions” of international projects.

In the absence of centralized funding, strategies depend more and more on individual interests and fundraising capacities of researchers. Evaluating a university-wide perspective for a common strategy, one study participants said, “I think we are more reactive, or responsive to where the funding is. And that’s how I see that. I don’t think that there is an intentional design in global partnerships and global initiatives”. These processes result in an eclectic and opportunistic, rather than a focused and coordinated, strategy at Major Research University.

Levels of authority in the internationalization of research: concluding observations

The Global Higher Education Matrix provided a framework for our analysis of the level of emphasis on the local, national and global dimension of research at each of four levels of authority in this case study. The overall findings of our analysis are summarized in Table 1.

The findings of this case study clearly suggest that the relationships between research policies at different levels of the higher education system are extremely complex. The federal government's new investments in research have served to reinforce the national emphasis in research and have triggered interest in introducing major changes in institutional policies and practices within the research portfolio. Federal government initiatives also stimulated a provincial government response, though the province has now moved to develop its own research and innovation agenda which emphasizes local needs and the development of a provincial innovation infrastructure. The increasing diversification of the industrial profile and the acquisition of local companies by global corporations have stimulated more interest in the internationalization aspects of the provincial labor force and innovation infrastructure.

In the context of research on internationalization, one interesting finding from this study is that a university can have high levels of international research activity and collaboration even in the absence of high levels of government and institutional support. The low emphasis on the international plane at the federal, provincial and institutional levels of authority obviously have an impact on the internationalization of research at Major Research University, but this did not prevent the two understructure units from being heavily involved in the international dimension. "The good news about the current policy vacuum is that there are no constraints upon what you are doing, and you are doing what is most important to you. The bad news is that there are no resources", as one respondent noted.

A review of institutional records and the research data-bases of the two professional faculties involved in this study indicates that the successes of individual researchers and their entrepreneurial strategies were a determining force in shaping their schools' benchmarks in internationalization. With the university's measurement systems placing an emphasis on funded research, as well as on the prestige of the researchers' scholarly output (i.e., citation indices, rankings of scholarly publications, etc.), these benchmarks were shaped in such a way as to encourage and champion excellence of individual performance. Moreover, personal expertise, creativity and networking were often the basis for defining a research project or its modus operandi. The individual decisions of faculty members were at the core of international partnership building.

For a long period of time the internationalization objectives of Major Research University were influenced by the evolving nature of federal research and development

Table 1 Global higher education matrix of research emphasis by level of authority

| | Local emphasis | National emphasis | International emphasis |
|-----------------------|----------------|-------------------|------------------------|
| Federal government | Moderate | High | Low |
| Provincial government | High | Moderate | Moderate |
| Institution | High | High | Low |
| Education faculty | High | Moderate | High |
| Medical faculty | High | High | High |

budget allocations for international outreach. Development had been a source of support for internationalization for Canadian universities for decades after World War II, with the Canadian International Development Agency (CIDA) playing a major role in determining how support to Canadian universities was provided (Bond and Lemasson 1999). International research funds, allocated by the federal government to the International Development Research Centre (IDRC), a non-governmental agency, were primarily channeled to research institutions in developing countries, essentially keeping Canadian universities at bay, with minimal support (less than 20% of the project budget) available to individual Canadian researchers engaged with a developing country research team. Canadian research councils did not feel that they were involved in foreign policy making and had not formulated their position in regard to globalization and international research until the early 2000s. Until 2007,³ their funding to international partnerships was experimental, incremental and did not exceed 1% of their total budget. As a result, one medical researcher noted that the Canadian international research projects in the field had to be more piecemeal too: “you probably have to use this incremental approach because small players in Canada are obviously not going to have the same clout as some other [donor] countries that have massive amounts of dollars to pour into the [recipient] country. I guess we just have to live with that”.

Within this funding framework, most of the researchers who wanted to be involved in an international research project had to solicit financial support either through foreign funding agencies (primarily in the US), through a development agency contract (for example, with CIDA, the World Bank, etc.), or through entrepreneurial efforts (such as raising funds from individual donors or multinational corporations). As one of the medical academic coordinators explained, “we cannot be relying on political climate when there is actually no stable source government funding for this. And we also understand that any kind of international work has a political dimension to it. So it has to be understood within the current political climate. My understanding is that there will be a need for entrepreneurial skills and activities and I personally do not see anything wrong with us using some of our knowledge and skills and resources to generate income that will support some of our activities”. It should be noted, however, that the entrepreneurial nature of the medical research has a unique feature in the Canadian context. As another medical researcher elaborated: “I don’t think people are making money, if you are thinking that it’s a money maker. In fact, it’s a real money-loser, but the entrepreneur, the independent—that’s the word I’ve used so far... This work gives people independence that they don’t necessarily get, or they don’t have sometimes within the bureaucracy of the university”.

Researchers willing to collaborate internationally enter a complex set of relationships, marked by compromises with their departments, with their resource providers, as well as with their own research teams. Successful implementers take on new responsibilities in communicating with their internal and external stakeholders in a fashion that minimizes a mismatch of messages that are important for the process of partnership building and resource solicitation for collaborative initiatives. With the increasing adherence of resource providers to industrial models of management and accountability in complex collaborative initiatives, the impact of measure-compelling and milestone-driven evaluation framework is most likely to be increasing.

³ Probably for the first time, it was the 2007 federal budget that provided an extensive justification for investment in local research as a vehicle for international partnership building, see Chap. 5: A Stronger Canada Through a Stronger Economy, at <http://www.budget.gc.ca/2007/bp/bpc5de.html>.

Some participants express concern about the irreconcilability of industrial templates and academic research agendas that can trigger power games between the government and research universities. Irreconcilability at the policy level also affects relationships in the project teams, where team members are sometimes in conflict in the face of diverging objectives, evaluation criteria and aspirations for success. Tied up in a local and national research agenda, the university can find itself incapable of releasing extra resources for risky experiments or moving its limited capital to foreign locations (for example, in order to establish a satellite office or campus) to facilitate strategic international partnerships. The accomplishment of internationalization objectives involving the inclusion of foreign researchers or the construction of a more intensive inter-institutional exchange between different locations, becomes dependent on the will and effort of interested collaborators who make their own decisions about funding, location and processes of their joint projects.

Logically, the majority of international research efforts at Major Research University can be unaccounted and chaotic from the viewpoint of central authorities. The institutional policy-makers relying primarily on regulatory instruments are prone to perceive the fragmentation of the academic decision-making processes as the loss of opportunities. Previous research, however, indicates that the centralization efforts in highly intense research environments usually end with enhanced aspirations followed by ineffectual plans that are often ignored by the grassroots level pursuing often opportunistic approaches in their international efforts (Edwards 2007; Oleksiyyenko 2008).

There is little doubt that these dynamics would change if the internationalization of research and the strengthening of international research collaboration became emphasized in federal or provincial funding policy, but, as other elements of this case study illustrate, it would be going too far to assume that these relationships would become more hierarchical and top–down. Increasing government support for international research initiatives might provide the foundation for a stronger institution-level role, but it is difficult to predict how these relationships would shift. The fact that the federal government has clearly signalled an interest in increasing its emphasis in this area suggests that these relationships may begin to change, but these initiatives are too recent (and modest in scope) for meaningful analysis and further research is required.

Our concluding observation is that the Global Higher Education Matrix provided a useful framework for studying the relationships between policy initiatives focusing on the internationalization of research at different levels of the higher education system. Additional research employing this frame might further our understanding of the complex web of interactions and relationships associated with multi-level governance, and contribute to the study of globalization of higher education and internationalization of university research.

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