

# Graduate Student SYMPOSIUM

Selected Papers\*

Vol. 13 2018-2019

## Research Impact Responsibilities: Policy Alternatives for Canada

Stephen MacGregor

Queen's University

(pp.21-44)

Queen's University  
Faculty of Education



Jen McConnel and Clarissa de Leon  
Co-Editors

Dr. Christopher DeLuca  
Managing Editor

**\*From the 2018 Rosa Bruno-Jofré Symposium in Education (RBJSE)  
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## Research Impact Responsibilities: Policy Alternatives for Canada

Stephen MacGregor  
Queen's University

**Abstract:** *How research evidence comes to have impacts in academic and non-academic arenas is increasingly becoming a focal point in scholarly discourse across scholarly disciplines and jurisdictional boundaries. However, despite the growing recognition that research impact is a product of collaboration among a variety of research stakeholders, researchers remain saddled with the majority of impact responsibilities. The purpose of this policy analysis is to utilize the empirical research and contemporary politics concerning research impact to outline policy alternatives for how impact responsibilities can be reconceptualized in Canada. I begin the analysis with an overview of influential and thought-provoking research impact milestones related to legislation, research funding, and media coverage. I then outline several publication and evaluation milestones related to research impact, current system characteristics and impact constraints for social science research in Canada, and salient political viewpoints related to research impact for the relevant stakeholder groups. Four policy alternatives are presented: (1) to let present trends continue undisturbed (i.e., the status quo), (2) to provide inducements for the Social Science and Humanities Research Council of Canada to establish a knowledge mobilization and research impact department, (3) to undertake regulatory action on all Canadian universities who receive the Research Support Fund, and (4) to establish multifaceted interventions for enhancing research impact. Each alternative is evaluated across five criteria: efficiency, political viability, operational feasibility, robustness and improvability, and equitable distribution of responsibilities. Based on this outcome analysis, I make a recommendation regarding the optimal policy alternative.*

**Keywords:** research impact, knowledge mobilization, social science research, policy, research funding

### Introduction

Consistent in recent narratives surrounding scholarly work is that research impact (RI) is a story of both trepidation and promise. Across scholarly disciplines and jurisdictional boundaries, how research comes to have impact in academic and non-academic arenas is increasingly becoming a focal point in scholarly discourse (Nutley,

Walter, & Davies, 2007). Traditional conceptions of academic institutions as insulated and esoteric “ivory towers” have begun to erode driven largely by increasing expectations that publicly-funded research ought to exhibit a return on taxpayers’ investments into national research infrastructure (Holmes, Scarrow, & Schellenberg, 2012; Sa’, Kretz, & Sigurdson, 2013). In their place, a variety of models for understanding the processes and techniques associated with enhancing the impacts of research evidence have proliferated. Ranging from simple linear models of pushing research evidence from producers to users (e.g., knowledge-driven models of research utilization; Weiss, 1979) to entirely co-creative models (e.g., the Co-Produced Pathway to Impact; Phipps, Cummings, Pepler, Craig, & Cardinal, 2016), the scholarly landscape is shifting at pace that necessitates regular re-examining of taken-for-granted practices and re-defining of traditional roles.

In Canada, academic research is supported by the federal Tri-Council, which includes the Social Sciences and Humanities Research Council (SSHRC), the Natural Sciences and Engineering Research Council of Canada, and the Canadian Institutes of Health Research. These agencies have made considerable efforts to ensure that funded research comes to have demonstrable impacts beyond academia (Phipps, Jensen, Johnny, & Poetz, 2016). SSHRC, for example, is one of the few social science funding agencies among those in the member countries of the Organisation for Economic Co-operation and Development (OECD) or those in the emerging nations of Brazil, Russia, India, China, and South Africa (BRICS) that has developed awards to honour researchers who engage in outstanding work related to knowledge mobilization (KMb) or RI (Shewchuk, MacGregor, & Cooper, 2018). Investing over 380 million taxpayer dollars annually in a variety of funding programs (SSHRC, 2017b), SSHRC has demonstrated a focus on ensuring that funded research aligns with salient social needs (e.g., see SSHRC, 2017a, “Future Challenge Areas”). For the social science and humanities disciplines, SSHRC defines KMb and RI as:

**KMb:** The reciprocal and complementary flow and uptake of research knowledge between researchers, knowledge brokers and knowledge users—both within and beyond academia—in such a way that may benefit users and create positive impacts within Canada and/or internationally, and, ultimately, has the potential to enhance the profile, reach and impact of social sciences and humanities research (SSHRC, 2018b).

**RI:** Long-term outcomes or effects that take the form of changed thinking and behaviours. Impacts are reflected through such indicators as global economic performance, competitiveness, public service effectiveness, new products and services, employment, policy relevance, learning skills enhancement, quality of life, community cohesion, and movement toward reconciliation and social inclusion (SSHRC, 2018c).

These definitions show the complex and multi-faceted nature of KMB and RI. What the definitions elide, however, is the simple distinction that has grown more common in the literature: KMB refers to purposeful processes employed to achieve research outcomes (i.e., impact; Bayley, Phipps, Batac, & Stevens, 2017). Discussion of the many additional concepts being used to flavour the pathway from research to impact is beyond the scope of this article (see, for example, Greenhalgh, Raftery, Hanney, & Glover; Shaxson et al., 2012); however, I will note that SSHRC's conceptualization of RI as "long-term outcomes" is a contested detail. Other scholars and funders take a broader view of RI, including both short-term outcomes and outcomes that result from research stakeholders' involvement in the research process (e.g., Worton, Loomis, Pancer, Nelson, & Peters, 2017).

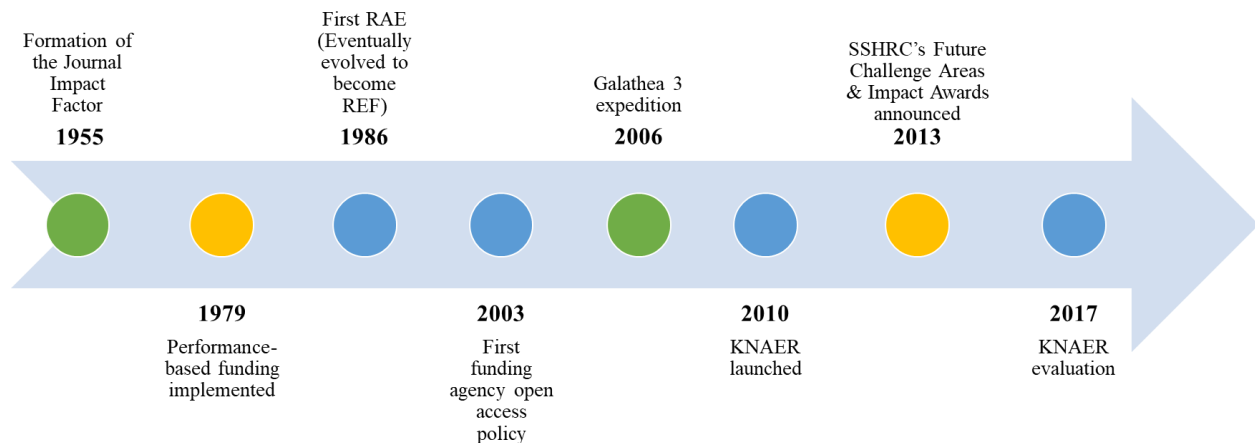
For SSHRC and many other social science funding agencies, RI remains an expectation levied almost entirely on researchers (Holmes et al., 2012), as illustrated by SSHRC's *Expected Outcomes* module: a mandatory component of funding applications wherein researchers must outline the expected outcomes of their research (SSHRC, 2018c). While well-intentioned, such application components tend to frame RI as a responsibility that falls primarily on the shoulders of researchers. Given that *impact* can take a variety of meanings in different contexts, occur well after initial research communication, and follow many dissimilar paths (Rymer, 2011), it is unsurprising that some researchers have met contemporary RI expectations with consternation and dissent. The already demanding academic environment leaves little time for researchers to develop an extensive understanding of RI or to increase their capacity with associated initiatives (Belkhdja & Landry, 2007; Nichols, Phipps, Provençal, Hewitt, 2013; Sá, Li, & Faubert, 2011; Yettick, 2015). Researchers often cite, for example, a lack of available resources and capacity-building mechanisms, institutional incentives misaligned with impact efforts, aspects of impact that lie beyond their control, disciplinary differences for the manifestation impact, and the time-lag associated with impact (Graham, Grimshaw, Tetroe, & Robinson, 2005; Wooding, Hanney, Pollitt, Grant, & Buxton, 2014).

It is not only researchers who feel the ramifications of misbalanced RI responsibilities. When social science research fails to realize its potential impacts, Canadian society ultimately experiences a net loss on investment into social innovation (Mulgan, Tucker, Rushanara, & Sanders, 2007). Considering the substantial annual investment being made in social science research by Canadian taxpayers, the imbalance of responsibilities for RI is an issue that has been afforded too little attention. Accordingly, the purpose of this policy analysis is to utilize the empirical research and contemporary politics concerning RI to outline potential policy options for how RI responsibilities can be reconceptualized. To fulfill this purpose in a tangible way, the policy subsystem of education research in Canada is the focus of this article. Although broad empirical evidence and political perspectives

will be discussed, this distinct focus on education permits a more trustworthy evaluation of policy alternatives and a more warranted suggestion for how to reconceptualize RI responsibilities. Canadian society will be better equipped to realize the benefits of investments in social science research by clarifying conceptual understandings of RI and highlighting the valuable, variegated roles to be played by researchers, research intermediaries (e.g., research brokering organizations), funding agencies, practitioners, and policymakers (Cooper, 2014). The first step along this route is to summarize some of the major historical developments from which the current system has emerged.

### History of Research Impact

Tracing the history of RI is a complicated task, insofar that different terms have often been used interchangeably for this concept (Shewchuk et al., 2018; Smits & Denis, 2014) and various stakeholders have defined RI differently (Kitson & Bisby, 2008). As such, the historical events presented below were selectively chosen as influential and thought-provoking RI milestones related to legislation, research funding, and media coverage (see Figure 1). Manifold other events could be discussed, yet exhaustive coverage of the RI landscape is beyond the scope of this article.



*Figure 1.* Brief history of research impact since 1955. Blue icons represent legislative milestones, green icons represent media milestones, and orange icons represent funding milestones

### Legislative Milestones

The history of law, policies, and programs related to RI includes several contentious developments critical for understanding the current social and political landscape. Few laws, if any, have been implemented regarding the distribution of responsibilities for RI—a development that would potentially compromise academic freedom (De George, 2003). On the contrary, policies related to RI have recently grown more common, especially for

social science funding agencies (Shewchuk et al., 2018). The policy most widely adopted to improve the impact of publicly funded research concerns the open access publication of research findings (Assefa, Rorissa, Matusiak, Gelaw, & Helge, 2014; Suber, 2012). Beginning with the National Hellenic Research Foundation of Greece in 2003 and later the Research Councils UK in 2006, the prevalence of open access policies for publicly-funded research has steadily grown over the last decade, with 21 of 45 funding agencies in OECD and BRICs countries now applying open access policies (Shewchuk et al., 2018; Tetroe et al., 2008). Additionally, several of those funding agencies have instituted policies requiring the upload of research data to online repositories and drafting of *Key Findings* statements for practitioners and policymakers (e.g., the United Kingdom’s Economic and Social Research Council). Although valuable for research dissemination, these policies exhibit the expectation that funded researchers should assume responsibility for RI.

Programs in support of RI have recently seen significant growth. At the multinational level, programs such as Horizon 2020—an €80 billion research funding program implemented by the European Union in 2014—have established target areas where research might realize considerable impact, such as the Societal Challenges area (European Commission, 2017). Similarly, at the national level, programs such as the United Kingdom’s Research Excellence Framework (REF) evaluate RI across national research institutions. Originally implemented as the Research Assessment Exercise in 1986, the REF has grown to examine multiple aspects of research utilization, including both research outputs and RI (REF, 2014). Showing the greatest advancements are subnational programs in support of RI, such as the Ontario Knowledge Network for Applied Education Research (KNAER). Launched in 2010, KNAER seeks “to mobilize research and knowledge in order to improve educational practices and student outcomes” (KNAER, 2017), and pursues this objective through the creation of collaborative research-practice-policy networks. Recently, KNAER, unlike more rigid programs of RI, has initiated a developmental evaluation phase for alignment with Ontario’s *Achieving Excellence: A Renewed Vision for Education* (Ontario Ministry of Education, 2014) and initiatives related to the second phase of the KNAER program. Reflected in these programs is a developing appreciation for how RI can be stimulated by the sharing of responsibility beyond more traditional policies targeting researchers.

### **Funding Milestones**

Perhaps the most contentious funding milestone related to RI has been performance-based funding, which, alongside performance-based budgeting and reporting, has been a topic in the RI sphere since 1979 (Alshehri, 2016). Implemented in a variety of ways, the central tenet of performance-based funding is allocating research funding based on

identifiable outcomes in researchers' and institutions' earlier work (e.g., the REF). While an attractive system for professional elites looking to establish power, the literature suggests performance-based funding does not stimulate RI, and instead incites a race for prestige among researchers (Hicks, 2012).

A more constructive development has been the growth in dedicated roles for RI and KMB within social science funding agencies as well as increased focus on building understanding of RI. Across OCED and BRICs countries, for example, nearly half of the social science funding agencies have implemented a dedicated role or department for RI, and approximately one-third have developed awards to honour exceptional efforts related to RI (Shewchuk et al., 2018). In Canada, SSHRC simultaneously launched both its Future Challenge Areas and Impact Awards in 2013, which definitively brought RI to the forefront of Canadian social sciences.

### **Media Milestones**

Increasingly, the ideas of RI are beginning to influence stories in the media and the way media is conceived (e.g., the partnership model of *Cited* podcasts; *Cited*, n.d.). Few stories or developments, however, have pressured the Canadian government and other government bodies to explore RI as a policy issue. Two events that did result in notable public influence were the creation of the Journal Impact Factor in 1955 and the Galathea 3 expedition in 2006. The Journal Impact factor, which birthed the field of bibliometrics, had the influence of lifting certain journals into the public consciousness (e.g., *Nature and Science*; Masic, 2017); however, the factor was researcher-centric. In comparison, the Galathea 3 circumnavigation expedition—a nautical research vessel—attempted to share the responsibilities of RI by positioning researchers and journalists alongside one another for a variety of research projects. Although the research-media partnerships never achieved their potential (Nielsen & Autzen, 2011), the expedition was an opportunity for the public to see the complicated nature of RI and the challenges associated with placing responsibilities solely on researchers.

### **Assembling the Evidence**

As elucidated by the brief history of RI outlined above, determining an adequate and appropriate balance of RI responsibilities presents many challenges. As such, it is necessary to understand both publication and evaluation milestones related to RI, as well as current system characteristics and constraints for the social sciences in Canada.

## Outlining Research, Best Practices, and Programs

Despite the nascence of RI as a field of study, a great variety of scholars across diverse disciplines have contributed to developing the concept. Only a portion of the numerous reports, evaluations, and empirical articles associated with RI require analysis in this outlining of current evidence; however, it is important to acknowledge that many articles and conversations are continuously reshaping our understanding of RI. Moreover, it is important to note the inextricable tie between RI and the field of KMb, which helps to elucidate how the redistribution RI responsibilities is beneficial for all stakeholders of social science research.

**Publication milestones.** The first reference to RI in the social sciences, albeit without much development of the concept, is traceable to Weiss's (1979) seminal article, "The Many Meanings of Research Utilization." Although the concept received only passing treatment, Weiss noted that discussions of RI often exhibited narrow focus on manifest outcomes from specific studies, and it was researchers who were primarily responsible for those outcomes. Building on this model for understanding RI and on scholarly work from the intervening years, Walter, Nutley, and Davies (2003) conducted a scoping review of RI literature to delineate a more efficacious path forward. Drawing on empirical evidence from education, healthcare, social care, and criminal justice sectors, Walter et al. observed that RI was enhanced through eight mechanisms: dissemination, educational interventions, social influence, collaborations between researchers and users, incentives, reinforcement of behaviour, facilitation, and multifaceted interventions that combine two or more of these mechanisms. Nutley et al. (2007) later built on these observations by outlining five prevalent and important KMb mechanisms for achieving RI: dissemination, interaction, social influence, facilitation, and incentives and reinforcements. The latter four mechanisms all focused on expanding RI responsibilities beyond researchers.

The field of KMb has since matured to bolster and refine understandings of how to move research from outputs to outcomes to impacts. At the forefront of KMb developments are systems models (Best & Holmes, 2010), which emphasize that impact is achieved through a "complex process involving interaction, co-creation and implementation of evidence throughout all levels of a system" (Campbell et al., 2014, p. 39). From a systems perspective, knowledge includes researcher, practitioner, policy-maker, and service user knowledge (co-created and created separately); and mobilization includes ongoing interactions between all stakeholders (Campbell et al., 2014). In a systems model, KMb is a system in itself and attention is devoted to knowledge implementation processes and the evaluation of impacts.



**Evaluation milestones.** To date, several commissioned reports have contributed to understanding the issue of RI responsibilities. A report prepared by King's College London and Digital Science (2015), for example, analyzed the 6,679 impact case studies submitted to the 2014 Research Excellence Framework. While the report provided valuable insight into RI across 36 scholarly disciplines, minimal attention was paid to how collaborations factored into RI, despite an identified 3,709 unique pathways to impact.

In the Canadian context, the first report from the Ontario Knowledge Network for Applied Education Research provided a basis for understanding collaborative KMb initiatives to support RI in social science disciplines. The first 44 KNAER-funded projects focused on "effective exploitation of available research, building or extending networks, strengthening research brokering, and/or visits by world-leading researchers" (Campbell et al., 2014, p. iii). Identified as phase one, these 44 projects produced 1,084 outputs that lead to extended outreach, changed mindsets for education stakeholders, enduring partnerships, and the advancement of already established KMb efforts (Campbell et al., 2014). Furthermore, in line with a systems model for KMb, KNAER recently initiated phase two, which is structured to address identified challenges in phase one KMb processes. Based on analysis of phase one deliverables (i.e., research outcomes and impacts) and scholarly evidence of best practices, phase two of KNAER shifted focus to improve alignment with Ontario Ministry of Education initiatives and fund multi-year thematic networks in lieu of individual projects. Demonstrating a commitment to continual refinement of KMb processes, phase two is also currently undergoing developmental evaluation to support and inform the new developments.

**System characteristics.** It is helpful to briefly cover current system characteristics and constraints for the social sciences in Canada. Policy alternatives concerning RI responsibilities will need to operate within the Canadian context, so explicating that context is necessary to construct feasible alternatives.

**RI and Canadian social science funding agencies.** The primary social science funding agency in Canada, SSHRC, exhibits an intertwining of RI with national research infrastructure (Shewchuk et al., 2018). Nearly every funding application submitted to SSHRC (excluding funding opportunities for graduate students) requires the completion of a mandatory Expected Outcomes module, and all funding recipients are required to submit an end-of-grant report detailing resultant outcomes and impacts (SSHRC, 2018c). Additionally, SSHRC currently offers the most RI awards of any social science funding agency in OECD and BRICs countries (Shewchuk et al., 2018): the Gold Medal, the Talent Award, the Insight Award, the Connection Award, and the Partnership Award (SSHRC, 2017c). Beyond individual programs and awards, SSHRC also supports a variety of initiatives for linkage and exchange among research communities, and between researchers

and non-academic audiences. However, SSHRC does possess several weaknesses in its support of RI, with the most glaring being a lack of internal dedicated roles or departments specializing in KMb or RI, and the absence of either concept from the agency's mission statement.

*RI infrastructure in Canadian universities.* In Canada, the leading authority on institutional KMb to achieve RI is Research Impact Canada (RIC) network (Cooper, 2014). Structured as a pan-Canadian network of 16 universities (and one university partner in the United Kingdom), the RIC network has devoted considerable effort to developing the KMb capacity to support research partnerships in maximizing social, economic, environmental, and health impacts (RIC, 2018). The efforts of each RIC university are a response to the call for greater institutional action to support individual researchers and non-academic partners in collaborating to connect research beyond the walls of academia (King's College London and Digital Science, 2015; Nutley et al., 2007).

However, universities in the RIC network account for only a portion of Canadian universities. The KMb support available to researchers working in RIC universities is not representative of Canadian university RI infrastructure. A more representative picture was rendered by Sá et al. (2011) in their exploratory study of institutional strategies for KMb in 13 Canadian and international faculties of education. Stemming from interviews with senior administrators, a litany of barriers to RI through KMb strategies were reported, despite generally positive views regarding KMb. Additionally, only two faculties were "providing dedicated institutional supports, fostering systematic connections with potential research users, and embedding such work explicitly in faculty incentive and reward systems" (Sá et al., 2011, p. 510). Currently, it seems that KMb infrastructure at the university level is largely underdeveloped or absent, meaning this area is an important focus for high-return investments into RI.

*RI across social science disciplines.* Although some reports related to RI have, to differing degrees, discussed disciplinary differences in RI (e.g., see Federation for the Humanities and Social Sciences, 2017; Royal Irish Academy, 2011; Wouters et al., 2015), there remains a dearth of literature exploring the range of RI conceptualizations. What empirical work has made clear is that impact takes on a variety of meanings in different contexts and follows many incongruent paths (Rymer, 2011). As evidenced by the 3,709 unique pathways to impact in the Research Excellence Framework case studies (King's College London and Digital Science, 2015), the manifestation of RI can vary wildly even within a single scholarly discipline. Further compounding the issue of disciplinary differences in RI, impact typically occurs well after initial research communication efforts and, even when impact is identified, it is rarely traceable to specific studies or projects (Morton, 2015).

## Contemporary Politics

The impacts associated with research evidence involve a great variety of stakeholders. Therefore, discussing the politics surrounding RI responsibilities inherently introduces feasibility constraints. Unlike a policy issue with clear boundaries where specific stakeholders can be identified (e.g., tax increases in a small municipality), stakeholders for the impacts of social science research are more manageably sorted into the general groupings of researchers, practitioners, policymakers, intermediaries, and funding agencies (Cooper, 2014).

While these broad stakeholder groupings lead to a generalizing of political viewpoints, attempting to represent each stakeholders' perceptions and interests between and within social science disciplines would be an unmanageable undertaking. In the education sector alone, intermediary organizations can be divided into at least 13 distinct stakeholder groups (Cooper, 2014), each guided by a unique set of political objectives and values. Accordingly, the following descriptions of each stakeholder group's political viewpoints about RI responsibilities should be viewed as an outline that accepts generalizations grounded in the empirical literature.

### Researchers

Across Canada and numerous other jurisdictions, responsibilities for seeing that research comes to impact policy and practice have increasingly fallen upon researchers (Holmes et al., 2012). Expectations for researchers now extend beyond traditional modes of academic dissemination (i.e., peer-reviewed journal articles and conference presentations), which are coming to be viewed as a jumping-off point for more strategic KMb and impact efforts (Shewchuk et al., 2018). Unsurprisingly, with minimal changes in support mechanisms or adjustments to institutional incentives, researchers have problematized the shifting expectations<sup>1</sup> (Holmes et al., 2014; Nichols et al., 2013). Researchers are, for example, grappling with the expectations of performance-based funding models (Hicks, 2012), national research assessment exercises (Federation for the Humanities and Social Sciences [FHSS], 2017), and an academic culture that often views impact work as akin to scholarly self-aggrandizement (Chapman et al., 2014). Additionally, funding agencies'

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<sup>1</sup> It is worth noting that universities are also responding to growing KMb and RI expectations through major investments in research communication activities and, in some cases, dedicated staff for research communication and public engagement (e.g., Simon Fraser University's Public Square). However, few institutions have developed KMb mechanisms that go beyond traditional push mechanisms for broadening public engagement with research.

conceptualizations of KMb and RI show substantial variation (Shewchuk et al., 2018; Tetro et al., 2008), so researchers are left to sort out the meaning of these concepts.

Despite frustrations with current RI expectations, researchers are aware of the value of KMb and impact efforts (Sá et al., 2011), and interest in professional development for these areas is growing (Holmes et al., 2014). Recognizing the complexities and challenges of RI, researchers in social science disciplines are actively seeking guidance in both the securement and measurement of policy and practice impacts (FHSS, 2017). Thus, researchers' primary RI concerns are what additional support mechanisms can be established and how the current unbalanced responsibilities for impact could be redistributed and re-envisioned.

### **Practitioners**

Practitioners, similar to researchers, have received considerable attention in the RI literature (Cooper, 2014). Operating in distinct organizational contexts (Levin, 2004), how practitioners find, understand, and use research to impact their practice is related to their autonomy, skill level, and professionalization (Nutley et al., 2007). Whereas some practitioners have seen the production and use of research evidence become fundamental components of their profession, other practitioners hold comparatively nascent views about research and its potential for impact.

Regardless of organizational context, though, practitioners share similar challenges along the pathway to RI. First, with linear knowledge-to-action models for KMb still frequently implemented (i.e., where research is pushed from researchers to practitioners; Nutley et al., 2007), access to and understanding of research evidence are barriers for many practitioners. Although research is made "available" in such models, practitioners rarely have the time to invest in disentangling the levels of abstraction standard in most academic research outputs (Cooper et al., 2017; Cordingley, 2008). Second, in a related vein, the notion that practitioners eagerly seek out and consume research evidence to guide their decision-making processes has been criticized as idealistic and technocratic (Cooper, Levin, & Campbell, 2009). Instead, practitioners bring a wealth of professional knowledge and experience that needs to be integrated with research evidence for professional decision making. Finally, for research evidence to be meaningful for practitioners, it is necessary to view the pathway to RI as built through the interactions and relationships highlighted by systems models for KMb (Campbell et al., 2014).

## **Intermediaries**

Intermediaries are an extensive RI stakeholder group that includes a diverse assortment of individuals and agencies who play a role in the flow of information between research, policy, and practice arenas (Nutley et al., 2007). Unlike researchers and practitioners, intermediaries and their roles in KMB have received comparatively minimal attention in the RI literature (Honig, 2004). Evident from organizational structures, however, is that KMB efforts to support RI are often only one aspect of an intermediary's mission or mandate, and efforts to bridge research and practitioner contexts are commonly ad hoc rather than systematic and strategic (Cooper, 2014). An exception to this typifying of intermediaries is research brokering organizations with "explicit goals and targeted resources to address research-practice-policy gaps" (Cooper, 2014, p. 30).

Given the vast assortment of intermediaries, understanding their political objectives and values necessitates understanding: (a) the level of government in which they operate, (b) membership composition, (c) location (i.e., proximal or distal to the geographic region in which they work), (d) jurisdictional scope of their work, and (e) funding sources (Honig, 2004). Current work has shown intermediaries (particularly research brokering organizations, who represent an ideal case) are favouring more feasible, though demonstrably less effective (Nutley et al., 2007), product-based methods for supporting RI (e.g., creating research summaries and policy briefs; Cooper, 2014). As such, the political concerns of intermediaries appear to emanate from a balancing of expectations arising from operational contexts (i.e., points a through d) and use of available funding (i.e., point e).

## **Policymakers**

In the policy universe, the processes through which research comes to impact policy are complex (Howlett, Ramesh, & Perl, 2009). Bounded rationality provides a conceptual structure for understanding the potential influences of research evidence, among myriad other forms of evidence, on policymakers' decision-making processes. Following from bounded rationality, policymakers have limited time and information for decision making (McBeth, Jones, & Shanahan, 2014), let alone finding and understanding research. Therefore, decision making will often be based on what is available within a policy maker's respective subsystem. Similar to practitioners, for policymakers "personal contacts are the most important source of information about research" (Nutley et al., 2007, p. 65).

Although the dynamics underlying policy subsystems are too involved for discussion here, what can be gleaned from the policy literature is that policymakers' ultimate objective is to secure (re)election (Berry & Berry, 2014). Consequently, policymakers show interest in RI to the extent that such interest appeals to the electorate

and forwards their associated subsystem's strategic goals. If research evidence aligns with policymakers' political agendas and facilitates the seizing of an open policy window, it is likely the impacts associated with that research will be heralded as a social, economic, environmental, or health necessity.

### **Funding Agencies**

SSHRC's support and promotion of KMb and RI ranks among the top of funding agencies in OECD and BRICs countries (Shewchuk et al., 2018). While many social science funders simply require an end-of-grant report detailing research outcomes, SSHRC maintains a range of outcome- and impact-related requirements for researchers throughout the research process and values linkage and exchange activities between research communities as well as between researchers and non-academic audiences (SSHRC, 2018c). Answerable to the Canadian parliament via the Minister of Science, SSHRC's primary political concern is the investment of federal dollars in a manner commensurate with parliamentary expectations and international pressures (e.g., normative pressure from other national funding agencies; Berry & Berry, 2014).

### **Policy Alternatives, Criteria to Evaluate Alternatives, and Recommendations**

Any policy alternative that might lead to an adequate and appropriate balance of RI responsibilities must overcome the various political and operational barriers discussed throughout this article. However, it is unreasonable to expect any single alternative will lead to an improvement beyond the status quo for all social science disciplines, even when isolated to the Canadian context. Accordingly, the policy alternatives forwarded below focus on the policy subsystem of education research in Canada.

The policy alternatives were constructed from the perspective of the Government of Canada as the client. Projected outcomes for each alternative are scrutinized via analysis across five mutually exclusive and collectively exhaustive criteria: efficiency (i.e., cost-effectiveness analysis), political viability (i.e., how stakeholders would receive the alternatives), operational feasibility (i.e., ability of institutions to implement alternatives), robustness and improvability (i.e., capacity of each alternative to respond to the broader social context and historical policy precedents, and also be responsive to development), and equitable distribution of responsibilities (i.e., whether the alternatives balanced RI responsibilities according to each stakeholders' ability and needs). Based on this outcome analysis, a recommendation is made regarding the optimal policy alternative.

## Policy Alternatives

The first alternative is simply to let present trends continue undisturbed (i.e., the status quo). The Canadian federal government's involvement in supporting RI— involvement that is channeled through SSHRC—already ranks among the top of OECD and BRICs countries (Shewchuk et al., 2018). Similarly, education outcomes in Canada rank among the best in the world (OECD, 2017), so despite researchers' perceived imbalance in RI responsibilities (Holmes et al., 2014; Nichols et al., 2013), it could be argued that changes from the status quo would incur unnecessary costs.

Departing from the status quo, a second alternative would be for the client to adjust SSHRC's yearly budget. Currently in Canada, gross domestic expenditures on research and development (including all science disciplines) comprise approximately 2% of gross domestic product (Statistics Canada, 2018). SSHRC, receiving only a small portion of this percentage, divides their federal funding between its various funding programs, the Research Support Fund, and internal operating expenditures (totaling approximately 380, 368, and 29 million dollars for 2016-17, respectively; SSHRC, 2016, 2018a). For this alternative, budgetary adjustment would be directed at increasing the internal operating budget at an amount proportionate to developing a KMb and RI department, using other national funding agencies with such a department as a point of reference (e.g., Australian Research Council; Shewchuk et al., 2018). The required funds would be acquired by pulling from SSHRC's program funding or Research Support Fund, or by temporarily holding those funds at a constant level and investing yearly increases.

A third alternative would be for the client to implement regulatory action directed at all Canadian universities who are recipients of SSHRC's Research Support Fund. Specifically, existing standards for the use of these federal dollars would be revised to require the hiring, training, and retention of institutional personnel specializing in KMb and RI. Institutions with personnel already functioning in these roles (e.g., universities in the RIC network; Cooper, 2014) would serve as a guide for such regulatory action. Additionally, once these personnel became established in their respective institutions, pan-Canadian analysis of the alignment between RI responsibilities and institutional incentives for academic renewal, tenure, and promotion could be explored.

A fourth alternative would be for the client to establish multifaceted interventions for enhancing RI that draw upon the eight mechanisms discussed by Walter et al. (2003). As a middle-point between the second and third alternatives, the client would adjust SSHRC's annual budget to enable the periodic administration of integrated RI strategies that have shown empirical efficacy. For example, prior to yearly funding deadlines, SSHRC could offer combinations of: educational KMb materials and feedback on RI strategies that

were effective in funded studies, group education on KMb and RI as well as ongoing practice-based supports (e.g., institutional KMb resources), and educational KMb and RI outreach to Canadian institutional research offices and accessible supports for building professional learning communities of researchers and research users (e.g., as an expansion to current initiatives such as KNAER).

### **Evaluating the Alternatives**

Evaluation of the four policy alternatives dealing with the balance of RI responsibilities was conducted by examining projected outcomes for each alternative across five criteria. Details of the evaluation are summarized in Appendix A, and the overall pros and cons of each alternative are summarized below.

**Status quo.** As previously discussed, Canada's federal support and promotion of KMb and RI ranks among the best of OECD and BRICs countries (Shewchuk et al., 2018), so outcomes of the status quo are reasonable in an international context. Compared with the other alternatives, the status quo is likely to be the most politically viable and operationally feasible. Whereas researchers display keen interest in departure from present trends (FHSS, 2017), teachers and intermediaries often consider research and its uptake to be only one aspect of their responsibilities (Cooper, 2014; Cordingley, 2008). There is minimal push, therefore, for the client to adjust current practices. However, the status quo is the least efficient alternative (i.e., lowest cost-effectiveness ratio; see Appendix A), ranks as only reasonably robust, and does not lead to an equitable distribution of RI responsibilities.

**Inducements for SSHRC.** Compared to the other alternatives, providing inducements for SSHRC to establish a KMb and RI department introduces comparatively fewer issues to manage. Markedly more efficient than the status quo, the creation of a national capacity building mechanism for RI in the social sciences is both operationally feasible and robust, while providing ample space for improvability. The main weaknesses of this alternative are the time-lag between creation of the department and any changes to RI responsibilities across Canada, and the political pushback from researchers. Increasing SSHRC's internal operating budget will require federal funds to be redirected from another source, likely from SSHRC's funding programs or the Research Support Fund. Such an adjustment may be perceived by researchers and institutions as an inequitable use of federal funds, regardless of the eventual increase in support mechanisms from SSHRC.

**Regulatory action on research-producing institutions and SSHRC.** Although it is likely the most contentious alternative, regulatory action on all universities receiving the Research Support Fund is an option with substantial benefits. Offering a level of efficiency greater than the status quo, this alternative would allow for KMb and RI to begin



developing at the organizational level across Canada—a development promoted in the KMb literature (e.g., see Nutley et al., 2007). However, accompanying the positive outcomes of this alternative are a host of issues, including: strong pushback from affected universities being asked to do more without budget increases; questionable implementation, as potentially untrained faculty will need to hire KMb and RI specialists; and the potential for future overregulation if the alternative is found to be successful. Realized successes might signal the idea that further regulation would be beneficial, even though historical precedents such as performance-based funding stand as a cautionary tale (Hicks, 2012). However, researchers would likely welcome the additional supports when it comes to writing grant applications requiring KM and RI plans.

**Multifaceted interventions for enhancing RI.** Finally, establishing multifaceted interventions for enhancing RI is an alternative that more directly targets the relevant stakeholder groups for RI responsibilities in education. Demonstrably effective (e.g., the work being done by KNAER), this alternative is more efficient than the status quo, can be implemented in a way that builds from lessons learned in the literature, is attuned to the broader social context and developmental opportunities, and leads to a more equitable distribution of RI responsibilities. The primary weakness of this alternative is that producing outcomes will require substantial time and resource investments from each stakeholder, despite researchers, practitioners, and intermediaries already working under time constraints and incentive structures misaligned with involved KMb (e.g., see Cordingley, 2008).

### **Recommended Alternative**

Following the above outcome analysis of the four policy alternatives for dealing with the balance of RI responsibilities, my recommended alternative is for the client to provide inducements for SSHRC. With initiatives like KNAER already in place and showing positive reception, it would be prudent to begin building national capacity in an area that could support such initiatives. SSHRC, as the primary funder of social science research in Canada, is ideally situated to play this capacity-building role.

It is important to note that each of the alternatives discussed in this policy analysis could be logically and collectively featured on the client's policy agenda. Indeed, each alternative focused on a different level of the education research subsystem (aside from the status quo)—in alignment with a systems model for KMb (Best & Holmes, 2010). If driven by a compelling narrative and backed by a unified coalition, these alternatives have the potential to expand Canadian conceptions of RI, how it is achieved, and the roles to be played by each stakeholder.

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## Appendix A

Outcome Matrix for Policy Alternatives Related to RI Responsibilities

Criteria	Alternatives	Status Quo	Inducements for SSHRC	Regulatory Action	Multifaceted Interventions
Efficiency		Relatively low costs compared with output that ranks highly among OECD and BRICs countries.	Costs at an equal level to the status quo but increased capacity for producing outputs (i.e., a greater cost-effectiveness ratio).	Costs at an equal level to the status quo but increased capacity for producing outputs (i.e., a greater cost-effectiveness ratio).	Costs at an equal level to the status quo but increased capacity for producing outputs (i.e., a greater cost-effectiveness ratio).
Political Viability		Low-moderate conflict emanating from researchers who have problematized the shifting RI expectations with minimal changes to support mechanisms or adjustments to institutional incentives.	Moderate conflict, as researchers are astute to the value of KMb and RI efforts (Sá et al., 2011), and interest in professional development for these areas is growing (FHSS, 2017). However, there is likely to be some pushback at any reduction in available funding.	Moderate-high conflict, as institutions are being asked to do more without an increase in funding. Following from empirical work in RI, researchers would likely welcome the additional support mechanisms.	Moderate conflict, as researchers, practitioners, and intermediaries already operate under time constraints and incentive structures misaligned with involved KMb work (e.g., see Cordingley, 2008).
Operational Feasibility		Straightforward to maintain current initiatives that support and promote KMb and RI.	SSHRC's support and promotion of KMb and RI rank among the top of OECD and BRICs countries, so it is well situated to implement the alternative.	Institutions may struggle with implementation when the funds for new personnel need to come from the unadjusted Research Support Fund.	KNAER has shown that the potential for multifaceted interventions highly positive, although the cost of such implementation will be similarly high.
Robustness and Improvability		Broader social context (Canada ranking among the top of OECD countries in education research and outcomes) would suggest the status quo is reasonably robust.	With SSHRC as a funding channel for the Canadian federal government, it is likely to be responsive to the broader social context and policy precedents.	Potential for overregulation if considerable developments in RI capacity are realized. Due to funding adjustments, this alternative may be viewed as encroachment on academic freedom.	Using KNAER as an exemplar, the alternative has the potential to be responsive to the broader social context and developmental opportunities.
Equitable Distribution		Inequitable distribution, as researchers are being saddled with the majority of RI responsibilities.	Capacity building for eventual equitable distribution.	Likely to be perceived as inequitable by institutions but more equitable by researchers.	A reasonably equitable solution for sharing RI responsibilities among the various stakeholders.