

“Capturing the Impacts” of Research

Discussion Paper

June 2012



PREFACE & ACKNOWLEDGEMENTS

SSHRC “CAPTURING IMPACTS” INITIATIVE

In October 2006, SSHRC launched a call for proposal designed to encourage the social sciences and humanities (SSH) research community to apply its expertise to the challenge of capturing the impacts of publicly funded research, and to develop new and innovative methodologies, tools and indicators for this purpose. In December 2007, the scope of the call for proposal was broadened to include the science, technology, engineering, mathematics and medical (STEMM) community. The wider scope had the following benefits: It studied the impacts of research beyond humanities, arts and social sciences (HASS) fields of study, which was deemed a potentially artificial distinction; and encouraged tri-agency cooperation in this area.

In early 2009, SSHRC released a document, *Framing Our Direction*, that reported on SSHRC’s achievements to date and set out the Council’s strategic priorities for 2010-12. One of the key ambitions outlined in the document was to increase SSHRC’s emphasis on impact. It was recognized that there was a need to establish an agreed-upon framework for increasing and capturing results and impacts of both SSHRC investments and the work of the wider social sciences and humanities community. Such a framework, enabled by the findings of the 17 “Capturing Impacts” studies, was endorsed by SSHRC’s Governing Council in 2010. While SSHRC has recently launched a new strategic planning exercise, there is little doubt that its interest, commitment and support around the issue of results and impacts will continue.

The goals for the “Capturing Impacts” initiative were broad. And, while it would be unrealistic to expect major advances through a few small-scale projects, the initiative’s achievements were significant. New insights were realized, connections between researchers on the capture of SSH impacts were forged and knowledge was mobilized that will hopefully encourage others to join the dialogue around the capture of impacts. As a result of the calls for proposal in 2006 and 2007, SSHRC funded a total of 17 projects across a diverse spectrum of research topics that were very different from one another in purpose, methodologies and academic fields.

The “Capturing the Impacts of Research” discussion paper looks at the insights gained from the SSHRC-funded studies. These made significant progress on some of the specific topics outlined by SSHRC in the initial call for proposals, namely, attribution, appropriation, timing, inequality and “project fallacy.” The discussion paper was prepared by Dr. Brian Wixted and Professor Catherine Beaudry on behalf of SSHRC’s Corporate Performance and Evaluation Division. The views expressed in the discussion paper are those of the external team and do not necessarily reflect the opinions of SSHRC. At this time, we would like to thank Dr. Wixted and Dr. Beaudry for their professional diligence, dedication and hard work on this important discussion paper.

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Taken together, the conscientious and respectful collaboration of all made this study possible.

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“CAPTURING THE IMPACTS” OF RESEARCH

A discussion paper on implications emerging from the Social Sciences and Humanities
Research Council “Capturing Impacts” initiative.

Prepared for the Social Sciences and Humanities Research Council

by

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PREFACE

The report was prepared under contract for the Social Sciences and Humanities Research Council (SSHRC) of Canada by Dr. Brian Wixted and Professor Catherine Beaudry.

In 2006 and 2007, SSHRC funded a number of research projects as a special SSHRC President's initiative to investigate the impacts of research with a particular interest in the impacts of social sciences, humanities and arts research.

This report presents some background behind the funding of 17 research projects but focuses mainly on the findings of the research.

There is an increasing demand for an accounting of research expenditures with measures of what nations receive in return for dollars spent. Governments around the world are initiating systems for the governance of their science system. In the light of this, it is important to fund research on issues regarding the research impacts.

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EXECUTIVE SUMMARY

Background

Today's world is made up of increasingly complex and interconnected relationships. Knowledge and understanding about people, their ideas and behaviour, are vital for social, cultural and economic prosperity and resilience. In recent decades, the increasing demand for this knowledge has steadily raised expectations by societies around the world about how research—whatever the academic discipline—could contribute to their well-being. National governments worldwide devote billions of dollars every year to research and are responsible for showing that publicly supported research and related activities lead to tangible short- and long-term benefits.

Major changes are also taking place internationally regarding research into the evaluation and measurement of impacts. For example, Canada's Science and Technology Strategy, *Mobilizing Science and Technology*, challenges the research community to demonstrate and communicate the results of public investments in research and development as well as the benefits of such investments to Canadians. Thus publicly funded research requires some form of evaluation. Beyond the issue of peer judgments of quality, there are always trade-offs: What research is truly innovative and/or practical? Who should be supported? When is the best time to invest? How best to invest?

Therefore, in October 2006, SSHRC launched a call for proposal designed to encourage the social sciences and humanities research community to apply their expertise to the challenge of capturing the impacts of research, and to develop new and innovative methodologies, tools and indicators for this purpose. In December 2007, the scope of the call for proposal was broadened to include the science, technology, engineering, mathematics and medical (STEMM)¹ community. The wider scope had the following benefits: It studied the impacts of research beyond humanities, arts and social sciences (HASS)² fields of study as this was deemed a potentially artificial distinction; and it encouraged tri-agency cooperation in this area.

Over 2006 and 2007, SSHRC funded 17 small-scale projects (up to \$25,000) with research topics that were diverse in purpose, methodology and academic field. For the purposes of this discussion paper, a

¹ Two expressions are commonly used: science, technology, engineering and mathematics (STEM) and natural sciences and engineering (NSE), both which treat medical separately and have slight historical nuances in use. The National Science Foundation in the United States is one of the prominent users of the term STEM (see www.nsf.gov/funding/pgm_summ.jsp?pims_id=5257 [accessed 19 April 2011] or National Science Board 2010) because its mandate includes social sciences. Unfortunately, uses of the original STEM term are now being blurred (e.g., Donovan 2007 refers to STEM with the M standing for medicine). Thus for convenience and clarity, we have created and will use the STEMM acronym to cover all non-HASS sciences.

² This term seems to be in wide usage to cover the non-STEMM sciences.

conceptual framework (see Figure 3 on page 12) was developed to help categorize and compare the different studies, grouped according to both their focus and their methodology. Based on this framework, the key findings of the discussion paper are summarized under the projects' three main areas of focus: discipline or science-based studies, knowledge mobilization and system-level studies.

Impacts: Discipline/Science-Based Studies

The discipline-based studies (i.e., those aiming to capture impacts and outcomes as well as producing meaningful indicators within a specific discipline) ranged from biotechnology and agriculture/food studies to the humanities and arts. Investigations of research can be done for specific disciplines and domains—as with Professor Cheryl Misak's study focusing on the fields of philosophy and English—or by mapping an entire national network of researchers, as with Professor Catherine Beaudry's study of biotechnology. One goal will be to build on the lessons learned from these studies and contribute to creating a measurement framework for the HASS disciplines, and possibly for other fields.

Within HASS research, it can be argued that the social sciences have received relatively more attention in terms of impact analysis than either the humanities or the arts. However, some exciting advances have been made in conceptualizing impacts in the fine arts. Glen Lowry (Emily Carr University of Art + Design) examined the boundaries of evaluation in the fine arts.³ A first major impact is on the researchers themselves, often neglected by evaluation studies of publicly funded research. Lowry examined how the very fact of receiving a SSHRC Research/Creation grant changed the work of artists/researchers in the fine arts, including increased visibility in a wider context.

From a similar perspective, the Humanities Performance Indicators Project (HOPI) led by Cheryl Misak (University of Toronto) grappled with identifying performance indicators relevant to the humanities, using the Philosophy and English departments at the University of Toronto. Although developing department-relevant indicators is challenging, it can be addressed by looking at the different viewpoints and attitudes of the different departments. Unlike the social sciences, for instance, "the point of humanities research is not usually to describe or explain the world but rather to discover the meaning in it." Misak found that success in measuring humanities research in many cases needed faculty cooperation during the development of the indicators. Scholars had to be engaged in negotiations rather than having indicators imposed across the board.

³ See also the post-evaluation work commissioned by SSHRC's Corporate Performance and Evaluation Division, carried out by Michelle Picard-Aitken and Frédéric Bertrand of Science-Metrix, *Review and Conceptualization of Impacts of Research/Creation in the Fine Arts: Final Report* (2008, http://www.sshrc-crsh.gc.ca/about-au_sujet/publications/evaluations-eng.aspx)

With different methods and purpose in mind, Catherine Beaudry (École Polytechnique de Montréal) was interested in evaluating the biotechnology and nanotechnology sciences in Canada. One interesting finding was that—unlike what is generally found in existing literature—participation in research contracts with private organizations resulting in patents did not have a negative effect on individual researchers' productivity. In fact, the study showed that co-authoring teams have increased in size over time, and the centrality of an author in the past influences his/her academic output. Furthermore, authors who are part of well-connected groups publish more than isolated researchers. However, Beaudry noted that one of the main challenges in developing a research initiative focused on impacts is the laborious task of data cleaning and database-matching. The lack of a unique identifier for researchers was the greatest difficulty encountered in her work.

Anwar Naseem (McGill University) used bibliometric tools to assess the trajectory of federally funded agricultural research. It is also noteworthy that there were some unintended impacts that can be associated with a funded project. For example, grant or contract funds could be used to apply for other funds for the same research, or to explore other avenues that might result in more funds for this new endeavour. Mustafa Koç (Ryerson University) reports that "some SSHRC-funded food studies researchers were able to use initial grant funding as a springboard for obtaining additional research funding for their projects from a variety of sources, including international organizations." It appears that the SSHRC investment in a project indicates the interest and importance of the research area to other funding bodies or organizations. Koç also concluded that researchers actively share their research results but experience significant barriers when trying to communicate with policy-makers or individuals working in government or regulatory agencies.

An appropriate measure for impact in one discipline might not be appropriate in another, and assessing impacts in multidisciplinary cases is rather difficult. Usual performance indicators, such as standard bibliometric measures, do not allow academia to adequately measure the research's impact on society. It is important to know why researchers want to measure impacts and outcomes and then define what should be measured. For instance, Misak notes that faculty cooperation is necessary to "articulate a clear and principled rationale for the overarching aims and value of performance measurement in the humanities generally." Once a clear rationale is put in place, it becomes easier to devise methodologies that "yield reasonably accurate ranking systems in relevant areas of evaluation." This is far from unique to the humanities; the same method needs to be applied in the sciences, medicine or social sciences.

Impacts: Knowledge Mobilization

Whether one uses available databases or creates new ones at the disciplinary, multidisciplinary level (Chapter 2) or systems level (Chapter 4), measurement scales improve our insight into the patterns of

impact in the sciences. These studies then need to be fine-tuned with knowledge that emerges from the micro level (e.g., research grants). One of the keys to understanding the value of HASS research is the study of interactions between knowledge creation and knowledge use (transfer, translation and mobilization).⁴ Without knowing how knowledge is used in society, it is hard to improve the practices lying behind its translation from academia to the wider community.

One first needs to distinguish between the measurement or observation of the impacts of research, and how knowledge is used or not used (including transfer, translation and mobilization). In Chapter 3, the SSHRC-funded studies of the adoption and application of knowledge cover a number of these topics simultaneously. These projects are almost all case studies, with three having a significant human health element (Jeffery; Hird; Wathen et al.).

Bonnie Jeffery (University of Regina) investigated whether previously developed health-research-based tools—the *Community Health Indicators Toolkit* and *Program Logic Models*—were distributed and used both within and beyond their target communities (mostly in the province of Saskatchewan). Interviews confirmed that the research-based tools were valuable in generating feedback that led to program improvement and the development of new research projects. Jeffery's impact research also included an analysis of the tools' spatial distribution; this revealed that the toolkits had spread well beyond the initial communities and even beyond Saskatchewan to communities across Canada and internationally. This innovative spatial analysis proved useful as a mechanism for evaluating the distribution of the toolkits and for judging the success of the dissemination and knowledge translation efforts.

Myra Hird (Queen's University) was interested in knowledge translation in a health context, more particularly, in the flow of knowledge between professionals and patients. The results suggest that a well-coordinated, transdisciplinary approach to health promotion is vital for improving knowledge translation/mobilization, especially so the public can understand the sciences and their integrated contributions. Results from the Wathen project mirror those already outlined. Nadine Wathen et al. (The University of Western Ontario) emphasized the continuing challenge associated with the time-consuming translation of specific research results to a broader, non-academic audience. Talk, trust and time are all essential. Engagement must start early and the communication process must be seen as a two-way exchange of knowledge or, in other words, as knowledge mobilization.

⁴ The term "transfer" is older and is widely adopted, particularly as it relates to technology (see, e.g., Bozeman 2000). However, with the increasing awareness of the challenges of moving knowledge from the creation phase into the "being used" phase, new terms such as "translation" and "mobilization" are becoming popular as indicators that the process itself needs analysis and long-term effort. The two new terms are adopted by different communities of science and funding agencies and have slightly different meanings so both will be used.

The other three projects examined a variety of knowledge use and communications environments: processes of changed behaviour related to sustainability issues (Robinson et al.); the use of research results by education professionals in the Canadian elementary and high school system (Bernard); and possible new formats for short, informative final reports⁵ of research projects, formats that could be made accessible to the general public (Phipps). John Robinson (The University of British Columbia) examined the effects on behaviour and engagement following participatory research on sustainable lifestyles in an effort to develop a methodology to capture the societal effects of such research. The study by Robert Bernard and his colleagues (Concordia University) looked at the frequency with which school practitioners in Quebec's K-12 system (teachers, administrators) used research. The results showed that, in most cases, research use did not "exceed once or twice during the last year."

David Phipps (York University) conducted a study related to the use, or non-use, of final reports. The study was based on the premise that traditional "end-of-grant research summaries" were of little use to the wider audience (academic, private, public and not-for-profit sector). The project investigated what would constitute an effective document and information dissemination strategy of funded arts, humanities and social sciences research, in order to maximize the ability of researchers to communicate research results to user communities. Test approaches, including alternative formats were investigated, with the plain-English short form found to be the most useful and satisfactory to focus group respondents.

The key message emerging from each of the studies is that mere knowledge production is not enough to ensure knowledge use. In their own way, all the studies show that it takes considerable effort to have research understood and communicated well; it involves many different stakeholder groups and the language used has to be tailored to their needs.

Impacts: System-level Studies

System-level concepts of impact are considered in Chapter 4. SSHRC funded a number of studies aimed at investigating system-level interactions of HASS research and society. Methodologies included theory development and surveys (both large scale and targeted) that measured various variables of impact.

This chapter's main contribution comes from the different perspectives provided by the studies and from the improved understanding that emerges from the overlaps of these perspectives.

A number of the system-level studies were directed at delivering measures of impact, but two studies had somewhat different aims. The project by Brian Lewis (formerly of Simon Fraser University, now at Concordia University) stands out from the other studies in that it starts with the premise that research

⁵ This report is based on the final research report submitted to SSHRC.

funding is increasingly directed towards partnerships/networks. He questioned what should be understood about networks having impact, looking more specifically at how the connection between researchers and stakeholders could be evaluated. Building on previous research, findings suggest that new impact-evaluation frameworks could be added for funded research networks (such as Networks of Centres of Excellence and SSHRC Partnerships Grants), taking into account the networks' connections with stakeholders and the broad characteristics of each network's community features.

Other projects fixed their attention on measuring attitudes and behaviours with regard to the HASS fields. The underlying question behind Murray Rudd's (formerly of Memorial University, Newfoundland, and now at York University in the United Kingdom) work on research impact evaluation was how Canadians view the subject matter of HASS research. In his study, Rudd implemented a national survey of Canadian households to understand the research preferences of Canadian society. Rudd's methodology was designed to capture a sense of the average Canadian's willingness to pay for quality of life (QOL) improvements from HASS research. The study revealed that Canadians divided into five distinct groups on this topic, with two groups showing positive attitudes towards research. What is also interesting is that this research indicates non-market benefits of HASS research. As Rudd notes, "effective knowledge mobilization and awareness-building strategies might be extremely important in building a long-term business for HASS research investments." As the Lewis analysis suggested, it may be more difficult to find and connect with those who value the research.

Kathleen Bloom (University of Waterloo) led a project to obtain the views of academics on the translation of research into society. A key finding from Bloom's research is that, while faculty are eager to bolster research impact, they believe that institutional values and the reward systems of universities and granting agencies provide incentives against this activity. Research outreach and knowledge mobilization—viewed as extra-curricular—are often insufficiently supported.

Rather than starting with societal opinions, Yves Gingras (Université du Québec à Montréal) and Éric Archambault (Science-Metrix Inc.) researched the opinions and attitudes of academics on the effort it takes to connect with societal stakeholders. Responses from their Canada-wide web survey of SSHRC-funded HASS academics reinforced the focus group results collected by Bloom: Academics still concentrate mainly on disseminating their research to others in academia through peer-reviewed publications, conference presentations and teaching. Nonetheless, a significant percentage of academic HASS researchers still *perceived* their work as having an impact outside of academia, whether in the political, corporate or not-for-profit spheres (the responses, however, were non-specific).

Claude Couture (University of Alberta) focused his analysis of impact on outreach to a general audience. His team measured the impacts of research on legal and demographic issues of the francophone community in western Canada. His study has shown that the impact of academics in policy and law can take a lifetime to build, even posthumously, as impact grows over time with a number of studies building on each other.

Interestingly, the findings of Cooper Langford, Richard Hawkins and their team (University of Calgary) revealed little difference between the HASS and STEMM communities in terms of the extent and nature of their outreach activities. In other words, the proportion of social scientists, artists and humanists engaged in applying the results of their research in non-academic settings is roughly the same as the proportion of STEMM researchers. All the data indicate a robust market in Canada for social knowledge of all kinds in a wide variety of settings, ranging from community organizations to major national and international corporations. However, findings indicated that the incidence of knowledge outreach was skewed towards researchers who were frequently active in outreach and who were, to some extent, in the mature stages of their careers; this is therefore a definable sub-set of the academic community.

SSHRC funded a number of studies aimed at investigating system-level interactions of HASS research and society. From a government policy point of view, emphasis is placed on a systems level of behaviour and measurement and there is growing debate about how to conceptualize and measure impact. Research needs to be of value but measuring that value is a fundamental issue.

Conclusions: Impact Studies—Looking Forward

The initial goal of the “Capturing Impacts” initiative was to fund research projects on impacts, regardless of the science base. Each impact grant was modest (maximum of \$25,000 for one year). The result was an impressively diverse range of projects, systematic studies of the impacts of both specific disciplines and of research in general. This discussion paper looks at the insights gained from the SSHRC-funded studies, which made significant progress on some of the specific topics outlined by SSHRC in the initial call for proposals, namely, attribution, appropriation, timing, inequality and “project fallacy.”

The studies in Chapter 2 showed that bibliometrics is a tool that can be used at both the individual and aggregate level for disciplines and sub-disciplines. However, a consensus needs to be reached on the types of metrics that are important so that impact can be measured properly. Indeed, when measuring impact in a multidisciplinary domain, validity becomes much more complex. Other measurement methods such as interviews, questionnaires, focus groups and expert panels, to name a few, then become useful as they provide complementary data. A number of the studies funded by SSHRC

combined measurement methods in a systemic approach, thus contributing to the initial program objectives to develop new methods or adapt existing methods in new, innovative ways. For example, Koç combined bibliometrics and citation analysis, surveys and e-conferences with expert panels. Projects looking at research impacts through the lens of knowledge translation and mobilization (reviewed in Chapter 3) have largely confirmed existing findings. Studies by Jeffery, Hird, Wathen, Robinson, Bernard and Phipps add yet more weight to the growing body of evidence that knowledge is a problematic entity, requiring dedicated and thoughtful effort to move it from findings to action. This should alert the funding and research communities that funding research is not enough. Translation of the knowledge gained has to be integrated into the research plan, not merely an add-on. If societal impact is truly a desirable goal, then all funders of research need to take seriously how challenging, difficult and time consuming it is to actually engage with stakeholders to make research knowledge more community oriented.

Perhaps the most innovative findings have emerged from the system-level studies (Chapter 4). Studies in this section opened up entirely new fields of research impact: society's values (Rudd), researcher values (Gingras and Archambault) and researcher behaviour (Langford and Hawkins). For example, one study (Gingras and Archambault) showed that academics put their highest priority on reaching other academics. However, in another study (Langford and Hawkins), when academics are asked what they do to ensure their work has impact, there is ample evidence that they put significant time and effort into disseminating their work to social, community and government organizations. Finally, Couture's work in addressing the timing-of-impact issue revealed that real impact may be decades in coming or may appear only posthumously.

Frontiers

In 2007 and 2010, SSHRC released a document, *Framing Our Direction*, that reported on SSHRC's achievements and set out the Council's strategic priorities for the coming period. Both reports document SSHRC's desire to increase its impact and to be better able to report on that impact. SSHRC's attention and emphasis has now evolved—partly from external pressures and partly due to the interest of scholars that it funded—to focus on the impacts of humanities, arts and social sciences. The core interests of SSHRC can now be said to be the following: (i) to improve SSHRC's ability to report to Canadians, on an ongoing basis, the socio-economic and cultural value of public investments in HASS research (accountability); (ii) to improve SSHRC's ability to report the value of SSHRC-funded research (methods); and (iii) to promote a community of scholarly interest in the area of capturing impacts and thereby creating an external advisory function for SSHRC (partnerships).

The 17 “Capturing Impacts” studies funded by SSHRC have opened up new fields for study. It is hoped that these projects are just the beginning of a fruitful ongoing dialogue among academics, society and policy-makers inside and outside government regarding the measure of research. This conversation is needed within the much larger mission of being more critically reflective of the science policy enterprise. All the sciences contribute to society in many ways beyond productivity. Agreement among all key stakeholders on a comprehensive strategy for capturing, analyzing and sharing the results and impacts of HASS research is long overdue in Canada, as other jurisdictions, especially the United Kingdom, Europe and Australia, are funding research on related topics.

1

INTRODUCTION

Today's world is made up of increasingly complex and interconnected relationships, where knowledge and understanding about people – ideas and behaviour – are paramount to social, cultural and economic prosperity and resilience. In recent decades, the increasing demand for this knowledge have steadily raised expectations by societies around the world about how research, regardless of academic discipline could contribute to their well-being. National governments world-wide devote billions of dollars annually to research, and fundamental to their mandate is a responsibility to demonstrate that the research and related activities they support leads to tangible short-term and long-term benefits. Thus publicly funded research requires some form of evaluation. Beyond the issue of peer judgments of quality, there are always trade-offs: What research is truly innovative and/or practical? Who should be supported? When is the best time to invest? How best to invest?

Major changes are taking place in the international and national context regarding the research, evaluation and measurement of impacts. The hiatus between design and implementation provides many opportunities for reflection and discussion. As Claire Donovan states "National research evaluation exercises are burgeoning in countries like the UK and Australia, where alternative pathways are being forged, on the one hand, by the perceived relative merits of "metrics" (quantitative

measures of research performance) and peer judgement and, on the other hand, by the value attached to scientific excellence (“quality”) versus usefulness (“impact”).”⁶

Changes are also taking place in Canada. In Canada’s S&T Strategy – Mobilizing Science and Technology to Canada’s Advantages states that the knowledge economy of the 21st century will depend increasingly on our ability to innovate – to generate knowledge and ideas from which are derived new products, services, and policies that create economic wealth, enhance social foundations, sustain the environment, build our understanding of the critical dimensions of the digital world and improve quality of life. The S&T Strategy appropriately challenges the research community to demonstrate and communicate the results of public investments in R&D, and the benefits of such investments to Canadians, in one of its core principles: Enhancing accountability in demonstrating to Canadians the benefits of investments in S&T.

Governments are required to make judgments about the value of research funding and, to do so, they require information on the tangible benefits or “value” provided by each program. Pressure to show the value of funding science, research and innovation has existed for many years.⁷ Research in science, technology, engineering, mathematics and medicine (STEMM)⁸ has benefited in recent decades from the largest funding increases, but it has also been under great scrutiny.⁹ Now the humanities, arts and social sciences (HASS)¹⁰ fields of research more and more are under similar pressures for accountability plus the reporting of results and “impacts.” However, systematic approaches for capturing the broader social, economic and cultural impacts of publicly funded research remain in their infancy. Claire Donovan further notes, “research in the humanities, arts and social sciences is undervalued or under-reported within standardized evaluation systems and the commonality of science fields is

⁶ Donovan, Claire, Special Issue on future pathways for science policy and research assessment: metrics vs peer review, quality vs impact, *Science and Public Policy*, p. 538, Volume 34, Number 8, October 2007, Surrey, UK.

⁷ See OECD (1968) which devotes significant space to discussing the productivity of science.

⁸ Two expressions are commonly used; science, technology, engineering and mathematics (STEM) and natural sciences and engineering (NSE), both which treat medical separately and have slight historical nuances in use. The National Science Foundation in the United States is one of the prominent users of the term STEM (see www.nsf.gov/funding/pgm_summ.jsp?pims_id=5257 [accessed 19 April 2011] or National Science Board 2010) because its mandate includes social sciences. Unfortunately, uses of the original STEM term are now being blurred (e.g., Donovan 2007 refers to STEM with the M standing for medicine). Thus for convenience and clarity, we have created and will use the STEMM acronym to cover all non-HASS sciences.

⁹ For example, the Health Research Council of New Zealand held a conference in 2005 on the impacts of research (see www.hrc.govt.nz/root/pages_news/Measuring_the_impact_of_health_research.html), and the Canadian Academy of Health Sciences funded an international panel to prepare a report on the impact of medical research (www.cahs-acss.ca/e/pdfs/ROI_FullReport.pdf). See also Coryn (2008).

¹⁰ This term seems to be in wide usage to cover the non-STEMM sciences.

overplayed...”¹¹ As such, the efforts to date have not produced easy metrics or solutions, the yardsticks preferred by government because judgements regarding the value are then simpler. However, research provides no short-term payback and assessing its longer-term value is complex. Situational contexts matter and thus impact-focused methodologies lean toward the complex.

The debate over how to define the value of social sciences and humanities research is growing on campuses and communities around the world. Universities are being challenged to expand traditional criteria for tenure-track promotions to include more unconventional outputs, and governments are under increasing pressure to demonstrate the value of public investments in research. (SSHRC 2008)

Although the need to capture the impacts of publicly funded research is of direct, strategic importance to government and individual granting agencies such as the Social Sciences and Humanities Research Council, the impetus for this work extends to the broader context. Fundamental to SSHRC’s mandate is a responsibility to demonstrate to Canadians that its funded research and related activities lead to short-term and long-term impacts thereby contributing to Canada’s prosperity and quality of life.

The goal of this document is not to overly simplify the nature of “impacts” but to come to a good understanding of it. These can then be communicated to the political system and to society that pays for research through its taxes.

SSHRC’s Impacts Initiative

As a federal research funding agency that supports postsecondary research and research training, SSHRC, through its funding opportunities, help generate insights about people, ideas and behaviour, and build connections within and beyond academia to address the needs and perspectives of all sectors of society. With the increase in research funding and the need to develop more extensive accountability frameworks, SSHRC has been working closely with the broader research community and partners to develop new ways to capture and communicate the direct and indirect impacts and outcomes of social sciences and humanities. Having the right data at the right time, seamlessly available to different audiences, is vital to moving forward.

Therefore, beginning in 2006, SSHRC launched a series of initiatives to advance the thinking on capturing the impacts of research, HASS research in particular. The initiatives included two calls for

¹¹ Donovan, Claire, Special Issue on future pathways for science policy and research assessment: metrics vs peer review, quality vs impact, Science and Public Policy, p. 542, Volume 34, Number 8, October 2007, Surrey, UK.

proposals in October 2006 and December 2007, falling under the Presidential Fund for Innovation and Development, designed to encourage the social sciences and humanities research community to apply its expertise to the challenge of capturing the impacts of research, and to develop new and innovative methodologies, tools and indicators for this purpose. Grants were awarded for small-scale research projects (i.e., up to \$25,000 for one year) to explore new approaches in capturing the social, economic, and cultural impacts of publicly funded research. Applications were peer reviewed by a special multidisciplinary selection committee.

The scope of the 2007 call for proposals was broadened to include research on the impacts of all fields of publicly funded research. This expansion had the following benefits: studying the impacts of research beyond HASS research, which was deemed a potentially artificial distinction; and encouraging tri-agency cooperation in this area. The call for proposals outlined five traditional and specific problem topics for which advancements in the state of the art were needed:

The international literature has identified several challenges related to assessing the outcomes and impacts of research (summarized below). SSHRC invites proposals that explore solutions in one or more of these areas, and/or that make the case for addressing other factors that are equally important in developing effective techniques for capturing research outcomes and impacts.

- *Attribution—A given social, cultural or economic benefit or innovation may draw upon the results of multiple research projects, while a given project may have an impact on, or contribute to, multiple benefits or innovations.*
- *Appropriation—It may not even be apparent where to look for the impact of new research knowledge, since, in many cases, the beneficiaries of that knowledge may not be the same individuals, groups, communities or organizations that conducted the research.*
- *Timing—Often, the impacts of research only manifest themselves long after the project is complete.*
- *Inequality—Out of a range of similar research projects, or projects that address the same subject matter, a small number may account for most of the effects.*
- *“Project fallacy”—It is commonly assumed that a specific research project will result in an identifiable set of outcomes and impacts, which can be attributed reliably to that project and which then can be compared to inputs. (SSHRC 2007)*

The 2007 program objectives were revised to reflect these topics and to support projects that would:

- develop, test and/or implement new and innovative methodologies for capturing the social, cultural and economic outcomes and impacts of research in the social sciences, humanities, health sciences, natural sciences or engineering; and

- adapt existing methodologies to, or apply them in, new contexts.

Within this broad range, SSHRC sought to support original, groundbreaking studies that would:

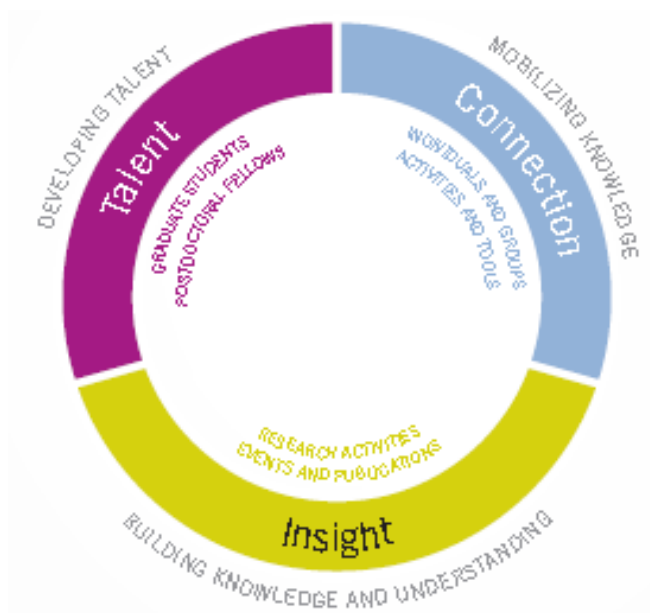
- contribute significantly to the development of techniques that can be applied in the Canadian context;
- help advance the practice of evaluation of research programs and organizations;
- help advance the art of effectively communicating research impacts;
- develop Canada's capacity to contribute to international efforts in these areas; and
- take account, as appropriate, of emerging international standards.

Implied in the revised program objectives was the potential applicability of this type of research to the program evaluation field, and the potential to address the challenges of communicating the impacts of research.

Although the terms of reference in the 2007 call were purposely wide, a number of the respondents focused on HASS research, perhaps because that was the emphasis in the first round. However, it is valuable to keep in mind that some of the projects—while using social science techniques—studied various scientific fields (natural, medical or engineering) and that all were valid within the original terms of reference for the Presidential Fund for Innovation and Development. It is worth noting that the field of evaluation and of measuring impact and outcomes is a social science discipline in itself. Thus the methodologies presented in subsequent chapters are well grounded in the social science literature.

The SSHRC Framework

In 2010, SSHRC released an updated *Framing Our Direction 2010-12* in which the new program architecture is discussed and a clearer focus on talent and knowledge laid out. Through its Talent, Insight and Connection programs, SSHRC has simplified and consolidated its support to the best students, scholars and their research partners, and enhanced links to those who can put research knowledge to work across society. In this regard, SSHRC has recently embarked on an important project aimed at renewing achievement reporting to help demonstrate the value of HASS research and to maximize contributions of social sciences and humanities research to Canada's prosperity and quality of life.



Source: SSHRC 2010a.

FIGURE 1. SSHRC Directions and Architecture Renewal

However, the document most relevant to the current discussion is the SSHRC internal document *Framework for Increasing and Capturing Results and Impacts of SSHRC Investments* (2010b) in which the Council lays out a series of overlapping concepts, shown in Figure 2 below¹².

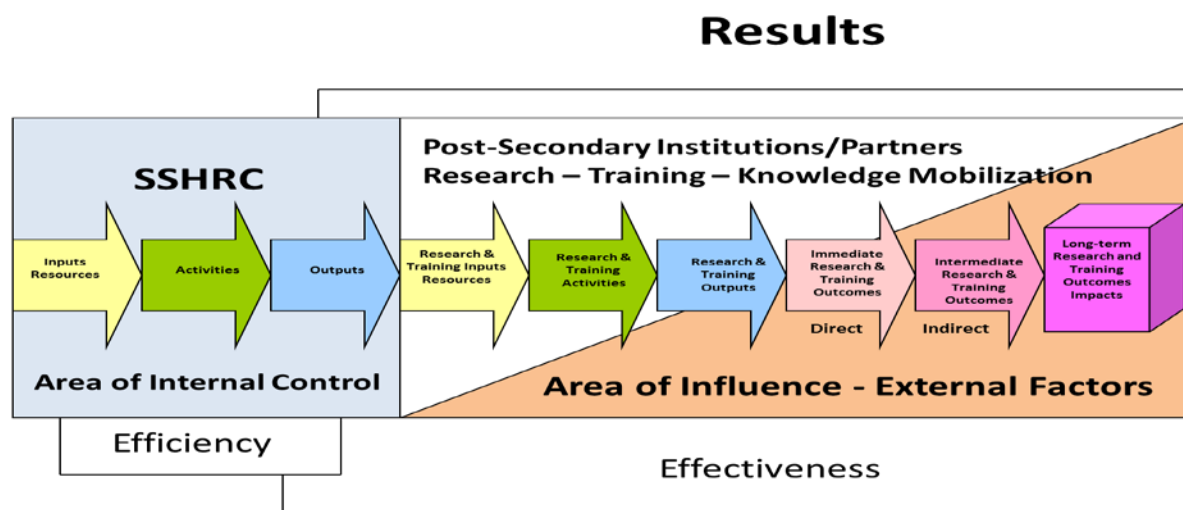


FIGURE 2. SSHRC's Concept Framework

Source: SSHRC 2011

¹² Figure 2 presented in this report is an updated version of the original diagram included in SSHRC's internal document, the *Framework for Increasing and Capturing Results and Impacts of SSHRC Investments* (2010).

These two diagrams are complementary: Figure 1 details the overarching foci of what SSHRC emphasizes in its research funding; Figure 2 outlines the conceptually distinct components for each of priorities (talent, connection and insight).

In Figure 2, one can discern a series of nested and horizontal concepts.

- 1) The stages of research: These are shown by arrows (leaving aside feedback loops and dead-ends, etc.).
 - a) Inputs/Resources—These consist of people, money, equipment, buildings.
 - b) Activities—These are what is done.
 - c) Outputs—These “are the insights or learnings produced by researchers; they may be embodied in a variety of forms including journal articles published, books, discussion papers and newsletters produced, databases created, conferences and workshops, additional research resources leveraged (financial and in-kind), students trained, and other forms of knowledge dissemination including the sharing of research insights among other researchers as well as with non-specialists in the general public.” (SSHRC 2010)
 - d) Immediate outcomes and Intermediate outcomes in this model are mostly thought of as the results of research (see below).
 - e) Longer-term outcomes, external factors—The implication here has more to do with conceptualizing what the noticeable impacts have been.
- 2) Efficiency and effectiveness (much of the literature on research evaluation still focuses on these two dimensions)—How much science results from money spent and have the objectives been obtained? (Is it of quality?)
- 3) Results—These “include all SSHRC-funded outreach activities (e.g., scholarly and other productivity) as well as those undertaken by others, as a result of new insights and learnings enabled by SSHRC grants. These may include the number of people in various ‘target audiences’ that reflect and utilize the research findings and students trained, new capacities created, policies developed, and business strategies formulated, etc. Such ‘outcomes’ may be foreseen or unforeseen, direct or indirect, intended or unintended. Outcomes are the same as results.” (SSHRC 2010).
- 4) Area of control internal to the organization—It is increasingly important for organizations to acknowledge where their mandate allows them to influence the system—the implication of this zone—and where it cannot.
- 5) Area of influence external to the organization.

6) Impacts—These were defined by SSHRC as

The long-term outcomes or effects to which SSHRC funding has contributed to. Similarly to outcomes, impacts may be foreseen or unforeseen, direct or indirect, intended or unintended. Impacts in the form of changed thinking (including meaning, values and interpretation) or behaviour cannot always be predicted, especially in the short-term since how individuals, groups and societies will react to new knowledge, policies, strategies, etc. can never be known in advance with certainty. The links by which research and development of talent connect to 'impact' must be understood in ways that embrace the complexity of human thought and behaviour. Rather than attempting to draw clear cause-and-effect links, our conceptualization of 'outputs,' 'outcomes' and 'impact' assumes that the connections involve influence, contributions and benefits rather than one-to-one relationships. For example, new knowledge and people might 'influence' the development of a new policy that can 'contribute' to new behaviour within a particular group. Ultimately, the changed thinking or behaviour is reflected in global economic performance, competitiveness, public service effectiveness, new products and services, employment, policy relevance, enhanced learning skills, quality of life, community cohesion and social inclusion. (SSHRC 2010b)

The iterative nature of the development of ideas is clear in these two documents. Both have benefited from insights from the “capturing impacts” initiative. However, both also reveal that determining what it means to measure impact is still in the development phase.

Words such as “outcomes,” “results,” “impacts” and “benefits” mean different things to different people. According to a recent survey, half of SSH researchers say their research results are used outside academia. However, those same researchers report no impacts although they say their research has been used in a variety of ways, including:

- *as a basis for advocacy by early learning and child care NGOs;*
- *to bring music uncovered through research to a wider audience by editing and publishing it;*
- *by DFAIT staff in the preparation of a new strategy for relationships with Latin America;*
- *to inform new therapeutic interventions in a variety of health and educational organizations;*
- *as the basis of major criminal law legislation in the UK; and*
- *by professional associations and unions to advocate for change in work environments, etc.*

The first step is therefore to define clearly the various concepts and how they relate to SSHRC and its partners operations and objectives. While many expressions are currently used, a consensus is emerging about how to conceptualize the fruits of research and research training. In the past, the “results” and “impacts” of research were generally understood to be limited

to scholarly journal articles and books for SSH research. It is now clear that such sharing of what has been learned through research (which we are now defining as "outputs") is only the initial expression of "results" and "impact." Indeed, once scholars and their research partners begin sharing what they learn through their research or designing together and co-creating knowledge, it becomes possible to take their insights and use them to develop "outcomes" that can be used on campus and across society. Such "outcomes" include enriched public discourse, new curriculum material, new public policies, new business strategies, and, indeed, innovations in every sector of society. Through these outcomes, facilitated through the effective mobilization of knowledge, the "impact" of research then permeates daily life in the forms of new thinking and behaviour that lead to improvements in our economic, social, cultural and intellectual well-being. While outcomes, results and impacts are commonly used interchangeably, "impact" is often reserved to refer to longer-term or final outcomes.

(SSHRC 2010b)

As is clear from the comments above, definitions of impact for the research community are still somewhat fuzzy; currently what it is *not* is more important than what it *is*. It is not research, findings, papers or even patents but something else. So obviously there is still a way to go. Nevertheless, one of the outcomes of the research conducted in this initiative funded by the Presidential Fund is that it started the thinking process about the categories of impact.

SSHRC Goals Regarding Impacts Research

The small Impacts Working Group held several closed workshops with the principal investigators (PIs) and select team members in 2008 and 2009 and a discussion workshop of experts in 2010. The agenda of this group has become increasingly focused on the problems of accounting for the impact of HASS research, which is seen as a pressing issue. The shift from an inclusive focus to a HASS focus can be seen in the summary of the 2009 meeting that was prepared by Janet Halliwell.

SSHRC's Capturing Impacts initiative was framed by three goals:

- 1. to improve SSHRC's ability to report to Canadians, on an ongoing basis, the socio-economic and cultural value of public investments in SSH research (accountability);*
- 2. to improve SSHRC's ability to report the value of SSHRC-funded research (methods); and*
- 3. to promote a community of scholarly interest in the area of capturing impacts, and, thereby, an external advisory function for SSHRC (partnerships).*

These goals focus particularly on the effectiveness and added value of SSHRC investments, as opposed to many of the other issues often addressed by program evaluations (e.g., efficiency, relevance and sustainability). As the goals outlined above were far reaching and the grants relatively small to seed

pilot concepts, it would be unrealistic to expect massive advances. Despite this, achievements in a number of areas were significant. New insights were realized; connections were forged between researchers on the capture of social science, humanities and arts impacts; and knowledge was mobilized that will hopefully encourage others to join the dialogue around conceptualizing, defining and measuring research impacts, particularly those relevant to HASS fields.

Over 2006 and 2007, SSHRC funded 17 projects with research topics that were diverse in purpose, methodology and academic field. Few projects were typical of the literature but there are some common threads, which are outlined in this document. The projects ranged in scope from evaluating the distribution of a single set of documents (Jeffery and Hackett); to a survey of HASS researchers on the use of their research results (Gingras and Archambault); to the pilot testing of surveys that, if widely adopted, could potentially transform our knowledge of the role of HASS in innovation systems (Langford and Hawkins).

The projects employed a range of techniques, from focus groups (Misak) to the mining of large historical and bibliometric databases (Beaudry; Couture), to further developing the theory of evaluation and impact analysis (Lewis, Holbrook and Wixted) through to focus-group-style discussions (Bloom, Zanna and Coates). Rudd carried out a large online survey to explore Canadians' research preferences in relation to their willingness to pay for related improvements to quality of life, while Bernard used an online survey of teachers and administrators in the K-12 school system to better understand their use of research-based knowledge. What also distinguish the studies are their disciplinary (and multidisciplinary) contexts and perspectives. Disciplines include philosophy and English (Misak); fine arts (Lowry); food studies (Koç); biotechnology (Beaudry); agriculture (Naseem); environment and sustainability (Robinson, Wiek and Talwar); and health (Jeffery and Hackett; Hird; and Wathen, Jack and MacMillan¹³). One study (Phipps) was particularly pertinent for reporting achievements of research funding agencies.

A Framework for Understanding the SSHRC "Capturing Impacts" Projects

The different studies can be compared on the basis of both their focus and their methodologies. The following diagram (Figure 3) has been developed to assist in this comparison. The diagram is divided into three main sections—measurement, theory and practice—and each study has been placed in one category. Not surprisingly, most lie in the measurement section, which has been subdivided into three areas, each corresponding to the type of methodology used in each study: interviews/focus groups, surveys, and data mining/analysis. The projects have also been categorized according to the focus or

¹³ Note that this study did not cover health impacts exclusively but also social service and advocacy constituencies.

object of the study: discipline or science based (Chapter 2), knowledge mobilization (Chapter 3) and systems based (in Chapter 4).

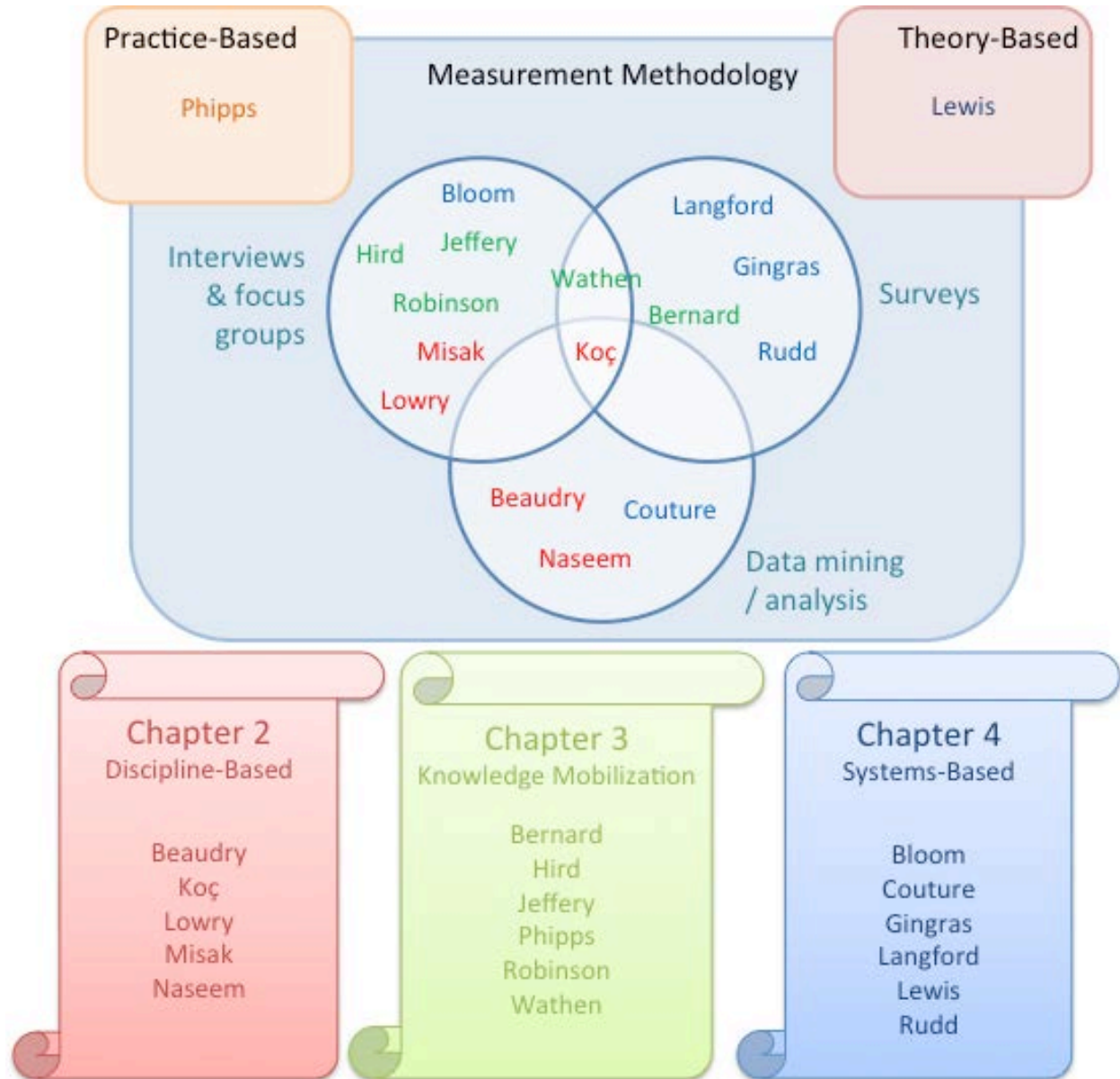


FIGURE 3. Classification of Impact Studies

The studies are compared according to their level of focus. Focus was chosen, rather than methodology, due to greater thematic clarity. Chapter 2 concentrates on studies where the important factor is the disciplinary or multidisciplinary context. Studies in Chapter 3 address the continuum of

knowledge creation, mobilization and action. (It is just a coincidence that they are mainly case studies.) The research in Chapter 4 examines the studies interested in large-scale systems within the research context or, in other words, how research might have an “impact” in an aggregate sense.

The two outlying studies, Phipps and Lewis, have been folded into the case-studies chapter (Chapter 3) and the systems chapter (Chapter 4) respectively. The Phipps study, because of its interest in research communication, is a good fit with other studies in Chapter 3. The Lewis study, because the work examined the meaning of performance in the context of research networks (a major funding approach of many funding agencies across the world), aligned well with the rest of the studies in Chapter 4. Conclusions as well as key messages emerging from this work are discussed in Chapter 5.

There are varying levels of specificity and generality in the studies examined here. Studies with a narrower focus are valuable for understanding the usefulness and benefits of research in specific domains. Studies with a wider scope are useful because they may help in the understanding of trajectories of HASS and STEMM policy across time.

Impact Studies and the Need for Innovation

As the interest of governments shifted from quantity to quality (journal impact measures) and now to societal impacts, it has been challenging to invent new measures. And, with little willingness by governments to invest in the development of new databases, “impact” in many cases is viewed as synonymous with bibliometric analysis of scientific output. Traditionally, the literature on STEMM and HASS bibliometric evaluation has been focused on citations and journal impact factors (Donovan 2007), not entirely satisfactory in STEMM but even less so in the social sciences.¹⁴ Other evaluative methods have also been used, including key informant interviews, analysis of research reporting, case studies, focus groups and surveys of researchers.

There is agreement in the research community that STEMM-sourced indicators emphasizing patents, commercialization and start-up companies are not entirely appropriate for HASS research. Thus, there is an ongoing need for conceptual and theoretical work on understanding HASS results and the impact they have on society as a whole. It could be noted here that the United Kingdom’s Economic and Social Research Council (ESRC) paid little attention to the use of bibliometrics in its background work on

¹⁴ There is a large critical literature of the misuse of bibliometric analysis, a recent one being Bornmann and Daniel (2008).

measuring impact (Crossley 2010; Molas-Gallart and Tang 2007¹⁵). It should not, then, be surprising that only a few studies applied such tools in the context of the “capturing impacts” grants.

Methodology

Academic literature is known to be slow to emerge and papers from these research projects are no exception. Furthermore, a number of these research projects have been embedded within much larger research projects and appear aimed at improving the knowledge impact of those projects as well as a better understanding the phenomenon in question. This document has therefore been constructed from a number of different sources:

- excerpts of SSHRC’s documentation (with the assistance of SSHRC staff, an understanding of the thinking behind the grants process was developed as that process unfolded);
- presentations, meeting notes and summaries from workshops involving principal investigators and team members from the 17 SSHRC-funded “Capturing Impacts” research grants and other experts in 2008 (Vancouver), 2009 (Ottawa) and 2010 (Montreal);
- grey literature in the form of working papers made available by the authors;
- published peer review papers in academic journals; and
- relevant literature providing a contemporary (but not exhaustive) context for the material presented.

Relevance of the Presidential Fund Grants

The very notion of the need for “impact” has been somewhat contested terrain over the decades. Pielke (2010) makes the point that, at the beginning of the 20th century, there was uncertainty over which message—the discovery or the impact—was more important.

In a 1921 essay, for example, the NUSW [UK National Union of Scientific Workers] president declared that scientific research has “no industrial bearing at all” but later stated that it is “the foundation of progress in industry.” Not surprisingly, most policy-makers shrugged. (Pielke 2010, 922)

However, in post-World War II America, Vannevar Bush, by coining the phrase “basic research,” facilitated the idea that “work that had been regarded by many as interesting but hardly of real impact on a practical existence had been basic to the production of a bomb that had ended a war” (Pielke

¹⁵ They discuss a range of possible impact analyses, but the ESRC implemented intensive case-study-based methodologies (Crossley 2010).

2010, 923). Discovery and impact for the natural sciences were thus linked in popular imagination. Today, the ground on which such public debates are based has shifted again.

In recent decades, science policy has shifted its focus towards conferring measurable benefits to society. The fuzzy concept of basic research no longer seems to fit – nebulous descriptions of benefit are insufficient in today’s competitive environment for public funds. Consequently, use of the phrase has declined since the early 1990s, as indicated by mentions in Science and Nature . . . Other terms, such as “transformative research,” have sprung up to fill the gap; even “fundamental research” has made an ironic return. And science policy itself has been renamed by scholars of science studies: as collaborative assurance, socially robust science, use-inspired basic research and other monikers that have meanings largely known only to that community.

Words alone cannot bridge the gap between the different interests of scientists and politicians in pursuing research: governments demand relevance; scientists desire freedom. The so-far futile search for a language that is relevant today both reflects and reinforces the unsettled nature of science policy. In the six decades since Science – The Endless Frontier was written, research and policy have been transformed. Our framework for discussing both needs to catch up. (Pielke 2010, 923).

But What of the Social Sciences and Humanities?

The same pressures that have gradually come to be applied to the STEM fields over the last 60 years are now affecting the social sciences and humanities. In Australia (Donovan 2007) and the United Kingdom (Crossley 2010), there have been increasingly focused attempts to measure impact across the research system as a way of allocating funds to universities. The underlying philosophy holds the promise of a greater awareness of the role of the sciences, including the social sciences and humanities, in society. It also has possible detrimental effects of instrumentalizing research and creating false expectations of particular “deliverables” if the wrong measures are employed. In the long run, this will devalue the place of research in society.

The benefit of awareness will come primarily as the broader academic and national communities understand that the social sciences help society negotiate the changes that come as economic, political and social systems interact with scientific understandings, technology resource availability and natural environment systems. Social science is necessary in its own right as well as to ensure that STEM science findings are translated into everyday life. As for the humanities, however, self-awareness in societies has its own virtue and the multiple “goods” with which the HASS field enriches daily lives are beyond mere scientific translations or economic goods.

What, then, of impacts investigated by scholars funded by the SSHRC Presidential Fund grants?

2

IMPACTS: DISCIPLINE/SCIENCE-BASED STUDIES

This chapter focuses on discipline-based studies, i.e., those aiming to capture impacts and outcomes as well as producing meaningful indicators within a specific discipline. The studies range from biotechnology to agriculture and food studies, to the humanities and the arts—a wide variety of disciplines—but one goal of this compendium is to identify the meeting place of methodologies used to measure impacts and outcomes in these specific disciplines. The purpose then will be to build on the lessons learned from these studies and contribute to creating a measurement framework for the social sciences and humanities, and possibly for other fields.

Most of the metrics traditionally used to measure performance originate in the field of bibliometrics and scientometrics. Other metrics measuring economic impact, such as cost-benefit analysis, have long been part of the toolbox of economists. And social network analysis, measuring the extent of the potential transmission of knowledge, was first introduced by sociologists. Whatever the object of study, the social sciences are well equipped to measure its activity and output. However, measuring *impact* is more complex as will be demonstrated in this and subsequent chapters.

In the STEMM disciplines, performance measures have long been in place. As Claude Couture (University of Alberta) says, “[r]esearch projects in applied sciences often provide results that are directly measurable, as opposed to social sciences where the quantifiable parameters are less easily observed.”

Universities and peer review committees have been counting papers, patents, grants and contracts for many years. The metrics used have become increasingly sophisticated but the results obtained for one discipline or even sub-discipline cannot easily be compared with other disciplines. This focus on performance measures is often narrow and unwittingly results in producing a single “type” of academic researcher.

The chapter is organized as follows. First is a brief summary of the five projects relevant to the focus of this chapter. Then the types of outcomes and impacts are examined, followed by the metrics—in particular, the types of metrics. Finally, the interactions between public and private funding are discussed.

Summary Results of the Five Projects

Investigations of research can be performed within the context of a single discipline and domain, as in Cheryl Misak’s study in the fields of philosophy and English, or through the mapping of an entire national network of researchers as in Catherine Beaudry’s study of biotechnology. Both approaches have their challenges. The former attempts to negotiate with individual researchers as to what indicators connected with HASS research achievements might be valuable within the discipline. The latter brings together disparate datasets to create a landscape-level image of funding and knowledge production.

Within HASS research, some may believe that the social sciences have received relatively more attention in terms of impact analysis than either the humanities or the arts. However, some exciting advances have been made in conceptualizing impacts in the fine arts. Glen Lowry (Emily Carr University of Art + Design) examined the boundaries of evaluation in the fine arts.¹⁶ The concept of “research” presents difficulties in an area of academic endeavour where there is study and learning but the results of these are less evident in the actual work created. What Lowry notes is the tendency in evaluation to divide academic life into two major domains: teaching and research. The former typically tends to be evaluated at the class level through many activities, including student reporting. Research, on the other hand, is seen as a process of learning, reflecting and creating. Lowry asks: What if the act of creation does not necessarily look as if it has gone through the two earlier steps (learning and reflecting)? He notes that

¹⁶ See also the post-evaluation work commissioned by SSHRC’s Corporate Performance and Evaluation Division, carried out by Michelle Picard-Aitken and Frédéric Bertrand of Science-Metrix, *Review and Conceptualization of Impacts of Research/Creation in the Fine Arts: Final Report* (2008, www.sshrc-crsh.gc.ca/site/about-crsh/publications/RC_fine_artsFinalE.pdf).

data suggest that interviewees are unclear on the co-location of research and creation—the relative importance of one or the other—and on the methodological expectations inherent in the program. There is a perceived weighting of conventional academic practice over practice-led experimentation or conceptualization: research over creation.

From a similar perspective, the Humanities Performance Indicators Project led by Cheryl Misak (University of Toronto) grapples with identifying appropriate performance indicators relevant to the humanities, using the Philosophy and English departments at the University of Toronto. Misak notes that, although developing department-relevant indicators is challenging, the challenge can be understood through the lens of the differing departmental ethos. Business schools, particularly graduate business schools, appear to thrive on league tables and benchmarking, and the humanities are starting to look closely at the value of impact indicators. Misak finds that, during the development of these indicators, it is necessary to engage scholars in negotiations rather than impose indicators across the board. She reports

the biggest roadblock to measuring performance in humanities has been a relative lack of enthusiasm among humanities faculty concerning ranking exercises generally. Because the success of measuring humanities research in many cases requires faculty co-operation at the departmental level—to formulate discipline-specific metrics for journals, presses, etc. and to make the raw data available—this is a problem. The task is to articulate fairly basic explanations of the function of these measures and how they can track the very evaluation that is already going on. The underlying aims and value of humanities ranking procedures need to be clearly stated and presented to departmental faculty in a way that is likely to motivate them to undertake the exercises in question.

With different methods and purpose in mind, Catherine Beaudry (École Polytechnique de Montréal) was interested in evaluating the biotechnology and nanotechnology sciences in Canada. She explains her research challenge as

studying the impact of government funding of research on the production of scientific articles, taking into consideration the structure of networks and the characteristics of the researchers who make up those networks.

Given the severe limitations presented by current information systems, Beaudry notes that one of the main challenges in developing a research initiative focused on impact is the laborious task of data-cleaning and database-matching. The lack of a unique identifier for individuals was the greatest difficulty encountered in her work.

It is not surprising to learn from Beaudry's analysis that, with more research money and grants, comes increased research production. In a field such as biotechnology, research contracting may result in patents that are generally owned by the contract-funding organization. This patent process may then delay publication of scientific articles, or inclusion in articles, generally in more applied journals. At the same time—in contrast to what is generally found in existing literature—participation in research contracts with private organizations did not have a negative effect on the number of articles published by an individual researcher. The study showed that co-authoring teams have increased in size over time, and the centrality of an author in the past influences his/her scientific output. Furthermore, authors who are part of well-connected groups publish more than isolated researchers. Thus, the past technological environment, as represented by the network of co-authors, has a positive impact on current research output and productivity.

But important questions remain. What are the implications for the geographical location of research teams? Beaudry and her colleagues intend to construct indicators of locally based research teams using the co-publication and affiliation information contained in databases of peer reviewed articles. Drawing comparisons with network information will allow an analysis of the interaction between geographical and technological spaces, and make it possible to distinguish their respective effects on research production.

Anwar Naseem (McGill University), interested in the trajectory of federally funded agricultural research, also used bibliometric tools. His initial analysis of publications suggests that there were no discernable differences in the behaviour of private and public sector organizations, the number of joint publications, or the nature of joint research undertaken following funding changes in the early 1990s. This observation is in line with an earlier assessment of the public/private cost-sharing program (Matching Investment Initiative or MII), which found that most Agriculture and Agri-Food Canada researchers did not believe their research focus had shifted from their traditional programs.

Mustafa Koç (Ryerson University) moved away from research productivity and focused on knowledge mobilization activities in the interdisciplinary area of food studies. He concluded that researchers actively share their research results. They report involvement of, and/or implications for, a wide range of non-academic organizations including the following: community groups, organizations or agencies (78 per cent); government agencies, departments or ministries within Canada (67 per cent); private businesses or companies (44 per cent); and government agencies, departments or ministries outside of Canada (31 per cent).

From a researcher perspective, most researchers noted that their work is considered relevant to many different stakeholder constituencies outside of academia, including the general public (97 per cent), community organizations or NGOs (92 per cent), policy-makers (92 per cent), people working in government or regulatory agencies (86 per cent) and people working in the private sector (62 per cent). At the same time, almost half of the researchers in SSHRC-funded food projects reported experiencing significant barriers when trying to communicate with policy-makers: difficulty getting their research results on meeting agendas, time pressures of the policy cycle, political and disciplinary differences. About one-third of these researchers experienced barriers when trying to communicate with people working in government or regulatory agencies.

What can be learned from these studies? Overall, performance metrics and indicator development do matter, both in terms of individual job satisfaction in the academic research environment and in terms of system performance as a whole. The choice of indicators, at the same time, is not inconsequential. HASS and STEMM researchers change their knowledge production behaviour over time to match the incentives of the structure and system. Despite the emphasis on meeting academic performance targets, it nevertheless appears that academic researchers work hard at making knowledge accessible and transferring knowledge to the rest of society.

Outcomes and Impacts

Beyond the usual refereed journal articles, book chapters, books, conference proceedings, reports and working papers mentioned in other studies, there is a wide range of other outcomes listed in Koç's study:

community handbooks, public forums, interdisciplinary team development, graduate student training, story telling (in a health promotion project involving radio), the development of university and public school curricula, development of course materials/new courses, research tools, and library tools.

These outcomes are also disseminated using new media such as "DVDs, e-journals, public databases, blogs, and wiki documents."

A first major impact, often neglected by evaluation studies of publicly funded research, is on the researchers themselves. Lowry examined how the fact of receiving an SSHRC Research/Creation grant changes the work of artists/researchers in the fine arts. He studied the impact of grants on practice-based research in design, media, literature, and the visual and performing arts. One impact was that these researchers were suddenly invited to other universities. In addition, it allowed a quantum leap

onto the international stage. In essence, receiving a grant made these artists more visible in a wider context.

Lowry focused on in-depth interviews with grant recipients across the country from universities and the four specialized art and design institutions.

The in-depth interviews and discussions undertaken during the past two years helped define a systematic and profound change to the space of contemporary creative research and production within post-secondary institution.

The impact on these artists/researchers has been outstanding. As Lowry reports,

the Research/Creation grants have been instrumental in helping to refocus the work of the individual researchers and in providing them with access to audiences for this work across local, national and international contexts. More than this, Research/Creation funding has been fundamental to reconfiguring the space of professional training in art and design in Canada's post-secondary institutions.

In the field of contemporary creative research and production, the use of cutting edge technology—especially in computer design—and access to technological development and equipment acquisition have allowed these artists/researchers to push the boundaries of their art. The SSHRC grants have reconnected the artists/researchers with the academic community,

dramatically shifting their relationship to colleagues, administration, and students. [In addition,] recipients report that funding has allowed for an increased engagement in knowledge production, not only related to stated primary outcomes (creative projects), but also to more conventional academic modes of presentation and publication (e.g., conference papers, scholarly articles).

Koç, in contrast, used various indicators to assess the impact of SSHRC-funded research projects in the area of food studies on users increasingly remote from the academic world—government, policy-makers, the community and the private sector. While academia is relatively close to a scholar's activity, wider communities such as the general public or the private sector are further away. Not surprisingly, the closer the community is to academia, the higher the number of researchers who report an impact. Equally, the further the community is from academia and the public sector, the fewer the number of researchers reporting an impact. The same observation can be made when the scale of impact is gradual, from "reaching" a group to creating change among the group. The closer to a change one measures the impact of the change, the smaller the impact reported by the academics. Hence, making a difference in the private sector is much rarer than reaching other academics. Koç suggests that

[o]ne strategy for increasing the impact of SSHRC-funded research is to encourage and provide tools that facilitate communications between researchers and potential result users.

One of the experts consulted by Koç reported an over-reliance on academic journals as a means of knowledge dissemination, over-reliance because this method does not reach practitioners, policy-makers and the general public. Consequently, tools for knowledge mobilization need to be developed. It would also be important to raise researchers' awareness of the private sector as well as policy and program development in the public sector. This lack of awareness is symptomatic of certain fields of academia where the external impact, i.e., beyond academia, is often ignored, if it even exists. (See the section on metrics below.)

Unintended Impacts

As Naseem suggests, it is also interesting to measure the unintended impacts related to a project. For instance, receiving a particular grant or contract can be used to apply for other funds for the same research. Or it can be a means by which a researcher can explore other avenues and then obtain more funds for the new endeavour. Koç reports that "some SSHRC-funded food studies researchers mentioned that they were able to use their initial grant funding from SSHRC as a springboard for obtaining additional research funding for their projects from a variety of sources, including international organizations." The SSHRC grants thus indicate the interest and importance of the research subject to other funding bodies or organizations.

Tracking the impact of grants is relatively easy to do if a researcher is involved in commercializing a technology or introducing a new business model or method of education. However, if the research is picked up by a practitioner or by another researcher in another field, the tracking of impacts becomes more difficult. In the University of Toronto Humanities Performance Indicators Project (HOPI) (in particular philosophy, as presented by Robert Gibbs who worked on Misak's project), the primary focus was an intra-university approach where select qualitative and quantitative measures including research outputs, faculty honours and doctoral student placement were developed as markers to assess departmental performance. But, according to Misak's research, once indicators were identified, all impacts beyond academia were largely ignored by faculty members; these results could be extrapolated to humanities institutes in general.

Unintended impacts can also be negative. For example, there is a danger that contract research may lead to the privatization of public research. The possibility of obtaining lucrative industry contracts may shift incentives towards private research to the detriment of public research. One such unintended impact relates to the consequences of some of these impact and outcome measures. In the United

Kingdom, a university department, after getting a top mark in the research assessment exercise and its following measurement exercises, could lose resources based on that top mark because an envelope of the budget is reserved for strategic funding. This has the consequence of completely changing the incentive system. But whatever evaluation framework is put in place, individuals and organizations adapt to it.

Metrics

Quantitative Bibliometric Measures

One obvious problem of performance measures is that researchers adapt to them. As academics are generally evaluated on the number of peer reviewed articles they have written or co-written, pressure has been mounting over the years to publish. Beaudry has shown, for instance, that the number of scientific articles per author has increased by about 31 per cent over a 20-year period while, at the same time, the number of co-authors per article has increased from slightly more than two per article to slightly fewer than eight. One could easily conclude that there has been a significant boosting of productivity. The individual does benefit from a better curriculum vitae and is in a better position in the “publish or perish” game. Collectively, however, it is an entirely different picture. Part of the explanation for this phenomenon stems from the increasing complexity of science. Multidisciplinarity is becoming the norm in science and multidisciplinary teams are required to do the research. For example, Génome Québec¹⁷ has pushed the multidisciplinary requirement even further, requesting that each funded project include an assessment of impact on society, hence providing research opportunities to social scientists.

In terms of outputs, the phenomenon of the increasing number of authors is not as widespread in the social sciences and humanities as it is in a field such as physics. For example, one particular article in nuclear physics lists 1,681 authors (Newman 2001). The average number of authors for the social sciences and humanities is much smaller. Certain fields are not prone to excessive article publishing, preferring books as dissemination means. Sometimes, as is the case for Koç’s research, the object of research transcends a number of disciplines.

As an emerging field of research, food studies offers an interesting and challenging context in which to evaluate the impact of funding structures on research and the impact of this research on academic and non-academic users. Food studies researchers work in a broad range of disciplines: natural sciences (such as biology and chemistry), health sciences (such as nutrition

¹⁷ Génome Québec is an organization based in Quebec. Its mission is to act “as a catalyst, creating opportunities in support of Québec’s scientific and socioeconomic development by funding wealth creation initiatives in genomics research [and:] building programs to integrate research results into health and natural resources sectors.”

and nursing), social sciences (such as sociology and geography) and the humanities (such as history and literature).

An appropriate metric in one discipline might not be in appropriate in another. Thus, trying to assess impacts in these multidisciplinary cases is rather difficult. To some extent, the object of Beaudry's research, biotechnology, has some features similar to multidisciplinary studies. Researchers obtain funds from two federal funding agencies, the Natural Sciences and Engineering Research Council (NSERC) and the Canadian Institutes of Health Research (CIHR) as well as from Genome Canada and Génome Québec. In addition, researchers stem from a wide range of disciplines, from pharmacology to medicine, and from biology to engineering and chemistry.

All this multidisciplinary raises the question: What metrics to use for what disciplines? Misak tackled this issue for the humanities to find it non-trivial. She explains that crafting performance indicators in the humanities is extremely difficult considering the "'essential contestability' of humanities research." Unlike the social sciences, for instance, "the point of humanities research is not usually to describe or explain the world but rather to discover the meaning in it."

Usual performance indicators, such as standard bibliometric measures, are far from perfect for "multidisciplinary departments, interdisciplinary work, and work in languages other than English or French" (Misak). It can also be argued that, in certain disciplines, works in French are difficult to compare within the English-dominated research world. For one, these works receive fewer citations because they are less read. Does that mean they have less value or impact? There is a tremendous bias linked to language (Kellsey and Knievel 2004; Van Raan 2005) in the academic world. Evaluators and impact measurement specialists must take these differences into consideration.

Quantitative measures of performance are inadequate or tell only part of the story for most, if not all, disciplines. If one wants to measure impact beyond academia, a variety of approaches need to be taken into consideration (Davies, Nutley and Walter 2005). Donovan (2007, 586) argues that standard bibliometric methods "do not actually measure research quality." In addition, indicators of research "quality" are geared towards science and are generally not appropriate for HASS research. They certainly do not allow the measure of the societal impact of HASS research.

Beyond Quantitative Bibliometrics

The HOPI (Humanities on Performance Indicators) working group at University of Toronto has tried to develop qualitative ranking measures for academic journals, academic presses, graduate student placement, and significant faculty honours and awards. For each metric, a number of sources are used

to clearly identify rankings as "A-," "B-" and "C"-type journals (disciplinary associations, science foundations, etc.), or as the top institutions (various world university rankings such as the *Times Higher Education's World University Rankings* and *Peterson's Guide to Colleges and Universities*). When multiple sources rank a particular type of journal as an "A," one can be fairly satisfied that the ranking is accurate. Interpretation of the ranking is necessary when the sources yield different rankings. Then the ranking made by any particular department is open to discussion and a consensus needs to be reached. This ranking could then be appropriate for the department or group that devised it.

One must also note that there are variations in terms of the rankings used for the same journal, based on sub-disciplines. The journal might rank very highly in one sub-discipline but have a lower ranking in another. Gibbs, who works with Misak, explains that when they tried to take their framework for measuring impacts and outcomes to other G13 university departments, they received a lukewarm reception. As the composition of each department in Canada is different, with stronger or weaker sub-fields, it is understandable that an optimal framework for one department would not be optimal for another. At national and international levels, groups of academics from all spheres of a discipline would need to be around the same table in order to devise such rankings. As Misak notes,

one general lesson learned is that devising metrics at departmental levels is likely to require a willingness to work together in a consensus-building way, as well as a degree of objectivity that permits honest evaluation of the work of one's peers and one's self. The example of Philosophy goes some way toward showing that if such willingness exists among members of a department, devising fairly nuanced and reasonably accurate metrics for humanities [sic] research can be done. In many cases devising metrics in other disciplines [sic] will be more difficult, since not all disciplines have similar recourse to pre-existent metrics (such as the AAP and ESF^[18]) on which to lean. But there is little reason to think that the difficulties likely to arise for other disciplines engaged in similar ranking exercises will in principle be any different from the issues Philosophy faced.

Although PhD graduates of philosophy generally end up in other academic institutions, a doctorate in other fields can lead to a wide range of careers. In a field such as engineering where almost 50 per cent of PhD graduates end up in industry, and only part of the remaining 50 per cent become academics, student placement would be a very complicated measure to take into consideration. It certainly would not be as straightforward as it may seem in some humanities disciplines, in philosophy for instance, where such a metric is important. Similar observations can be made for graduates of other social sciences, such as economics, or for the graduates of business schools. The variety of

¹⁸ Australasian Association of Philosophy (AAP) and the European Science Foundation (ESF).

placements renders the comparison between students' placements much more complex and at some point irrelevant.

Stopping analysis at journal metrics does not allow academia to adequately measure its impact on society. It is important to know why researchers want to measure impacts and outcomes and then to define what should be measured. For instance, Misak notes that faculty cooperation is necessary to "articulate a clear and principled rationale for the overarching aims and value of performance measurement in the humanities generally." Once a clear rationale is put in place, it becomes easier to devise methodologies that "yield reasonably accurate ranking systems in relevant areas of evaluation."

This is far from unique to the humanities; the same method needs to be applied in the sciences, medicine or social sciences.

Bibliometric measures have more than one usage beyond the simple counting of patents, articles, citations, impact factors and h-factors, to name a few. A careful data-mining of the publications of an individual or of a group of individuals over time allows changes in the trend of research to be assessed. This is, for instance, what Naseem employs when evaluating whether the direction of agricultural research has undergone a dramatic change of tack over three decades as a consequence of the MII¹⁹ programs.

However, what bibliometric measures cannot provide is an assessment of the value of research outcomes and impacts. For this purpose, Naseem argues that cost-benefit analyses are still the way to go. Unfortunately, these kinds of data are difficult to come by and would require precise financial information from the particular firms involved collaboratively with universities. Obtaining this kind of data is impossible most of the time for a large enough number of firms to perform meaningful statistical analyses. In the case of Naseem's project, a careful economic analysis of each project funded by the MII program would be required to identify the "magnitude and distribution of surplus created through each innovation spawned by the MII programme."

Given the large number of projects, and the absence of systematic reporting of the costs and benefits of such projects, the task is Herculean. In Canada, the only organization that could potentially rise to the challenge is Statistics Canada, as it is increasingly aware of the importance of merging data from various sources. Statistics Canada is still reluctant, however, to bring in data from outside the organization, something that would be necessary to perform a full economic analysis of the impact of

¹⁹ Agriculture and Agri-Food Canada's (AAFC) Matching Investment Initiative (MII).

publicly and privately funded research. Koç, in his survey of food-studies researchers, found that the researchers in his sample reported that their work had “less impact among government officials, policy makers, and in the private sector.”

He suggests that researchers are unsure whether their work “was of interest or being used.” Following on with this observation, Koç determines that researchers lack the strategies needed to ensure that their work has an impact. One could add, albeit carefully, that they may also lack the incentive for this to happen.

It can be noted that this observation is from a big-picture perspective of the “impact of disciplines across time.” As is highlighted in Chapter 3, generating a qualitative difference in communication between research stakeholders—not to mention behavioural change—is the result of purposeful effort. But just producing more information in a different format is not the problem. The challenge is to identify at the start the potential users of the research and to connect with them so the research can be translated into a solution for their problem. (See the commentary on the Lewis project in Chapter 4.)

Interaction Between Public and Private Funding

In fields such as biotechnology, collaboration with industry is increasingly important in terms of research contracts. Likewise, Naseem reports that, while the private sector has increased its funding of university agricultural research, it is also increasing its own research. While part of this research is “ag-biotech” (agriculture biotechnology), it is nevertheless a growing trend across the sector in general. Naseem suggests that

these trends have important policy implications for Canada’s agricultural research system as it affects how research is financed, who conducts it, the scope and scale of technological developments and how technologies developed in government labs are transferred to industry for commercialization.

Agriculture and Agri-food Canada (AAFC) have not been unaware of this trend and, in the early 1990s, launched a cost-sharing program—the Matching Investment Initiative (MII)—to promote joint research between academia and industry. The obvious goal of these research activities was to deliver commercially attractive technologies to the market. This development naturally brings up the question of the impact of this industry research on the academic freedom of researchers.

One thought-provoking premise: What if this MII was one method to force academia to have an impact on society or, at the very least, to recognize that it can contribute to having an impact on society?

Would this “intrusion” of industry into research change the way the public and private sector carry out research? These are some of the questions that Naseem examined in his project: Did the MII program affect the direction, magnitude and scope of research of the public and private partners? Did the MII program foster technology transfer? Did the MII program meet the research needs of small producers and specialty crops? More importantly, did the MII program divert research within Agriculture and Agri-food Canada “from its central mission of providing long-term mission-oriented research consistent with national priorities”? And could this last question be construed as a negative impact?

The Particular Case of Intellectual Property

Beaudry examines concerns about the widespread publishing delay that results from patenting activities of academics. Indeed, one of the underlying questions of her research is to investigate whether researchers who receive industrial contracts publish less as a consequence of this link with industry. If one were to assume that in a field like biotechnology—grounded in the scientific world and where patenting is the mechanism of choice for protecting intellectual property (IP)—collaboration with industry as an academic aims towards the production of intellectual property, the link between contracts and patenting would be almost direct. As a consequence, investigating whether industry-academic contracts have an impact on scientific production would allow the measurement of a negative impact, as suggested by the delay in publishing due to patenting activities. Yet, in the field of biotechnology, Beaudry finds that contracts have a positive effect on scientific production, not the expected negative effect commonly found in the literature.

In addition, Naseem’s research finds no discernable change in the behaviour of private and public sector organizations in terms of the type of research being performed jointly or in terms of the number of joint publications. The MII program did not contribute to changing the behaviour of researchers regarding the aims of joint research with industry. More joint research projects within the program did not, however, increase the number of joint publications. Naseem suggests that

[o]ne reason that joint publications between the public and private sectors have not gone up in spite of more joint research projects might be because of the need to protect any intellectual property that results from the project.

This refers to the aforementioned common delay in publishing observed for academic-inventors who have to wait for patents to be granted before publishing the related research results in scientific journals.

One needs to understand the “publics” (plural) of particular research activities (see Wixted and Holbrook 2009; Cressman et al. 2009). Any particular piece of research might be connected to a

number of different stakeholder communities, while the researcher's ability to connect to them is affected by their cohesiveness, strength and interest in research. Industry is only one, albeit an important one, of a universe of possible parties interested in a body of work.

Market failure is a topic close to the heart of economists. Classic incentive theory suggests that, when uncertainty related to return on innovation is too great or when the risk of not recovering the costs of R&D investment is high, firms would hesitate to invest in research projects. Hence, market failure in the research "market." Naseem notes that IP might already provide a strong incentive. He notes concerns that publicly funded research might, on the one hand, provide unfair competitive advantages for firms that collaborate with academics whose public grants are funding cutting-edge research. On the other hand, he notes the delay in introducing "productivity-enhancing technologies" due to exclusive intellectual property right. However, it is an open question whether IP is a strong enough incentive to fund all the needed research. To remedy the lack of incentives, public support is then necessary. As Naseem suggests,

[i]mpacts of such public support might therefore be significant, but if there is no market failure, then it is likely that such impacts would be forthcoming even in the absence of public funds. In such cases it is useful to examine whether public research crowds out private research or complements it. Crowding out of private research by public research would suggest a misallocation of resources and welfare loss.

The issues raised by Naseem are much wider than the simple measurement of impacts and outcomes; they stem from the very need for public funding of research.

The last few paragraphs highlight a problem apparently specific to science, i.e., the intellectual property issue between academia and industry. But is it really specific to science? Searches on Google Scholar produced a few references to papers focused on market failures (non-investment of the private sector in research) or IP problems in the social sciences. However, the number of papers was far less than those on the same topic in the STEM sciences.

Concluding Remarks

This chapter highlighted the fact that measurement of impacts is highly specific to each discipline and even to sub-disciplines. Thus there is difficulty establishing a measurement framework for a discipline, and most definitely for a department. Even more problems arise when measurement of an impact occurs in a multidisciplinary domain. But the number of challenges does not downplay the importance of building appropriate metrics to accurately measure outcomes and impacts. However, as Lowry

suggests, sometimes the most important impact is on the researchers themselves as they are recognized by their peers within the university system.

When researchers are funded by a number of sources, it may be difficult to disentangle the impact of each individual fund. Private funding represents an important proportion of research funds obtained by researchers in both HASS and STEMM disciplines. In addition, social scientists may obtain funding from both HASS and STEMM sources. For example, there is an increasing tendency of some granting agencies, such as Genome Canada, to require the involvement of social scientists on the research team to investigate the social impacts of scientific and applied research. With this growing trend, the dual funding is becoming significant.

3

IMPACTS: KNOWLEDGE MOBILIZATION

Whether one uses available databases or creates new ones at the disciplinary, multi-disciplinary (Chapter 2) or systems (Chapter 4) level, measurement scales improve our insight into the patterns of impact in the sciences. These studies then need to be fine tuned with knowledge that emerges from the micro level. One of the keys to understanding the value of HASS research is the study of interactions between knowledge creation and knowledge use (transfer, translation and mobilization).²⁰ The results of HASS research or techniques that are developed in the social sciences can be used to improve the impact of knowledge generation activities, even those from STEMM fields. Without knowing how knowledge is used in society, it is hard to improve the practices lying behind its translation from academia to the wider community.

One first needs to distinguish between the measurement or observation of the impacts of research—which largely require social science methods—and how knowledge is used or not used (including transfer, translation and mobilization). This is true in both the social sciences or STEMM fields. The SSHRC-funded studies of the adoption and application of knowledge cover a number of these topics simultaneously.

²⁰ The term “transfer” is older and widely adopted, particularly as it relates to technology (see, e.g., Bozeman 2000). However, with the increasing awareness of the challenges of moving knowledge from the creation phase into the “being used” phase, new terms such as “translation” and “mobilization” are becoming popular as indicators that the process itself needs analysis and long-term effort. The two new terms are adopted by different communities of science and funding agencies and have slightly different meanings so both will be used.

The projects of this chapter are almost all case studies with three having a significant human health element (Jeffery; Hird; Wathen et al.). The other three projects examined a variety of knowledge use and communications environments: processes of changed behaviour after learning about sustainability issues (Robinson et al.); the use of research by education professionals in the Canadian elementary and high school system (Bernard); possible new formats for short, informative final reports of research projects, formats that could be adopted by SSHRC and made accessible to the general public (Phipps).

Knowledge Translation in Health-Related Settings

The federal research granting agencies (SSHRC, CIHR and NSERC) each award a large number of grants each year. Now there is more effort and opportunity to move beyond treating each grant as a discrete unit. Individual projects are increasingly being combined and closely re-assessed for their impact. An example is the Graduate Career Survey. In this undertaking, the three granting agencies surveyed scholarship and fellowship award holders from grant cohorts in the late 1990s to assess the impact that funding support has had on their career paths. Other studies commissioned by SSHRC outside of this “Capturing Impacts” initiative are starting to look at the impacts of sector-based research outputs.²¹ A growing appreciation for the effects of interaction and the benefits of funding research that leverages off existing research provides the context in which these health-related projects are examined below.

Bonnie Jeffery (University of Regina) investigated whether previously developed research-based tools—the *Community Health Indicators Toolkit* and *Program Logic Models*—were being used in their target communities (mostly in the province of Saskatchewan).²² Interviews confirmed that the research-based products were valuable as a framework for a variety of purposes including the design of other evaluation-oriented products, the design of programs for assessing and assisting communities, and the development of new research projects. A somewhat surprising result of the study was the communities’ preference for hard-copy distribution over digital dissemination. This issue, however, might be specific to the particular target audiences, located in remote communities. The detailed feedback, made possible through the in-depth interview approach of this team, revealed many specific pieces of knowledge that should allow fine-tuning of any future material for the target communities. Jeffery’s impact research also included an analysis of the tools’ spatial distribution that showed the toolkits had spread well beyond the original communities, and even beyond Saskatchewan, to communities across Canada and internationally.

²¹ Graham Sibthorpe and Roger Voyer, *Research Impact Assessment Model: An Information and Communications Technology Case Study* (Ottawa: Graytek Management Inc., 2008).

²² See Jeffery et al. 2010.

This innovative spatial analysis proved useful as a mechanism for evaluating the distribution of the Toolkit and for judging the success of the dissemination and knowledge translation efforts. The analysis also served as a knowledge translation (KT) tool in its own right, a medium for delivering information on its potential uses. As an evaluative tool, the integrated map revealed spatial and temporal patterns of uptake that would not otherwise be readily apparent. Most importantly, the map revealed that the spatial range of the Toolkit's adoption extended beyond the original Aboriginal and remote target communities in northern Saskatchewan. Likewise, a visual analysis of the timing of the overall uptake pattern of the Toolkit indicated that adoption did not follow a simple nearest-neighbour pattern, with earliest implementation by those closest to the source.

The number of participants in this study was quite limited compared with the number of communities that received the package. Therefore, any claims regarding the toolkit and logic model must be modest. A follow-up on diffusion could seek out more users/non-users of the material and also investigate the reasons why some users developed new material and indicators. The resulting information could possibly be included in subsequent revisions to the *Community Health Indicators Toolkit*.

Myra Hird (Queens University), like Jeffery, was interested in knowledge translation in a health context, this time as a part of the Canadian Pre-Eclampsia New Emerging Team (PE-NET) research funded by CIHR. Pre-eclampsia (PE) is a hypertensive condition in pregnant women that can have very significant health effects (both immediate and longer term) for the baby and mother. Hird's team was interested in the flow of knowledge between professionals and the pregnant women. The team made an initial distinction between "knowledge translation"—the flow of knowledge from research experts to other participants, including doctors and lastly patients—and "knowledge mobilization," understood as the two-way circulation of knowledge.

The goals of the SSHRC-funded research included the following: to better understand how patients process/mediate medical information through their attitudes towards, and behaviour concerning, their own health and that of their offspring; to accelerate the flow of knowledge about long-term cardiovascular disease in women with pre-eclampsia to obstetrical and primary care providers; and to improve the communication strategy between obstetrical care providers (obstetricians, family doctors and midwives) to primary care physicians and patients about the development of PE in pregnancy.

The study used semi-structured interviews with obstetricians, family physicians, a midwife and former patients who had pre-eclampsia. The results of this study are thought provoking. They suggest that, while the majority of professionals in the system believed they were personally well informed, they did

not know what was important to communicate to others in the care system. It is worth noting that, while some former patients wanted more information from their care providers, others were proactive in attempting to educate themselves and then the doctors in the system, particularly the new medical graduates.

The results suggest that a well-co-ordinated, transdisciplinary approach to health research is vital for improving knowledge translation/mobilization, especially so the public can understand the sciences and their integrated contributions. The research underscored the need to bring together, right from the outset, social scientists, the relevant researchers and professionals in the design of publicly funded research projects. Stakeholders in the study highlighted the view that collaborative research projects, which might also include “non-expert” knowledge, are vital to promoting knowledge translation through a multilayered understanding and dissemination of research findings.

Nadine Wathen (The University of Western Ontario) conducted the third study that focused on social/health-related issues. She led a project examining the uptake and use of results from a randomized controlled trial that examined the effectiveness of health-care screening in exposing intimate partner violence against women. Building on past research efforts, the study further synthesized research results into key messages appropriate for various kinds of stakeholders, including policy-makers, health-care providers, women’s advocates and members of the public.

On the evaluation of the process of knowledge translation and exchange itself, Wathen and her team concluded that

- *[m]ultiple, mixed methods yield the best opportunity to quantify and also explain processes and outcomes, but this results in lots of (often repetitive) data;*
- *a longitudinal approach [is] very useful, but hard to establish and maintain a true cohort; and*
- *additional promising methods include Social Network Analysis and observational methods, but these have their own challenges.*

The results from this project mirror those already outlined. Follow-up interviews point clearly to the importance of the decision-making context for the readiness and ability of knowledge-users to include research evidence in their decisions, that is, for the knowledge to have impact. Wathen et al. emphasize the continuing challenge associated with the time-consuming translation of specific research results to a broader, non-academic audience. Talk, trust and time are all essential. Engagement must start early and the communication process must be seen as a two-way exchange of knowledge or, in

other words, as knowledge mobilization. Wathen notes that this is the only way to build credibility. However, it takes commitment on both sides, plus skills and resources.

Research Use Behaviour and Behavioural Change from Research Exposure?

The studies outlined in the previous section examine what it takes to effectively exchange knowledge between professionals and stakeholders. But what are the factors that can contribute to changes in behaviour?

John Robinson (The University of British Columbia) and his colleagues looked at changes in behaviour and engagement following research efforts on sustainable lifestyles. As with other projects investigating HASS impacts, significant emphasis in this study was placed on understanding the categories of the phenomenon. The team reported that the research enabled them to

establish first-order and second-order effect categories for participatory sustainability research. Beginning with involvement of non-researchers and researchers, first-order effects are categorized as products, enhanced capacity, and networks. Second-order effects include structural changes and decisions/actions. As a high-level effect category, products encompass outputs such as specific technologies, products, publications generated from the participatory research process. Enhanced capacity includes, for example, new knowledge generated, enhanced understanding, and organizational capacity. Network effects include the creation or expansion of participant networks, trust, accountability, and other specific effects. Structural changes and decisions may be socio-economic such as economic benefits, decisions made, landscape shift, or they may be organizational to include new organizations, shifts in job descriptions or shifts in organizational expectations (such as roles and responsibilities).

“Results from the analysis are expected to point to a more rigorous way of understanding the link between involvement and effects and will inform the development of a standardized social effects index (SEI).”²³

Robert Bernard and his colleagues (Concordia University) focused on the use of HASS research results. The team had previously conducted a pilot study to assess the use of research-based knowledge by school practitioners in Quebec’s K-12 system (i.e., teachers, administrators), employing an attitude and self-reporting behavioural questionnaire. In the current SSHRC-funded study, the scope and generalizability of the instrument was broadened by adding the categories of primary and elementary school practitioners to the initial secondary school practitioners’ sample, and adapting its use beyond the province of Quebec to the whole of Canada.

²³ Response to question in the 2009 SSHRC closed workshop on “Capturing Impacts of Research” for principal investigators and/or team leaders, May 28-29, 2009, Ottawa.

Because of its traditional role as an enabler of knowledge dissemination, education is expected to contribute substantially to the development of the knowledge economy. This means applying the knowledge that it generates through research to its own practice. However, there is considerable evidence that education is lagging far behind fields such as engineering and medicine in this regard [...] cite the lack of impact of educational research on educational practice as one of the main deterrents to its progress. (Bernard 2010)

The strong results, drawn from over a thousand responses from school practitioners (i.e., teachers, school administrators and professionals) across Canada, show that research use does not exceed “once or twice during the last year” for the three groups of educational practitioners.

Two messages emerge from the research results:

- A change in university/faculty policies is needed to advance researchers’ non-traditional knowledge-transfer activities in order to encourage efforts promoting the use of research knowledge by school practitioners. Special attention should be paid to the development of evaluation criteria for promotion (i.e., going beyond the traditional triad of research, teaching and community service).
- The role of teacher education in cultivating/promoting a culture of research use among teachers is no longer the focus of educational research. The impact of the pre-service stage should be studied.

The results of this study are rather surprising. Very few educators, although exposed to research during their own teacher education, keep abreast of new research once they are teaching.

The problem clearly does not lie in any lack of research. There is growing awareness that accessing and organizing the mounting volumes of research is a key challenge. A novel insight into one approach that would help the situation came from one of the impact studies (see Phipps below).

Final Research Reports to SSHRC

David Phipps (York University) conducted the last study discussed in this chapter: the use, or non-use, of final reports by SSHRC itself.²⁴ The premise of his work was that traditional “end of grant research summaries,” completed by principal investigators, were of little use to the wider audience (academic, private, public and not-for-profit sector). In general, existing content and materials are poorly focused and not stored in a readily accessible online database. The goal of his study was to redesign the

²⁴ This report is based on the final research report submitted to SSHRC.

research summary form to enable clearer reporting on research results. He suggested that end-of-grant forms should concentrate on four themes, presented in clear and understandable language: What is this research about? What did the researchers do? What did the researchers find? What do you need to know?

The project investigated what would constitute an effective document format and information dissemination strategy for summaries of completed HASS research. The goal would be to maximize the ability of researchers to communicate research results to research user communities (not necessarily other academics). Phipps used a steering committee to guide the development of this project and ensure that the research summaries were relevant to a variety of research stakeholders.

The team created and then evaluated a series of test approaches to communicating end-of-grant information. The test approaches were the following:

1. written plain-English version, short-form;
2. written plain-English version, long-form;
3. audio podcast of the short-form summary, read by newsreader; and
4. video presentation of a 2- to 3-minute interview with lead researcher.

The evaluation of the written plain-English short-form approach to communicating results showed that 77.6 per cent of focus group respondents found the format satisfactory with 86.6 per cent finding it useful. Such a high satisfaction rating suggests that this format would be very good for final research reports.

The research project also investigated alternative formats of research summaries—a long-form version as well as audio and video communication.²⁵ The vast majority of respondents found all three of these alternative formats interesting and useful with very few respondents finding them “not useful.” However, the results were not as clear cut for the alternative formats as for the short-form version. They all had supporters but they all also had perceived negative points. As a first step then, it seems that the written short form works unambiguously well, while the other formats that were tested require more research to provide information on when audio or video may work best for communication.

²⁵ It should be noted that CIHR recently established a YouTube channel (www.cihr-irsc.gc.ca/e/43181.html).

A key conclusion of the project was that

[c]urrent research summaries as presented by SSHRC SRG^[26] grantees are not useful or relevant to non-academic decision makers. This project has developed a standard format that summarizes the key outcomes of completed SSHRC research in a form that is accessible to all including non-academic decision makers. Furthermore, focus groups identify that formats other than readable print/electronic versions are desirable, thus accommodating individual information-gathering styles. Research summaries can also be used to connect decision makers to researchers, acting as a calling card to a centre of expertise on a relevant subject.

Concluding Remarks

Most of the studies in this chapter used focus groups and individual interviews as their methodologies. The interview method has particular strengths and weaknesses. It is time consuming but works well for gathering in-depth information; however, results can be hampered by a lack of respondents. It is crucial that this type of information be linked to the existing literature on similar phenomena to compare results. Focus groups allow in-depth discussion and integrated group dynamics around varying shared opinions. However, opinions might be influenced by others within the group, and results will not be representative of the population given the small number of participants.

The key message emerging from each of these studies is that mere knowledge production is not enough to ensure knowledge use. The example of the education community (Bernard) is particularly instructive. Here is a group of trained professionals whose work is all about the transfer of knowledge. This requires both their knowing how to instruct and communicate and also knowing the knowledge being communicated. The level of resistance of these professionals as a group to new research findings is therefore unexpected. There is a huge lesson here, both for the research-funding bodies and academics and for those interested in research impacts. Without the concerted, time-consuming and difficult work of translating research findings into the language of users, and then working with users on incorporating the findings, knowledge will not be mobilized. These studies have moved from measuring value based on the quantity of knowledge production to measuring value based on the perceived quality of knowledge production, but all are still within the same paradigm. Does the paradigm of knowledge production itself need tweaking?

All the studies reveal, in their own way, that it takes a lot of effort to have research understood and communicated well; it involves many different stakeholder groups and the language used has to be attuned to their needs. But that is just the message; engaging enough with users to change behaviour is

²⁶ SRGs are standard research grants, typically funded for three years.

a massive step further. Knowing does not necessarily translate into doing. Societies spend large sums of money on research in perhaps the unstated belief that, if the results are any good, they will find an audience and have an impact. In fact, these studies show this is not the case. Much more effort may need to be focused on the after-research segment of a project if that research is to have an impact. And then, measuring that impact is a different game again.

4

IMPACTS: SYSTEM-LEVEL STUDIES

Geuna and Martin (2003, 300) observed a trend in evaluations of university research: they are at a high aggregate and systems level and are performance based. This trend has been reinforced by the New Zealand approach and the more recent Australian RQF/ERA²⁷ approaches that have come into their own following the Geuna and Martin article (see Coryn 2008). While these new approaches have replaced discipline review panels in Australia, Butler and McAllister (2011) show that the higher-level analyses overlook important differences.

The findings presented here suggest, unequivocally, that a metrics-based model, using objective, transparent indicators drawn from a range of readily available measures, will yield results which are close to those of a peer-based evaluation model, and can be used with confidence. However, they also point to strong differences between HASS disciplines (represented in our analysis by political science) and STEM[M] disciplines (represented by chemistry). Our analysis demonstrates empirically the differences that exist between STEM[M] and HASS disciplines in terms of the choice of measures that are most appropriate in a metrics-based system. (Butler and McAllister 2011, 55).

System-level concepts of impact are considered in this chapter. A number of SSHRC-funded projects focused on the interactions and impacts of the sciences (mostly the social sciences) within Canadian society. The strength of this chapter comes from the different perspectives brought forth by the studies and from the improved understanding that emerges from the overlaps of these perspectives.

²⁷ RQF is “research quality framework” that was never fully implemented and that has now been replaced by the ERA approach, “excellence in research for Australia.” See also www.arc.gov.au/era/.

There is the common myth that the natural sciences and medical research contribute directly in some way to technological development and economic well-being, while the social sciences benefit industry or society in some vague way that is difficult to pin down. An example: A report published by the United States' National Academy of Engineering (2003) was designed to illustrate the impact of academic research on industrial performance. The social sciences were not ignored, admittedly, but the description of their impact was less specific and less well articulated than for the other sciences. However, this treatment is not new. When tracing the origins of the modern interest in technology and research, one finds a fairly exclusive interest in hard technology policy (see Pavitt 1972; Patel and Pavitt 1987).

As Fini et al. (2010) have shown, this attitude and approach does not need to dominate. It can be as simple as asking academics in the HASS fields whether they have started a business. But it can be more involved. One project funded by SSHRC (Langford and Hawkins) provides a rich set of data about the contributions of HASS research, thus helping to debunk the myth. (See below.)

All the system-related studies funded by SSHRC contribute to showing how inaccurate the current myth is about the impact of HASS research on society. More importantly, the studies point the way to future research on this topic. Successfully correcting the current perception of HASS research has important consequences, both for the ongoing debate on the role of STEMM and HASS in society and for future science policies and science funding in particular.

HASS Impact

As mentioned above, SSHRC funded a number of studies aimed at investigating system-level interactions of HASS research and society. Methodologies included theory development and surveys (both large scale and targeted) that measure various variables of impact.

In terms of theory and concepts, Bloom investigated through use of focus groups the balance of responsibility for creating impacts, between those who make the rules for academics and the academics themselves.

The project by Lewis stands out from the other studies. Starting from the premise that research funding is increasingly directed to networks/partnerships/collaborations (e.g., SSHRC's Major Collaborative Research Initiatives program, now replaced with the Partnerships Program), Lewis moved away from the idea of the lone academic having impact and questioned what should be understood about networks having impact. Indeed, he went further to question some of the concepts that have been embedded in the notion of networks.

Other authors fixed their attention on measuring attitudes and behaviours with regard to the HASS fields. Gingras and Archambault surveyed researchers and research users on the impacts of university research in the social sciences and humanities. Rudd surveyed Canadians in an effort to quantify the non-market benefits of social sciences and humanities research investments to Canadians. Couture investigated the political and social impacts of Canadian research in social sciences and humanities by searching non-academic literature databases (mainly policy and legal documents) for references to particular individuals. Finally, Langford and Hawkins surveyed Canadian academics across the country on what they actually do in terms of community involvement and knowledge mobilization.

The Role of the Academy in Society

While a number of the system-level studies funded by SSHRC were directed at delivering measures of impact, two studies had somewhat different aims. **Kathleen Bloom** (University of Waterloo) led a project designed to elicit the views of academics on their interactions with wider society. She was interested in the views of academics on the translation of research into society. The research involved six two-hour multidisciplinary focus groups with full-time University of Waterloo faculty from the humanities, social science and applied health sciences departments. The focus group discussions can be categorized under the following headings: the current system, incentives for change and the impact relationship.

There was the perception that universities and granting agencies have failed to change their reward systems to encourage knowledge mobilization and research outreach. Faculty believe that traditional criteria (large grants, peer reviewed articles) to a large degree determine the reward systems of universities and granting agencies. Research outreach and knowledge mobilization—viewed as extra-curricular—are insufficiently supported. An academic who emphasizes such activities thus puts academic success in jeopardy. All of this aside, however, given the nature of research and the interests of individuals, research outreach should not be imposed on all research/researchers.

If the current situation, with its emphasis on publishing, were understood to be inappropriate in some way, the incentive structure for academics would need to change. One would have to stop privileging peer reviewed articles (that few decision-makers can access or want to read) and rewarding the author in salary, promotion and funding decisions. There would need to be career credit for knowledge mobilization and research outreach, fairly and consistently, within policies of academic recognition and rewards. There would have to be top-down leadership of deans, chairs and funding agencies for promoting outreach activities. In addition, it would help to have soft infrastructure—beyond

communication offices—for knowledge mobilization in order to train and assist the current and next generation of academics.

There is apparently a failure to appreciate that research in the humanities and social sciences is urgently needed to understand a world in the midst of profound change. However, there is a need to recognize that, while knowledge mobilization is the responsibility of researchers, research use (impact) depends on the wisdom and will of decision-makers.

The message to take from Bloom's research is that, while faculty are eager to bolster research impact, they believe that institutional values provide incentives against this activity.

As a starting position, it can be useful to have the concept of a simple dichotomy between the producers of knowledge (academia) and the users of knowledge who will implement decisions (society). However, in the future, there needs to be a better understanding of the relationships between researchers and their multiple stakeholder communities. There are many groups in society, not just government policy-makers, who need to be influenced for research to have an impact.

Brian Lewis (formerly of Simon Fraser University, now at Concordia University) looked at how the connection between researchers and stakeholders could be evaluated. This project built on emerging work from Wixted and Holbrook (an earlier version of Wixted and Holbrook 2009) who investigated the characteristics of research stakeholders. They suggested that different stakeholder communities and research fields can be understood as strong (coalesced around an agenda, geographically concentrated, etc.) or weak (disparate, fragmented, etc.) and that these characteristics had implications for the ability of research to be networked between academics and stakeholders and thus have an impact.²⁸ They hypothesized that, with more unified stakeholder communities, it would be easier to identify relevant research, to build relationships between researchers and stakeholders, and to use the results. However, in research on social phenomena, stakeholders will be more diverse and fragmented than in many STEMM-related research endeavours.

The term "networks" is bandied about all too frequently. But, following on from leading authors such as Barabasi (2003) in mathematics and Borgatti (2009) in the social sciences, little attention is paid to

²⁸ Generally, research networks have been operationalized by granting agencies (in a number of countries and within Canada federally and provincially) as funded organizations that typically are multicentre and multidisciplinary. The implications of the research may not be limited to research networks. However, they are particularly related to research networks because networks generally receive larger funds, there is often a greater expectation of impact and they are often required to connect with stakeholders. Research networks are funded in most areas of science (partnerships in social sciences, NCEs in natural sciences and emerging teams in medicine).

whether the characteristics of networks make a difference in how networks should be understood, rather than just their structural properties.

The project led by Lewis took the ideas of Wixted and Holbrook further, suggesting that new impact-evaluation frameworks could be added for funded research networks (such as Networks of Centres of Excellence [NCEs] and SSHRC MCRI/Partnerships). The new frameworks would take into account the network's connections with stakeholders and the broad characteristics of each network's community features. The results of the Lewis's research suggest that a sociology sub-field—actor network theory or ANT, which has been treated as interesting but arcane—could be of direct help in making funding decisions and evaluations for research networks. Unlike other constructions of the network concept, ANT is framed around the realization that researchers actively engage in constructing a logic for their research and its significance to wider communities. As such, ANT is a “language” for describing the strategy of researchers. Thus, how a proposal presents a research problem and whom the researchers will engage to build support both provide valuable insight into whether the project overlooks important issues or people groups. All such information can be used for assessing proposals and teams, either before or after the research.

Measures of Impact

The two studies above (Bloom and Lewis) provide useful reference points as the remaining four projects are discussed. Each of these SSHRC-funded projects had a different focus but each was designed to collect large quantities of data. Rudd's work was directed at society's willingness to pay for research that produced improvements to quality of life. Gingras and Archambault's survey, along similar lines as the in-depth work of Bloom on academics' opinions, revealed more about impact. Langford and Hawkins surveyed academics about the activities they conduct outside the office. Couture studied impact with conventional tools (bibliometrics) but in unconventional source material, legal judgments and policy documents.

Murray Rudd's (formerly of Memorial University of Newfoundland and now at York University in the United Kingdom) approach to the question of value and impact was to seek the opinion of members of society. Interested in knowing how society felt about the value of HASS research, he conducted a web survey of Canadian households. A panel using a web survey company were selected from across Canada; 1,612 people completed the survey that has provided a number of valuable insights. Rudd's methodology was designed to capture a sense of the average Canadian's willingness to pay for quality of life (QOL) improvements resulting from either the social sciences- or STEMM-based disciplines.

The study revealed that Canadians divided into five distinct groups on this topic. Two groups showed positive attitudes to research but had a different emphasis:

One class, comprising 21% of the sample, placed a strong priority on QOL indicators relating to people, community, and culture, and was willing to pay, on average, \$892 per household per year for improvements across a full range of QOL attributes. While willing to pay \$1,393 per household per year in total, a second segment, comprising 20% of the sample, focused heavily on benefits more likely to be derived from science and technology research. . . . Diverse preferences regarding potential QOL impacts suggest that researchers will need to consider both the source and magnitude of public benefits arising from HASS research in the future. (Rudd 2011, 1)

The other three groups uncovered in the analysis reveal various tendencies to either not value research or not value it very highly. The study did, however, reveal a class of people that does value the kinds of quality-of-life improvements that emerge from HASS research. As Rudd notes, this suggests “that effective knowledge mobilization and awareness-building strategies might be extremely important in building a long-term business case for HASS research investments” (2010, 25). As the Lewis analysis suggested, it may be more difficult to find and connect with those who value the research. As is the case with STEMM research, it is very important to connect with appropriate stakeholders.

Yves Gingras (Université du Québec à Montréal) and **Eric Archambault** (Science-Metrix), rather than starting with societal opinion, researched the opinions and attitudes of academics on the effort it takes to connect with societal stakeholders. Gingras and Archambault conducted a web survey, advertised by SSHRC, and collected 1,505 usable responses from HASS academics Canada-wide.

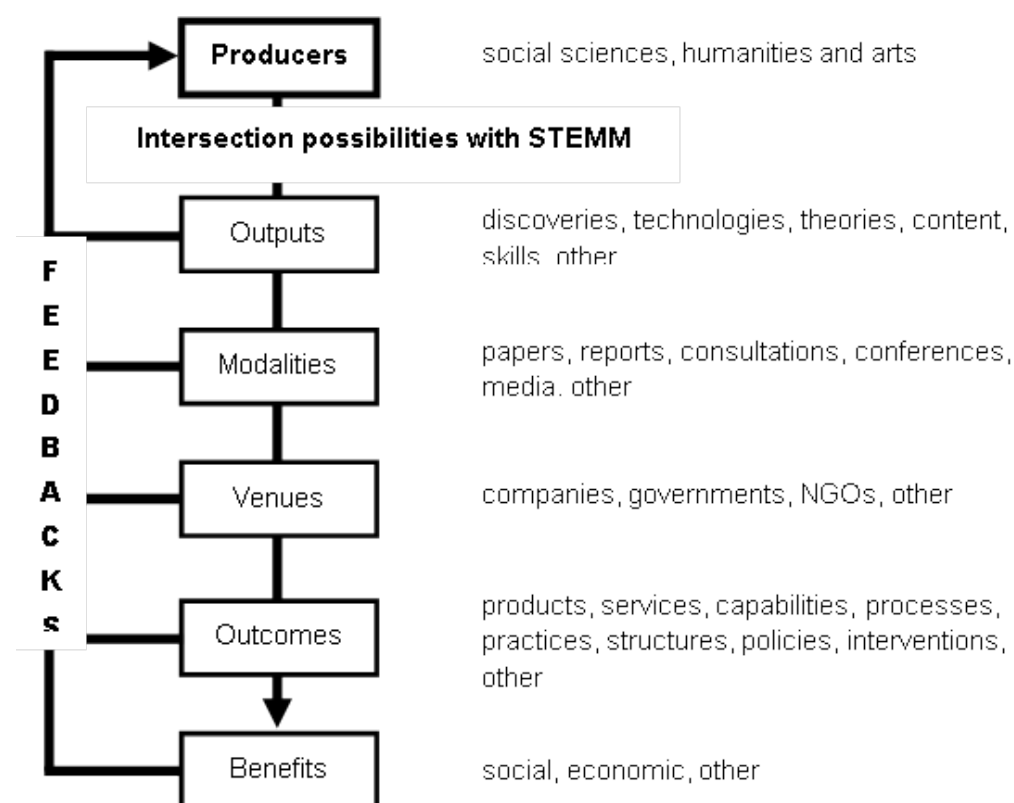
The responses reinforce the focus group results collected by Bloom. The survey identified five leading outputs (dissemination methods): peer reviewed publications, conference presentations, teaching, masters or doctoral students and outreach to a general audience.

The top four dissemination methods were, therefore, for an “insider” professional audience. Presentations to the public or formal public committee/hearings, etc. were well down on the list. Findings from the survey showed the following:

- Disciplinary context is important (business, psychology, criminology, etc.) and naturally connected to policy communities.
- Impact is more diffuse and cannot be measured directly in many fields in the humanities.
- Given the ambiguity of the term “impact,” it should be replaced by a less “mechanical” one that takes into account the specificity of the social sciences and humanities.

- Having a collaborating partner outside of academia increases the perception that the research is being used outside of academia. This is very difficult to prove but the perception is there.

Cooper Langford and Richard Hawkins (University of Calgary) surveyed and interviewed Canadian academics, but instead of focusing on their academic behaviour, Langford and Hawkins sought to understand academics' connections with society. From this knowledge, the authors went on to develop an understanding of the dynamics of science interactions. This conceptual framework is shown in Figure 4 below.



Source: Correspondence from Langford and Hawkins.

FIGURE 4. Conceptual Framework of the Langford and Hawkins Project

The study was specifically designed to yield findings that could be compared with those from several previous surveys in the United States and Europe on knowledge transfer from STEMM domains to industry. The aim of the project was to examine the motivations, practices and feedback pertaining to the practical application of knowledge from academic research in the social sciences, arts and humanities. The authors referred to this as "social knowledge," defined broadly in terms of the range of research that would be eligible for SSHRC funding, although researchers who were funded from other sources were not excluded. Exploring the experiences of "social knowledge" researchers in a

range of applied contexts would allow the extent, modalities and utility of social research to be assessed, relative to the ways in which “technical knowledge” has been assessed. This included looking at how the two “knowledges,” social and technical, could be combined in applied contexts. This orientation is important for research policy because conventional conceptions in policy circles of how technical knowledge creates value are frequently at odds with findings of scientific studies. This has led to many spurious assumptions about how the role and value of academic work generally should be determined and how the impacts of public investment in knowledge should be assessed. Funding for the social sciences, arts and humanities in particular is highly vulnerable to policy based on these assumptions.

The first significant general observation was that there is little difference between the HASS and STEMM communities in terms of the extent and nature of their outreach activities or in terms of how clients seek out and apply knowledge. Langford and Hawkins’ data indicated that the extent and rate of knowledge applications from social research was comparable to that generally indicated for STEMM research in previously published studies. In other words, the proportion of social scientists, artists and humanists engaged in applying the results of their research in non-academic settings is roughly the same as the proportion of STEMM researchers. Although academics in the arts in particular form just a small portion of the researchers, a high number were transferring university-based work directly to the market in the form of commercial products (e.g., media and entertainment products and some technologies). All the data indicate a robust market in Canada for social knowledge of all kinds in a wide variety of settings, ranging from community organizations to major national and international corporations.

The second observation was that productive relationships are formed between academic and non-academic stakeholders in the social sciences, arts and humanities and are perpetuated in predominantly the same ways as has been shown in studies of STEMM domains. Their academic respondents indicated that the prime motivation of non-academic stakeholders was to access the general expertise and problem-solving capabilities of academic researchers, not to access specific findings or discoveries. Access to “public science”—publications, conferences, public presentations and meetings—was identified as the main way in which productive contacts form between academic and non-academic communities. The primary differences in the outreach profiles for social knowledge tended to be in the composition of the client base. Social research tended to be oriented somewhat more to public sector clients than to companies, although many links with companies were also noted. Enterprise formation—mainly consulting enterprises—is also significant among social knowledge producers. In both public and private sector contexts, HASS knowledge was employed mainly in

formulating policy and strategy. Its application is therefore higher up the value chain than technical knowledge in most cases.

Most of what was known previously about the outreach behaviours of HASS academics in Canada came from the work of Landry et al. (2001) who indicated significant activity. However, their study examined only the “professional” social science disciplines (e.g., social work), whereas the study by Langford and Hawkins encompassed the non-professional disciplines as well. The data from across Canada confirm that professional disciplines are significant sources of outreach but that many non-professional disciplines are comparable. Moreover, the data indicate considerable crossover between disciplines in applied work. This includes linkages with STEMM subjects, especially prevalent in the applied health fields.

The findings of Langford, Hawkins and their team indicated that the incidence of knowledge outreach was skewed towards researchers who frequently were active in outreach and to some extent towards researchers in the mature stages of their careers. Thus most of the outreach is attributable to a definable sub-set of the academic community. However, most respondents noted that engagement in outreach activities did not constitute an impediment to the advancement of their academic careers and in some cases indicated that careers were advanced more quickly by these activities.

Outreach activities were observed to be closely integrated into the scientific agendas of academic researchers, mainly by contributing actively to the generation and refinement of research questions and methods and by creating links with knowledge producers in other academic sectors. This is most important in terms of understanding the role of outreach activities in enriching the research capabilities of the university.

These surveys of opinion and behaviour help in understanding the existing set of conditions in Canadian society and academia. But is there a way to examine whether academic research in HASS fields makes a difference? And if so, over what time frame?

Claude Couture (University of Alberta) focused his analysis of impact on the fifth point in the importance scale identified by Gingras and Archambault’s study: outreach to a general audience. His team measured the impacts of research on legal and demographic issues of the francophone community in western Canada. The impact of social sciences is more difficult to quantify; according to Couture,

[r]esearch projects in applied sciences often provide results that are directly measurable, as opposed to social sciences where the quantifiable parameters are less easily observed. There is

therefore a need to establish a method to measure the impacts of social science studies on society.

He argues that the bibliometric tools developed for the applied sciences are relevant to the social sciences and proposes a methodology for impact measurement that can be applied to social sciences in general. He reviewed "bibliometric data in the public media sphere (e.g., journals and periodicals), the legal system (e.g., reports and court judgments) and the public policy arena (e.g., government documents, committee reports and minutes of parliamentary debates)" in order to assess the impact of 1,210 social scientists.

Couture has built indices to identify the individuals who are most influential on demographic and judicial questions. These indices are calculated by summing the values given to each reference for each impact measure according to the proximity of a reference to a public document. For instance, a direct reference is at the highest level while the reference of a direct reference occupies the second level and so on. These values are weighted by an equivalence index that modulates quantity and quality of the references (5 references of the highest level correspond to 25 references of the level just below). When using non-public documents, the different levels of importance relate to the weekly circulation of the publication. The more people reached, the higher the level.

His main finding is that time is of the essence. Impact is not instantaneous; on the contrary, it is often posthumous. Impact on society is similar to wisdom that is acquired with age: "mature people also tend to have a greater influence on society." One obvious reason for this time delay is that impact grows over time with a number of studies building on each other. It is a fallacy to think that there is a direct link between a particular project and a particular impact.

While these results were to be expected, the research also outlines the lack of communication between public services and academia. Couture identified a vast number of internal research documents on public policies that were written, completely ignoring research in academia on the same issues. This was more understandable in 1982 when research results were not so readily available; one had to actually go to the library to access the journal article or book. But today, with almost immediate digital access, this excuse no longer holds.

When academics are consulted, they do make a difference and their impact is considerable. But if not consulted, why does it take years, if not decades, for academics to have an impact?

Concluding Remarks

Research and Economic Development

As discussed in this chapter, SSHRC funded a number of studies aimed at investigating system-level interactions of HASS research and society. From a government policy point of view, emphasis is placed on a systems level of behaviour and measurement. There is growing debate about how to conceptualize and measure impact. Research needs to be of value but measuring that value is a fundamental issue. An editorial in the journal *Nature* on the likely cuts to British research states that

now and over the next few years, it will be critical to ensure that the learned societies and other key representatives of the research community present hard evidence rather than soft assertions about the contribution of science to national well being, and particularly the economy – and that the government supports the research needed to develop that evidence. (Nature 2010, 296)

Alternatively, one can take different advice and look at more than the economy. Kemp (2009) reassesses C.P. Snow's "two cultures" lecture in 1959, recalling the criticism of Frank R. Leavis:

Science – and the technological society it was spawning – was devoid of humane values. He insisted on the need for other kinds of concern, "entailing forethought, action and provision about the human future." To speak of human well-being only "in terms of productivity, material standards of living, hygienic and technological progress" was morally bankrupt. Leavis was witnessing with horror what he saw as the beginning of a takeover by dreaded technocrats. (Kemp 2009, 32)

However, where is the insight and imagination when the impact of STEMM or HASS is interpreted solely in quantitative and economic terms (although these are certainly significant)? All the sciences contribute to society in many ways beyond productivity. The projects by SSHRC are hopefully just the beginning of a fruitful ongoing conversation among academics, society and policy-makers inside and outside government regarding the measure of research. This conversation is needed within the much larger mission of being more critically reflective of the science policy enterprise (see Morlacchi and Martin 2009).

The significance of this last point is underlined when the role of research in economic development is examined. From the early 1960s, the trend has been to focus on the role of STEMM research in generating new industries and economic potential. Social scientists in the economics and public policy disciplines have been increasingly fascinated over the last 50 years with the role of the natural

sciences, engineering and medicine on technology and thus the economy.²⁹ (See also Pavitt 1972, 1987, 1991; Pavitt and Walker 1976.) These social scientists have been far less concerned with understanding the role of the social sciences.³⁰

This trend continues today with the emphasis in innovation policy being on STEMM research for its technology and thus its economic potential based in measuring patents, commercialization and new technology-based firms. This is the basis of the STEMM myth but may be considered, at least at first sight, as somewhat odd; all “early-developer economies”³¹ are now predominantly service oriented. And the bulk of services are at least shaped by, if not based in, the social science disciplines.

In 2006 SSHRC also funded several contracted research projects along with the initial three impact studies. The Impact Group (2008) was asked to study³² the value of the social sciences to the modern Canadian economy. The Impact Group notes, by way of a Canadian example, that, with “output of \$230.4 billion, one service sector on its own—the “FIRE” sector (finance, insurance, real estate, etc.)—generates more output than the entire manufacturing sector (\$186.6 billion)” (2008, 10). The Impact Group commented that there is little academic study of the topic and so their work is a starting “conjecture” as to the economic influence (not impact) of the social sciences, humanities and arts. The Group’s suggestion, based on analyzing the degree of connectedness between Canadian economic industry categories and the STEMM and HASS disciplines, is that both are worth close to CAN\$400 billion. This does not add up—and should not—to the total of the Canadian economy as there is much more than academic study undergirding an economy.

As the Impact Group’s examples from real organizations show, job categories such as the ones listed below are common in both the private and public sectors and are shaped by the HASS fields: accounting and finance, administration, business development, financial market research, human resources, lawyers and other jobs in the legal profession, marketing and communications, designers and graphic artists.

²⁹ Chris Freeman, “The problems of science policy” (OECD 1968); A. Diamond Jr., “Edwin Mansfield’s contributions to the economics of technology,” *Research Policy*, Vol. 32, no.9 (2003), pp. 1607-1617

³⁰ This can be emphasized from the recent literature, which in turn reinforces the value of the Impact Group (2008) report. Hasan and Tucci (2010) drew conclusions about the positive role of high-quality patents in economic growth (thus emphasizing STEMM disciplines predominantly). Consoli and Elche-Hortelano (2010) carried out a very interesting study of the knowledge bases of knowledge intensive business services that emphasize the skills of workers in what is now a significant segment of many economies. Although this latter paper supports in many important aspects the conclusions of the Impact Group report, the authors do not link the skills identified back to the likely disciplinary backgrounds of the workers.

³¹ The term for economies that were the “advanced” (western) economies pre-dating the rise of the “emerging” economies of Korea, Taiwan and others that have now arrived in terms of per capita GDP.

³² The Impact Group was one of two impact-related research contracts.

The HASS disciplines produce graduates who work at the very heart of modern economies producing creativity and innovation that service the cognitive and cultural³³ pursuits of populations when the cost of goods continue to fall in real terms.

Impact Findings

The studies funded by SSHRC have opened up new fields for study. The studies have shown that impact of academics in policy and law can take a lifetime to build (Couture), even though the academics may spend their working life engaging in the organizations and societies around them (Langford and Hawkins). Studies have also shown that academics concentrated mainly on disseminating their research to others in their field through peer reviewed publications, conference presentations and teaching (Gingras and Archambault). The apparent dissonance in the results reported by Gingras and Archambault and by Langford and Hawkins deserves further investigation. Perhaps the difference is in what they expect to be valued versus what they do in their daily lives. Universities and granting agencies place value on the transfer of knowledge in peer settings. But we also live in societies, enmeshed in multiple relationships, participating in organizations, engaged in issues and activities, and we also feel passionate about these issues. It would be entirely natural, even unavoidable, to literally embody our learning into these settings

³³ It is an oddity of academic study that the shift to a “cognitive cultural economy” has been written about extensively in the economic geography literature (e.g., Scott 2008) but this has little influence on analysis of the role of the natural sciences in economic life.



CONCLUSIONS AND RECOMMENDATIONS: IMPACT STUDIES—LOOKING FORWARD

The initial goal of this “Capturing Impacts of Research” initiative (begun in 2006) was to fund research on impacts, regardless of the science base. SSHRC’s attention and emphasis has now evolved—partly from external pressures and probably partly due to the interest of scholars that it funded—to centre on the impacts of social sciences, humanities and the arts. The core interests of SSHRC can now be said to be the following:³⁴ to improve the scholarship behind evaluators’ ability to report to Canadians, on an ongoing basis, the socio-economic and cultural value of public investments in HASS research; to improve SSHRC’s (and other granting agencies’) ability to report on the value of SSHRC-funded research; and to promote a community of scholarly interest in the area of capturing research impacts and, thereby, an external advisory function for SSHRC.

SSHRC has come a long way in four years. Unlike the United Kingdom’s ESRC, which chose a number of research project case studies and a specific diversity of possible methodologies to test, SSHRC launched a call to the academic community to propose cases and methodologies. The result was an impressively diverse range of projects, systematic studies of the impacts of both specific disciplines and of social sciences in general.

³⁴ Janet Halliwell’s rapporteur comments on the 2009 SSHRC closed workshop on “Capturing the Impacts of Research” with the principal investigators and/or team members.

This report looks at the insights gained from the SSHRC-funded pilot studies, which made significant progress on some of the specific topics outlined by SSHRC, namely:

- attribution
- appropriation
- timing
- inequality
- “project fallacy”

For instance, in a groundbreaking study, Couture addresses the timing-of-impact issue, stating that it takes a long time for academics to have an impact. In the same paper, he also examines the “project fallacy” issue. Beaudry explores the timing and attribution issues on research outcomes. The studies of Naseem and of Gingras and Archambault look at the attribution issue. Koç concentrates his analysis on three topics: appropriation, inequality and time lag. Bernard examines the appropriation of research results by practitioners. The studies reviewed in Chapter 2 are the ones that focus most directly on these questions, whereas the projects in Chapter 3 concentrate on appropriation, inequality and project fallacy. The impact studies themselves highlight the complexity of impact assessment. A number of the studies (Jeffery; Hird; Wathen; Phipps) were developed to build on projects funded by other granting agencies/councils. The findings therefore contributed to SSHRC’s goals while simultaneously (it is hoped) improving the outcomes of the larger research projects.³⁵ Impact is therefore a recursive concept; the studying of it has an impact of the research being studied. The studies in Chapter 4 opened up entirely new fields of research impact: society’s values (Rudd), researcher values (Gingras and Archambault) and researcher behaviour (Langford and Hawkins).

The studies in Chapter 2 showed that bibliometrics is a tool that can be used at both the individual and aggregate level for disciplines and sub-disciplines. However, a consensus needs to be reached on the types of metrics that are important so that impact can be measured properly. Indeed, when measuring impact in a multidisciplinary domain, accuracy becomes much more complex. Other measurement methods such as interviews, questionnaires, focus groups and expert panels, to name a few, then become useful as complementary data. These methods are more accurate at disentangling the impact of each individual grant when both public and private sector funding is involved or when a number of grants fund the same or closely similar research. In the United Kingdom, the ESRC developed an impact framework that combines both quantitative and qualitative information on the impact of publicly funded research:

³⁵ This could be assumed but would require a study of the impacts of the impacts studies.

A qualitative approach to impact assessment based on robust conceptual models allows for an evaluation of impact processes and contexts. Any specific impacts identified can then be assessed against this background. The use of multiple methods enables the triangulation of findings and enhanced confidence in the results. Mixed methods can include document analysis, surveys and interviews with researchers and users. In-depth case studies of specific impacts can convey the complexities of the relationship between research and policy/practice. Web searches were used by some of the evaluators, analysing the profile of a researcher in 'grey' literature as a proxy indicator of impact; while these on their own are unlikely to give any clear understanding of research impact, they will serve as another means of triangulating data, adding extra insights to a qualitative understanding. (ESRC 2009, 16)

A number of the pilot studies funded by SSHRC combined measurement methods in a systemic approach, thus contributing to the initial program objectives to develop new methods or adapt existing methods in new, innovative ways. For example, Koç combined bibliometric and citation analysis, surveys, and e-conferences with expert panels.

Projects looking at research impacts through the lens of knowledge translation and mobilization (reviewed in Chapter 3) have largely confirmed existing findings. Studies by Jeffery, Hird, Wathen, Robinson, Bernard and Phipps add yet more weight to the growing body of evidence that knowledge is a problematic entity, requiring dedicated and thoughtful effort to move it from findings to action. This finding should alert the funding and research communities that funding research is not enough. Translation of the knowledge gained has to be integrated into the plan; it cannot be a mere add-on. If societal impact is truly a desired goal, then all research funders need to take seriously how challenging, difficult and time consuming it is to actually engage with stakeholders to make research knowledge more community oriented. This takes much more effort than a cursory comment in a research proposal on what outreach is proposed. In the United Kingdom, the Arts and Humanities Research Council (AHRC) uses an impact framework to evaluate funded research projects, based on the value of academic research:

Non-academic research impact is about identifying the influences of research findings on policy, managerial and professional practices, social behaviour or public discourse. Such impact may be instrumental, influencing changes in policy, practices and behaviour; conceptual, changing people's knowledge, understanding and attitudes towards social issues. (Davies et al. 2005, 12)

Perhaps the most "frontier" findings have emerged from the system-level studies (Chapter 4). One study (Gingras and Archambault) showed that academics put their highest priority on reaching other academics. However, in another study (Langford and Hawkins), when academics are asked what they do to ensure their work has impact, there is ample evidence that they put significant time and effort

into disseminating their work to social, community and government organizations. Finally, Couture's work indicates that real impact may be decades in coming or may appear only posthumously.

Beyond such raw conclusions, if one carries out cross analysis for the emergent themes of this body of work, evidence for a number of findings emerges.

Lessons Learned: Looking Back

The SSHRC Presidential Fund Initiative was designed as a pilot project to generate interest and enable a start on this research. The program was intended to fund research into potential ideas for further research. Each impact grant was modest (a maximum of \$25,000 for one year).

In hindsight, it is clear that the process of providing research grants and then holding post-grant workshops moved the focus of the informal "impacts network" from the impacts of research in general to the impacts of the social sciences, humanities and arts in particular. The rapporteur's (Halliwell) report of the 2009 closed workshop of the principal investigators and team members indicate this.

SSHRC's "Capturing Impacts" initiative was framed by three goals:

- 1. to improve SSHRC's ability to report to Canadians, on an ongoing basis, the socio-economic and cultural value of public investments in HASS research (accountability);*
- 2. to improve SSHRC's ability to report the value of SSHRC-funded research (methods); and*
- 3. to promote a community of scholarly interest in the area of capturing impacts and, thereby, an external advisory function for SSHRC (partnerships).*

Within this envelope, some important findings did emerge:

- Canadians are willing to pay for research but there has not, perhaps, been enough communication about the value HASS fields have for practical problems (Rudd).
- HASS academic researchers behave in a manner similar to that of their colleagues in STEM fields (Langford and Hawkins).
- Evidence suggests that HASS research outputs are accessed, used and the findings implemented in the non-academic world (government and law); however, this transition can often take decades (Couture).
- The full potential of HASS knowledge mobilization activities may not be realized if current incentive structures do not place greater weight on societal engagement relative to scholarship-exclusive activities (Bloom). However, reconfiguring the institutional incentive systems needs to be done slowly and with consideration of the changes in behaviour and of unintended consequences. Simply changing the metrics will, over time, change behaviours but not

necessarily with any change in actual impact. (This is a known phenomenon. See Steele et al. [2006] and Beaudry.)

- SSHRC needs to consider its position on making data more accessible on existing grants and decisions and on implementing the proposals on final reporting suggested by the Phipps research.
- The drive towards developing ever more sophisticated tools for mining databases to derive impact metrics is built on the implicit understanding that those databases are meaningful and contain unambiguous data, which is clearly not the case (see Beaudry in Chapter 2). Thus, assuming the desire to develop metrics is not going to go away, one has to determine what approaches are available for developing clearer datasets.
- There needs to be encouragement, dialogue and debate among HASS researchers on what the Canadian public perceives to be of research importance; on what researchers value; on the value of HASS in addressing various socio-economic issues; and other, so-called “methodological” limitations problems (Gingras and Archambault; Rudd; Langford and Hawkins; Lewis; see also Cressman et al. 2009).
- If the topic of science policy and impact (for all sciences) is to become a legitimate topic of scholarship in Canada, the question is whether it can do so within SSHRC’s existing committee structure where such proposals have no specific home.
- The ESRC in the United Kingdom has engaged in a concerted effort to develop its own guided approach to capture the impact of research. There is a huge wealth of material on the topic but is there a place for something more novel than trawling through mountains of journals to glean the complexity of the topic? An international conference, building on conferences organized by the ESRC, would be a start and a HASS-relevant compendium similar to that developed by the Canadian Academy of Health Sciences would be good. However, research does need more than a Wiki site hosted by one of the world’s social sciences councils. As we have learned from the knowledge mobilization/translation projects, creating knowledge is not the problem; prolonged, engaged discussions between researchers and users will be. What venues and forums could be established for policy-makers and researchers to work with each other for an extended period of time?
- There is a wide diversity of approaches to impact analysis. Some sensitivity must be shown to the variety of methods—as well as the very language—used. New terms might be employed to complement or replace the word “impact”—terms that are less emotive and value-laden (e.g., social benefit).³⁶

³⁶ For example, some of the work done by Robinson on developing a language to describe the application of sustainability research may be usefully applied more broadly.

While some of these messages imply the need for big system changes, there are steps that can be taken, ranging from the simple and immediate through to the more complex and challenging.

Going Forward

It is possible to group these “lessons” into three categories: metrics, funding and language.

Metrics

Q: What are the difficulties that need to be overcome regarding metrics?

It is not uncommon in the impacts field to think in terms of numbers, not of categories of impacts. However, there are considerable obstacles to using numbers in the measurement of impacts and outcomes. One is the compatibility among the various databases, necessary to corroborate results. For instance, Beaudry found that the most significant single difficulty encountered in matching funding data from government agencies, data from publishers’ articles (such as Thompson or Elsevier) and patent data from patent offices was the lack of a unique identifier for the individuals, for their addresses and for their affiliations. She would be an advocate for establishing a worldwide unique identifier of individuals and organizations. If there is one immense task required to properly assess impacts and outcomes, it is grouping databases from different sources, using unique identifiers common to all databases. Although this may seem a bit too “Big Brother,” it is nevertheless needed to move forward in this field.

A second obstacle is the aggregate nature of the data available plus the general lack of data. Naseem could not, for instance, identify the contribution of a particular grant-awarding body in the overall impact of the research performed. He also mentions that while “bibliometric and other output counts are useful, they do not reflect the actual economic value of the impacts or what source these outputs need to be attributed to.”

In addition, proxy measures available to infer impact are sometimes exactly that, proxies. Some other types of indicators (for instance, the number of publications), while appropriate for certain uses, are not helpful in capturing the research output of partner firms. When measuring the impact of research on industry or firms in particular, the usual metrics such as job creation, performance and growth are difficult to link to research.

When trying to assess the impact of research on an object of research (such as food studies or biotechnology), one difficulty lies in how to encompass the field. Keywords are the obvious choice, but one has to make sure that the right keywords are used and that false positives are not added to the

dataset by including keywords pertinent to the discipline in general but not necessarily to the object of research.

Q: How to ensure the complementarity of the data sources?

Naseem conducted data analysis using both survey and interview results conducted by Agriculture and Agrifood Canada to accompany a bibliometric analysis of the evolution in research direction as a consequence of the MII programme. Koç adds to bibliometric measures and survey-based data by using an expert panel that included representatives of academic, government and community organizations. Although Beaudry uses mainly quantitative data, they originate from three very different sources. Misak mixes rankings from a number of sources but uses expert panels of academics from a department to build its own ranking. The complementarity of quantitative data with qualitative data thus appears essential to fully measure impacts and outcomes and to verify that they are measured correctly. This finding is supported by the work of Donovan (2007). One type of data is thus used to corroborate what another source of data hints at or suggests. In essence, as Koç says, using more than two data sources allows one to “triangulate results in order to ensure increased validity,” a methodology also put forward by the ESRC (2009). This is not different from the recommendations of the University of Toronto Humanities Indicators Project report that calls for a combination of quantitative and qualitative measures for the humanities.

Unfortunately, when one uses multiple data sources, the difficulty of matching one to the other begins. This is the single most important obstacle to obtaining very rich datasets, and thus one is returned to the earlier question.

Q. What systems of measurement might be developed?

Metrics are by no means the primary source of knowledge about impact and data will often be misleading. The ESRC is focused on developing case studies. However, a number of projects funded by SSHRC point to approaches that could be systematically tapped over the long term to create valuable databases.

One project that could be explored further is the Langford and Hawkins study. Their survey of university researchers could be developed and repeated at intervals to produce a time series on the behaviours of academics in their endeavours to engage with society.

Is there any appetite among HASS researchers to pursue some of these avenues of inquiry, build on the outputs produced from the “Capturing Impacts” initiative and, possibly, come back into the “mainstream” for SSHRC support? Under the current architecture, a partnership grant would be logical

but would SSHRC be the partner? There may also be other areas and themes where a community of HASS scholars could find interest with respect to results and impacts.

Another necessary step is the development of SSHRC databases of funded projects and final research reports with the databases accessible online. Increasingly, it is taken for granted that massive amounts of material can be accessed online; in fact, many journals have their complete archives online. However, at present, it is not possible to look for patterns in SSHRC-funded research projects. Neither is it possible to develop indexes of finished projects and of their achievements. (See also the discussion on the Phipps project in Chapter 3.)

Funding

Q: With funding from multiple sources, the impact of what exactly is being measured?

A primary question that emerges is the “impact of what?” What does one mean by impact and what is the purpose of measuring it? The problem is made worse by the multiplicity of sources used to fund the same research project or, at the very least, work that is closely related. Examples include the studies by Jeffery, Hird, Wathen and Phipps from the “Capturing Impacts” initiative. Most of the case studies discussed in Chapter 3, although funded by SSHRC, were also associated with larger research projects funded by multiple agencies. The Hird project was a sub-project of a CIHR “New Emerging Team” grant. This is, of course, a natural outcome of attempting to get the best value for money. What better approach to funding research on impact than to fund research within a larger project that is attempting to look at knowledge mobilization?

Another good example is NSERC’s research and development collaborative grants, which are an extremely good lever for raising additional funds for researchers. Part of the funds comes from the private sector, which are then used as a lever to raise government funds. According to NSERC, the “mutually beneficial collaborations are expected to result in industrial and/or economic benefits to Canada.”

A significant number of academics both nationally and internationally have their own companies; many in the social sciences do consulting work related to their research. They might hire their students to do some of the work and probably a significant amount of mobilization of knowledge occurs through these projects. However, it is a grey zone in terms of accounting for in academic impact terms.

As for funding of innovative firms, this is probably no different from R&D tax credits or government direct funding (via National Research Council of Canada’s Industrial Research Assistance Programs, for example). When measuring the impact of the funds received, however, it is difficult to assess what

proportion of the impacts and outcomes is attributable to private funds, and what proportion is due to public funding (recent and not so recent)? At an aggregate level, the result of this ambiguity is essentially the double, triple and multiple counting of impacts and outcomes. This is essentially the “project fallacy” problem mentioned above, i.e., which project has what impact.

Does one see this phenomenon in the HASS disciplines? The answer is yes and no. Regarding the multiplicity of public and private funding, the answer is definitely yes, as most ordinary grants do not completely cover the funds needed and other grants specifically demand funding from different sources. The research of Beaudry and Naseem tries to disentangle part of the conundrum. While this is feasible at the aggregate level—distinguishing the effects of private contracts, public grants devoted to infrastructure and public grants for running costs is relatively easy—it is impossible to do at the individual level unless the researcher clearly identifies which grant was fundamental to which outcome and which impact. Then again, it would not be wrong if a researcher identified a number of sources as instrumental to the success of a particular piece of research. But this is not easily done and constitutes a problem that may not need to be resolved, unless the government wants to distinguish its impact from that of the private sector, or wants to establish what proportion of its research funds benefits the private sector more or less directly.

Given the increasing competition for funds from SSHRC and the challenges of having multiple funding bodies (CIHR, NSERC, SSHRC and Genome Canada, etc.)—each with its own particular silo but each also trying to build greater integration—the funding environment provides challenges for measuring impact but also for obtaining funds to do impact studies.

Q: Does the field of impact studies need to be driven by the researchers themselves (bottom-up)? Or will it emerge more strongly if there is a body of funds (whether through SSHRC or a tri-agency initiative) to which to apply (top-down)?

SSHRC currently is the only funding body that will fund impact studies but it does not even have a committee for science and innovation studies. Which committee within SSHRC would, for example, consider a proposal to study the impact of CIHR programs? Given that all medical and health research is now mandated under CIHR, such a study would not be funded.

It is clear that funding is a necessary, but not sufficient, condition for a “community of scholars.” SSHRC’s special funding brought forward a group of eclectic projects, all of which have made interesting contributions to the mosaic of “impacts.” However, no central theme emerged around which a group could coalesce to form a coherent further work proposal.

Alongside the discussions of the role of SSHRC and the social sciences, one can see a new wave of social sciences funding through the integrated funding of agencies such as Genome Canada. This trend has significant implications that are both positive and worrying. The enormous positive is that the value of the social sciences is recognized. Findings from natural sciences cannot be implemented without being part of a social context that may accept or reject the way in which the findings are packaged (in products, etc.). The social sciences can contribute important information while the research into natural processes is ongoing, and therefore be better able to shape either the research or the social context.

However, there is the risk that, as the significance of understanding the social world becomes more important for other branches of science, there could be a desire to co-opt the social sciences as an instrumental device to further other research agendas. Social science research can benefit other fields but needs to be supported for its own sake and on its own terms. As the research of the Impact Group tentatively indicates, a substantial percentage of the Canadian economy is reliant on the teaching and research of social sciences, humanities and arts departments. This is partially reflected in the emphasis that talent receives in the new SSHRC program architecture.

One key issue to be addressed is the multi-agencies' mandated responsibilities for research on the research environment itself. The majority of researchers with a focus on the research environment will see SSHRC as their primary funding source, even though they may want to study medical, natural sciences or engineering research questions. It is necessary that some mechanism for "research on research" be put in place through co-operation and co-ordination among the multiple funding bodies in Canada, both provincial and federal.

Language

Q: So what are impact, outcomes and outputs?

At the "capturing impact" workshop in 2010, there was resistance to the word "impact." It is notable that observers from the evaluation community interpreted this word in straight economic terms.

There appears to be an emerging need to revisit the language that has developed around investigating the interactions between academic research and society. Investigating "impacts" has grown out of evaluating whether projects were completed and research papers emerged. From there, it became apparent that sheer quantity did not show whether the research was of quality (see, for example, Steele et al. 2006). This problem was addressed through bibliometric quality (read "impact") indicators. Finally, saying that the research was of quality did not answer the question whether the research was useful to anyone but other academics. So the term "impact" was brought into service.

For Davies, Nutley and Walter (2005), answering the questions “who are the key stakeholders for research impact assessments, and why do they want information assessing specifically the non-academic impacts of research” is the key to defining a framework to measure impact. Because words such as evaluation and impact carry various different meanings depending on context, clarity is important: the impact of what, for whom, for what purpose, etc. For some, particularly those who belong to professional bodies for evaluation, there are accepted models and frameworks such as the logic model or conceptual framework that are widely accepted but that probably have only limited applicability in the research setting. For bibliometricians, citations are the impact. For accountants, payback is the impact.

Likewise, impact analysis can be described as the return on investment or as the regional or social impact statements used in development project funding or legislation development. However, research is very diverse. Beyond a few examples—such as those being reported by ESRC in the United Kingdom—impact is too narrow a concept and term. There is not yet a taxonomy of impact categories, although perhaps the first glimpse of relevant concepts comes from a number of the projects here (Robinson, Rudd, Bloom, Gingras and Archambault, Langford and Hawkins, and Lewis). So, although the word “impact” has gained considerable popularity in a short time, evidence from this project shows that the term is still largely without a clear definition. The term “extra-academic returns” now appears in a number of places but it too is not a clear enough expression of the concept.

As the studies here have shown, the range of research performed or affected by the social sciences, arts and humanities is huge; language that encompasses such breadth and diversity should be promoted.

However, these are medium-term challenges. In the immediate future, there are important issues for SSHRC to face.

Frontiers

In 2007 and 2010, SSHRC released documents called *Framing Our Direction*, which reported on SSHRC’s achievements and set out the Council’s strategic priorities for the coming period. Both reports document SSHRC’s desire to increase its impact and to be better able to report on that impact. There has been a growing recognition of the need for more discussion of the topic in order to establish an agreed-upon framework for increasing and capturing results and impacts of both SSHRC investments and the work of the wider HASS community. Such a framework would be enabled by the findings of the 17 “Capturing Impacts” studies. Agreement among all key stakeholders on a comprehensive strategy for

capturing, analyzing and sharing the results and impacts of HASS research is long overdue in Canada. Other jurisdictions, especially the United Kingdom, Europe and Australia, are funding research on related topics. The 17 projects were a start but where to go from here? One good place to start would be research on the role of HASS in the economy, discussed briefly above.

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Appendix A: Capturing Impacts Projects

Principal Investigator	Collaborators	Institution	Topic	Funding round
Beaudry, C.		École Polytechnique de Montréal	Impacts of funded research in biotechnology and nanotechnology	2007
Bernard, R.	P.C. Abrami, C. Dagenais and M. Janosz	Concordia University	Measuring the impact of research on educational practices: Validation study	2007
Bloom, K.	K.S. Coates and M.P. Zanna	University of Waterloo	University support and reward systems to facilitate knowledge mobilization for research impact	2007
Couture, C.	E.A. Aunger, D. Ipperciel, L. Ladouceur and H. Safoumi	University of Alberta	Political and social impacts of Canadian research in social sciences and humanities	2006
Gingras, Y.	É. Archambault	Gingras: Université du Québec à Montréal Archambault: Science-Metrix	Survey of researchers and research users on the impacts of university research in the social sciences and humanities	2006
Hird, M.	G.N. Smith and M.C. Walker	Hird and Smith: Queen's University Walker: Ottawa Hospital	Capturing the outcomes and impacts of publicly funded health research: Knowledge translation and public understandings of science issues	2007
Jeffery, B.	S. Abonyi, P. Hackett and M.R. Hampton	Jeffery: University of Regina Abonyi and Hackett: University of Saskatchewan Hampton: Luther College	Evaluating the use of Community Health Indicators Toolkit & Program Logic Models	2007

Koç, M.	A.-M. Hamelin, R.J. MacRae, A. Noack, O. Guclu-Ustundag and P.L. Williams	Hamelin: Université Laval MacRae: York University Koç, Noack and Guclu- Ustundag: Ryerson University Williams: Mount Saint Vincent University	To develop a methodology to capture impacts of SSHRC-funded food studies	2007
Langford, C.	R.W. Hawkins	University of Calgary	Capturing the outcomes and impacts of publicly funded research	2007
Lewis, B.	J.A.D. Holbrook and B. Wixted	Lewis: Concordia University Holbrook and Wixted: Simon Fraser University	Evaluation of formal research networks	2007
Lowry, G.	A. Mathur	Lowry: Emily Carr University of Art + Design Mathur: Thompson Rivers University	Research/creation outcomes and impacts (fine arts)	2007
Misak, C.	D.C. Ainslie, B. Corman and R. Gibbs	University of Toronto	Humanities on Performance Indicators (HOPI) project	2007
Naseem, A.		McGill University, Macdonald Campus	Public-Private Research Partnerships: Evaluating research supported by Agriculture and Agri-Food Canada's (AAFC) Matching Investment Initiative (MII)	2007
Phipps, D.		York University	Design, dissemination and evaluation of research summaries	2007
Robinson, J.	S. Talwar and A. Wiek	Robinson and Wiek: The University of British Columbia Talwar: Natural Resources Canada	Measuring the societal effects of problem- oriented participatory sustainability research	2007

Rudd, M.		Memorial University of Newfoundland	Quantifying non-market benefits to Canadians of social sciences and humanities research investments	2006
Wathen, N.	S.M. Jack and H.L. MacMillan	Wathen: The University of Western Ontario Jack and MacMillan: McMaster University	Evaluating the impact of research evidence on decision-making in the area of violence against women	2007

Appendix B: Classification of Studies

Principal Investigator(s)	Classification	Primary Methodology
Bernard	Knowledge mobilization	Survey
Hird	Knowledge mobilization	Interviews/focus groups
Jeffery	Knowledge mobilization	Interviews/focus groups
Phipps	Knowledge mobilization	Practice-based
Robinson	Knowledge mobilization	Interviews/focus groups
Wathen	Knowledge mobilization	Survey/interviews
Beaudry	Studies defined by disciplines and sciences	Database-mining/analysis
Koç	Studies defined by disciplines and sciences	Survey
Lowry	Studies defined by disciplines and sciences	Interviews/focus groups
Misak	Studies defined by disciplines and sciences	Interviews/focus groups
Naseem	Studies defined by disciplines and sciences	Database-mining/analysis
Bloom	System studies	Interviews/focus groups
Couture	System studies	Database-mining/analysis
Gingras	System studies	Survey
Langford	System studies	Survey
Lewis	System studies	Theory development
Rudd	System studies	Survey

Appendix C: Program Descriptions (2006 & 2007)



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Capturing the Outcomes and Impacts of Canadian Research in the Social Sciences and Humanities

A SSHRC Presidential Fund Initiative

[Regulations Governing Grant Applications](#)
[Definitions](#)

Application deadlines	Value	Duration	Results announced	Apply
Letter of Interest: October 20, 2006	No funds attached	n/a	November 6, 2006	Application Process
Application: December 4, 2006 (by invitation only)	Up to \$25,000	12 months	January 26, 2007	Web CV and instructions Application Process

- [Context](#)
- [Objectives](#)
- [Description](#)
- [Value and Duration](#)
- [Eligibility](#)
- [Evaluation and Adjudication](#)
- [Application Process](#)
- [Administrative Regulations](#)
- [More Information](#)

Context

Over the past several years, the Government of Canada has significantly increased financial support for social sciences and humanities research. This increased support has responded to both growing demand from the research community and a growing public need for information about, and knowledge and understanding of, social, cultural and economic issues.

As the national agency dedicated to supporting and advancing research and research training in the social sciences and humanities, SSHRC ensures

that the funds it provides are managed effectively and that the research it supports benefits Canadians and Canadian society. The Council's *strategic plan*, published in July 2005, introduces a deeper concern for the impact of research—the vital, and often undervalued, social, economic, and cultural returns on research investments. Measuring such benefits, however, presents significant challenges—not only for SSHRC, but for national research agencies around the world.

Assessing the impacts of research has become a central part of the management and governance of publicly funded research and the principal means by which research support agencies demonstrate the value of public investments in knowledge creation. Yet systematic approaches for assessing the impact on society of social sciences and humanities research remain in their infancy.

The development of effective methods to capture the broad societal impact of its investments is of direct, strategic importance to SSHRC. Accordingly, the Council now invites proposals for research projects that will develop innovative approaches for measuring the outcomes and impacts of Canadian research in the social sciences and humanities.

Objectives

The overall objective of this initiative is to develop tools and methodologies (including indicators) for identifying and evaluating outcomes and impacts, whether direct or indirect, that new social sciences and humanities research knowledge has on Canada and Canadians.

Specifically, the initiative is intended to support projects that undertake one or more of the following:

- develop, test and/or implement new and innovative methodologies—including economics-based methodologies—for assessing the social, cultural and economic outcomes and impacts of social sciences and humanities research;
- adapt existing methodologies to, or apply them in, new or innovative contexts;
- develop a range of complementary methodologies to examine the outcomes and impacts of such research on individuals, groups, communities and society as well as on the economy or aspects of it.

Within this broad range, SSHRC seeks to support original, groundbreaking studies that will:

- contribute significantly to the development of assessment techniques for social sciences and humanities research in the Canadian context, and
- take account, as appropriate, of emerging international standards.

Description



SSHRC invites proposals that explore solutions to one or more of the following issues that have been identified as complicating any attempt to reliably assess the outcomes and impacts of research:

- **Attribution**—A given social, cultural or economic benefit or innovation may draw upon the results of multiple research projects, while a given project may have an impact on, or contribute to, multiple benefits or innovations.
- **Appropriation**—It may not be apparent even where to look for the impact of new research knowledge, since, in many cases, the beneficiaries of that knowledge may not be the same individuals, groups, communities or organizations that conducted the research.
- **Timing**—Often, the impacts of research manifest themselves only long after the completion of any particular project.
- **Inequality**—Out of a range of research projects of a similar type or that address the same subject matter, a small number may account for most of the effects.
- **The “project fallacy”**—It is commonly assumed that a specific research project will result in an identifiable set of outcomes and impacts which can be reliably attributed to that project and which then can be compared to inputs.

Applicants may explore solutions to the issues identified above, and/or make the case for addressing other factors that are of equal importance in the development of effective techniques for capturing research outcomes and impacts.

Value and Duration

Grants are worth up to \$25,000 over 12 months. Up to four will be awarded. Successful applicants may be eligible to receive a research time stipend of up to \$5,000 as part of the total grant amount.

All projects must be completed within 12 months of the date of the award notice.

Eligibility

Applicants

SSHRC invites applications from researchers and postdoctoral fellows in the social sciences and humanities who are affiliated with Canadian postsecondary institutions. Individuals or teams may apply.

Institutions

Institutions that propose to administer any grant awarded under this initiative must meet the requirements for the management of SSHRC funds and hold or obtain institutional eligibility.

Evaluation and Adjudication

A special adjudication committee will assess all applications on the basis of the following criteria:

- **Relevance**—extent to which the proposal addresses the objectives of the initiative while also offering an original perspective;
- **Research plan**—strength and feasibility of the approach, including considerations of methodology and collaboration;
- **Qualifications**—the academic, cultural and experiential qualifications of the applicant and of any team members for carrying out the proposed project;
- **Complementarity**—potential for the proposed research, when considered together with other proposals, to offer SSHRC the most comprehensive and strategically valuable set of perspectives on the issues set out above.

Application Process

Applying for a grant under this initiative involves two stages: the letter of interest and the full application.

Only those applicants whose letter of interest passes an initial review will be invited to submit a full application.

Stage 1: Letter of Interest

Submit a letter of interest of 750 words or less that includes the following:

- declaration of intention to apply for support from this initiative;
- working title for the proposed research project;
- outline of the project, including its scope and approach;
- preliminary list, if applicable, of co-investigators, collaborators and partners.

Applicants may be invited to attend an information session on November 13, 2006 to discuss the context and objectives of this initiative. Participants will have the opportunity to share ideas with other researchers who are working on these issues. Learning more about what will likely be a diverse range of research perspectives will help applicants position their proposals within this range.

Submitting the Letter of Interest

Submit the letter of interest in hard copy format or by e-mail—but not both—to the SSHRC officer identified in More Information below. The letter must be **received at SSHRC** on or before the application deadline.

Stage 2: Full Application

A full application must include the following:

- description of the issue or issues to be addressed;
- outline of the relevant expertise and experience of the applicant or team;
- work plan, including a description of the proposed methodology;
- description of deliverables, timelines and potential communities of interest;
- itemized budget, including justification for all proposed expenditures;
- SSHRC Web CV for each applicant and co-applicant;

Institutional Certification

The applicant must sign the application and submit a paper copy to his or her institution's research office. An authorized signature from the applicant's institution is required to certify that the institution will administer any award made in accordance with SSHRC policies.

Submitting the Application

All application materials must be submitted in hard copy format and must be received on or before the application deadline.

Deliver completed applications by mail, courier or by hand to the SSHRC officer identified in More Information below. Applications submitted in whole or in part by any other means (e.g., fax, e-mail) will not be considered.

Administrative Regulations

All applicants and grant holders must comply with the [Regulations Governing Grant Applications](#) and with the regulations set out in the [Grant Holder's Guide](#). In particular, the [financial administration](#) section of the Guide gives detailed information on eligible and ineligible expenses.

Successful applicants will be required to share the results of their research with SSHRC. The Council will use this information for the development of its policies and practices. This does not in any way limit how researchers may otherwise publish or use the results of their research.

More Information

For more information about this program, and for advice on how to prepare your application, please contact:

Suzanne Board
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Capturing the Outcomes and Impacts of Publicly Funded Research

A SSHRC Presidential Fund Initiative

Application deadlines	Value	Duration	Results announced	Apply
December 14, 2007	Up to \$25,000	12 months	February 25, 2008	Web CV and instructions Application Process

- [Context](#)
- [Objectives](#)
- [Description](#)
- [Value and Duration](#)
- [Eligibility](#)
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Context

Over the last half century, governments around the world have recognized the importance of research and innovation to national prosperity and the quality of life enjoyed by their people. This recognition is reflected in the Government of Canada's steady increases, over the past decade, to its investments in all areas of research.

As the national agencies dedicated to supporting and advancing research and research training, Canada's three national granting councils, SSHRC, NSERC and CIHR, all have mechanisms and processes to help ensure that the funds they provide are managed effectively and that the research supported will benefit Canadians and Canadian society. Measuring, assessing, evaluating and describing such benefits, however, present significant challenges for national research agencies in Canada and around the world. The OECD has developed standardized indicators for research inputs, and techniques such as bibliometrics can capture research outputs.

Even so, systematic approaches for capturing the broader social, economic and cultural impacts of publicly funded research remain in their infancy.

The development of effective methods to capture the broad societal impact of its investments is of direct strategic and operational importance to SSHRC, as it is to other research agencies and research institutions in Canada and abroad. Accordingly, the Council now invites proposals for research projects that will help develop innovative approaches for measuring, assessing, evaluating or describing the outcomes and impacts of publicly funded research.

Objectives

This initiative will engage the Canadian research community in exploring new approaches to capturing the social, economic and cultural impacts of publicly funded research. By "capturing," we mean measuring, assessing, evaluating and describing (or communicating) the impacts of research.

Specifically, the initiative will support projects that will:

- Develop, test and/or implement new and innovative methodologies for capturing the social, cultural and economic outcomes and impacts of research in the social sciences, humanities, health sciences, natural sciences or engineering; and
- Adapt existing methodologies to, or apply them in, new contexts.

Within this broad range, SSHRC seeks to support original, groundbreaking studies that will:

- Contribute significantly to the development of techniques that can be applied in the Canadian context;
- Help advance the practice of evaluation of research programs and organizations;
- Help advance the art of effectively communicating research impacts;
- Develop Canada's capacity to contribute to international efforts in these areas; and
- Take account, as appropriate, of emerging international standards.

Description



The international literature has identified several challenges related to assessing the outcomes and impacts of research (summarized below). SSHRC invites proposals that explore solutions in one or more of these areas, and/or that make the case for addressing other factors that are equally important in developing effective techniques for capturing research outcomes and impacts.

- **Attribution**—A given social, cultural or economic benefit or innovation may draw upon the results of multiple research projects, while a given project may have an impact on, or contribute to,

multiple benefits or innovations.

- **Appropriation**—It may not even be apparent where to look for the impact of new research knowledge, since, in many cases, the beneficiaries of that knowledge may not be the same individuals, groups, communities or organizations that conducted the research.
- **Timing**—Often, the impacts of research only manifest themselves long after the project is complete.
- **Inequality**—Out of a range of similar research projects, or projects that address the same subject matter, a small number may account for most of the effects.
- **The “project fallacy”**—It is commonly assumed that a specific research project will result in an identifiable set of outcomes and impacts, which can be attributed reliably to that project and which then can be compared to inputs.

Value and Duration

Grants are worth up to \$25,000 over 12 months. Up to eight grants will be awarded. Within the award, successful applicants may also be eligible to receive a research time stipend of up to \$5,000.

All projects must be completed within 12 months of the date of the award notice.

Eligibility

Applicants

SSHRC invites applications from social sciences and humanities researchers and postdoctoral fellows who are affiliated with Canadian postsecondary educational institutions. Individuals or teams may apply. Researchers and postdoctoral fellows in disciplines other than the social sciences and humanities may also apply as co-investigators on projects that have, as principal investigators, researchers in the social sciences and humanities.

Institutions

Institutions that propose to administer any grant awarded under this initiative must meet the requirements for managing SSHRC funds and must hold or obtain institutional eligibility.

Adjudication

A special adjudication committee will assess all applications on the following criteria:

- **Relevance**—the extent to which the proposal addresses the objectives of the initiative while also offering an original perspective;
- **Research plan**— the strength and feasibility of the approach, including considerations of methodology and collaboration;
- **Dissemination plan**—the potential for the results of this research to reach appropriate communities of interest;
- **Qualifications**—the academic and experiential qualifications of the applicant and the team for carrying out the proposed project; and
- **Complementarity**—the potential for the proposed research, when considered together with other proposals, to offer SSHRC the most comprehensive and strategically valuable set of perspectives on the issues set out above.

Application Process

The application must include the following:

- A letter addressed to the President of SSHRC (maximum four pages) containing:
 - A description of the issue or issues to be addressed;
 - An outline of the relevant expertise and experience of the applicant or team;
 - A work plan, including a description of the proposed methodology;
 - A description of deliverables, timelines and potential communities of interest; and
 - The applicant's signature
- An itemized budget, including justification for all proposed expenditures (maximum two pages)
- The Web CV for each applicant and co-applicant
- A separate page containing an authorized signature from the applicant's institution certifying (a) that the institution will administer any award in accordance with SSHRC policies, and (b) if a Research Time Stipend is being sought, that the institution acknowledges its financial obligations related to the requested release from teaching

Submitting the Application

All application materials must be submitted in hard copy and must be received on or before the application deadline.

Deliver completed applications by mail, by courier or by hand to the address below. Applications submitted in whole or in part by any other means (such as fax or email) will not be considered.

Address applications to:
President's Office
Social Sciences and Humanities Research Council
P. O. Box 1610
Ottawa, Ontario

K1P 6G4

Administrative Regulations

All applicants and grant holders must comply with the Regulations Governing Grant Applications and with the regulations set out in the Grant Holder's Guide for research and strategic grants. In particular, the financial administration section of the Guide gives detailed information on eligible and ineligible expenses.

Successful applicants will be required to share the results of their research with SSHRC. The Council will use this information to develop its policies and practices. This does not in any way limit how researchers may otherwise publish or use the results of their research.

More Information

For more information about this program, and for advice on how to prepare your application, please contact:

Suzanne Board

Policy Analyst

Policy, Planning and International Affairs Division

Social Sciences and Humanities Research Council

Tel.: 613-992-4301

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 **Important Notices**

Appendix D: Project Summaries

Catherine Beaudry École Polytechnique de Montréal	
<p>Project Title Impacts of funded research in biotechnology and nanotechnology</p> <p>Project Summary Catherine Beaudry's project will help test the following three research hypotheses for the new emerging technologies of biotechnology and nanotechnology:</p> <ol style="list-style-type: none"> 1) Researchers funded by granting agencies are more likely to collaborate to make their research known through scientific publications, to automatically have a wider innovation network and to contribute more actively to knowledge flows within the network. 2) Researchers funded by granting agencies produce more patents in collaboration with business and, because of their central position in innovation networks, they help to transmit knowledge to industry. 3) Government-funded research thus indirectly helps to put in place the tools required for commercialization and innovation. <p>The project has three components. The first involves studying the impact of government funding of research on the structure of networks and the characteristics of the researchers who make up those networks. The second component examines in particular the impact of government funding of researchers who are also inventors. The third component covers the links between joint-funding applicants and compares the network implicitly constructed through these links with the innovation networks used in the first and second components of the study.</p> <p>Financial data from the Système d'information sur la recherche universitaire (SIRU) of Quebec's Observatoire des sciences et technologies (OST) will be integrated with innovation networks through the use of PAJEK software.</p>	<p>Titre du projet Impacts de la recherche subventionnée en biotechnologie et en nanotechnologie</p> <p>Résumé de projet Ce projet de Mme Beaudry permettra de vérifier, pour les deux nouvelles technologies en émergence que sont la biotechnologie et la nanotechnologie, les trois hypothèses de recherche suivantes :</p> <ol style="list-style-type: none"> 1) Les chercheurs financés par les organismes subventionnaires ont une plus grande propension à collaborer pour la diffusion de la recherche par l'intermédiaire de publications scientifiques, ont par le fait même un réseau d'innovation plus étendu, et contribuent de façon plus active aux flux de connaissance du réseau; 2) Les chercheurs financés par les organismes subventionnaires produisent plus de brevets en collaboration avec les entreprises, et de par leur position centrale dans les réseaux d'innovation contribuent à transmettre la connaissance vers l'industrie; 3) La recherche subventionnée par le domaine public contribue donc de façon indirecte à mettre en place les outils nécessaires à la commercialisation de l'innovation. <p>Le projet de divise en trois volets : le premier étudiera l'incidence du financement public de la recherche sur la structure des réseaux et les caractéristiques des chercheurs qui les composent; le deuxième volet examinera en particulier l'incidence du financement public des chercheurs qui sont aussi des inventeurs; le troisième volet intégrera les liens entre les codemandeurs de subvention et comparera le réseau construit implicitement à l'aide de ces liens avec les réseaux d'innovation utilisés dans les premier et deuxième volets de l'étude.</p> <p>Les données financières du Système d'information sur la recherche universitaire (SIRU) de l'observatoire des sciences et technologies (OST) seront intégrées aux réseaux d'innovation à l'aide du logiciel PAJEK.</p>

Robert Bernard

Concordia University

Project Title

Measuring the impact of research on educational practices: Validation study

Project Summary

Robert Bernard and his colleagues developed an attitude and self-reporting behavioural questionnaire for assessing the use of research-based knowledge by school practitioners (i.e., teachers, administrators). The instrument has already been validated in Quebec. The current study aims to validate this tool in a range of pan-Canadian educational contexts.

The purpose of this questionnaire is threefold:

- 1) It allows the impact of research on the practices of the elementary and secondary school practitioners to be measured.
- 2) It helps to capture complex factors affecting the process of research appropriation by practitioners, thus shaping the degree of research impact on educational practices.
- 3) It enables examination of parallel contexts for similarities and shared challenges to facilitate the process of turning research outputs into impacts beneficial for school practices in Canada.

The information gathered with this questionnaire will permit the team to explore the utility of research as viewed by school practitioners, to explore the efficiency of strategies used to communicate the results of publicly funded research and to encourage the use of this research.

Titre de projet

Mesurer l'impact qu'a la recherche sur les pratiques pédagogiques : étude de validation

Résumé de projet

M. Bernard et ses collègues ont préparé un questionnaire comportemental d'attitudes et d'autoévaluation permettant d'évaluer l'utilisation des connaissances issues de la recherche par des membres d'établissement d'enseignement (professeurs, administrateurs, etc.). Cet outil a déjà été approuvé au Québec, alors la présente étude vise à le faire accepter dans divers milieux pédagogiques canadiens.

Le questionnaire comporte trois objectifs :

- 1) permettre de mesurer l'impact qu'a la recherche sur les pratiques adoptées par les membres d'établissement d'enseignement élémentaire ou secondaire;
- 2) contribuer à la compréhension des facteurs complexes qui influent sur le processus d'utilisation des résultats de recherche par ces membres et qui déterminent ainsi l'impact qu'a la recherche sur les pratiques pédagogiques;
- 3) permettre d'examiner des contextes analogues pour déceler des similarités et des défis communs afin de faciliter la mise en application des résultats de recherche de manière à avoir un impact positif sur les pratiques pédagogiques canadiennes.

Les renseignements recueillis à l'aide de ce questionnaire aideront l'équipe à déterminer l'utilité de la recherche telle qu'elle est perçue par les membres d'établissement d'enseignement ainsi que l'efficacité des stratégies adoptées pour communiquer les résultats de la recherche financée par l'État et favoriser leur utilisation.

Kathleen Bloom University of Waterloo	
<p>Project Title</p> <p>University support and reward systems to facilitate knowledge mobilization for research impact</p> <p>Project Summary</p> <p>The journey from research funding to societal impact depends on favourable conditions along the way:</p> <ol style="list-style-type: none"> 1) commitment of granting agencies and universities to public accountability and social responsibility; 2) commitment of academics to sharing knowledge beyond the academy; and 3) capacity of policy makers, practitioners, and the public to absorb, value and use research knowledge. <p>The journey ends with the application of research information and evidence by decision-makers, the primary arbiters of research impact. It begins once again with enlightened research questions and engaged scholarship.</p> <p>Our project addresses the second condition for research impact: the commitment of university researchers. We conducted six, two-hour focus groups with faculty in the social sciences, humanities, and applied health sciences at the University of Waterloo.</p> <p>We asked their views on four topics:</p> <ul style="list-style-type: none"> • the manner in which academics share their research results with society at large; • the value academics attribute to sharing their research with society at large; • supports and challenges of sharing research results with external audiences; and • perceived reward and recognition for sharing knowledge outside the university. <p>We learned that faculty:</p> <ul style="list-style-type: none"> • felt the pressure of governments, funding agencies, and their universities to show that their research had value to society; • expressed a willingness by and large to contribute to this mission; • provided many examples of evidence of their knowledge sharing activities; • perceived the university as failing to provide faculty with sufficient training, resources, recognition, and rewards for knowledge sharing; • felt that the norms of funding agencies and universities still rested solely on track records of 	<p>Titre de projet</p> <p>Systèmes de soutien universitaire et de récompense visant à favoriser la mobilisation des connaissances en ce qui concerne l'impact de la recherche</p> <p>Résumé de projet</p> <p>L'impact qu'a le financement de la recherche sur la société dépend des éléments suivants :</p> <ol style="list-style-type: none"> 1) un engagement des organismes subventionnaires en matière de responsabilité sociale et de responsabilisation à l'égard du public; 2) un engagement des universitaires à réaliser des projets sur la mobilisation des connaissances; 3) la capacité des responsables de l'élaboration des politiques, des praticiens et du public à comprendre, à valoriser et à utiliser les résultats de recherche. <p>L'issue de ce processus est l'utilisation des résultats de recherche par les décideurs, lesquels sont les premiers juges de l'impact de la recherche. Ensuite, le processus recommence à neuf avec des questions de recherche éclairées et une production de connaissances engagée.</p> <p>Notre projet aborde le second élément nécessaire à l'impact de la recherche, c'est-à-dire l'engagement des chercheurs universitaires. Nous avons organisé six groupes de discussion multidisciplinaires de deux heures avec des professeurs à temps plein des départements de sciences humaines et de sciences de la santé appliquées de l'University of Waterloo.</p> <p>Nous leur avons demandé leur point de vue sur les quatre sujets suivants :</p> <ul style="list-style-type: none"> • la manière dont ils communiquent leurs résultats de recherche au grand public; • la valeur qu'ils accordent au fait de communiquer leurs résultats de recherche au grand public; • le soutien et les obstacles en matière de communication des résultats à des publics externes; • les récompenses et la reconnaissance perçues pour la communication de connaissances en dehors du milieu universitaire. <p>Les résultats de notre étude montrent que les professeurs :</p> <ul style="list-style-type: none"> • ressentent la pression des gouvernements, des organismes subventionnaires et de leurs universités de montrer que leur recherche comporte une valeur sociale; • expriment leur volonté, dans l'ensemble, de contribuer

<p>large grant awards and numbers of publications in specialized journals;</p> <ul style="list-style-type: none"> • saw the need of benchmarks for crediting outreach and engagement activities in salary and promotion evaluations; and • was keen to discuss service to society through knowledge sharing as a feature of academic excellence. 	<p>à la vulgarisation des connaissances;</p> <ul style="list-style-type: none"> • peuvent fournir de nombreux exemples de leurs activités de vulgarisation des connaissances; • estiment que l'université n'offre pas aux professeurs une formation, des ressources, de la reconnaissance et des récompenses suffisantes pour encourager la vulgarisation des connaissances; • estiment que les normes des organismes subventionnaires et des universités sont encore uniquement fondées sur l'obtention de grandes subventions et le nombre de publications dans les revues spécialisées; • estiment qu'il est nécessaire d'établir des critères de reconnaissance des activités de vulgarisation dans les évaluations relatives au salaire et aux promotions; • sont prêts à discuter de la manière de faire du service à la société par la vulgarisation des connaissances un critère d'excellence universitaire.
<p><i>Claude Couture</i> Campus Saint-Jean, University of Alberta</p>	
<p>Project Title Political and social impacts of Canadian research in social sciences and humanities</p> <p>Project Summary In an effort to understand how demographic-linguistic research conducted since the 1970s has affected francophone communities in the Prairie provinces, Claude Couture has applied "citation analysis" to the written products of three institutional domains: the public space, the justice system and public policy. Their ultimate goal is to produce a set of impacts indicators for demographic-linguistic research that may be adapted for other types of research.</p>	<p>Titre de projet Impact politique et social de la recherche canadienne en sciences humaines</p> <p>Résumé de projet Dans le but de comprendre comment la recherche démographique-linguistique menée depuis les années 1970 a touché les communautés francophones des Prairies, les auteurs ont analysé les citations provenant de publications de trois domaines institutionnels : l'espace public, le système juridique et les politiques publiques. Ils entendent ainsi produire un ensemble d'indicateurs de l'impact de la recherche démographique-linguistique, qui pourront être adaptés à d'autres types de recherche.</p>

<p>Yves Gingras Université du Québec à Montréal</p>	
<p>Project Title Survey of researchers and research users on the impacts of university research in the social sciences and humanities</p> <p>Project Summary Yves Gingras' project explores how researchers themselves understand the impact of their own work. Using survey methodology, the team will identify the extent to which researchers know who uses their research results outside academia. The team will also identify the known mechanisms for diffusion of research results to users. The project will help to characterize the types of research results that are commonly identified as being taken up by users, the mechanisms of diffusion and the types of impacts most commonly observed in the social sciences and humanities.</p>	<p>Titre de projet Enquête sur l'impact de la recherche universitaire auprès des chercheurs et des utilisateurs de la recherche en sciences humaines</p> <p>Résumé de projet Le projet de M. Gingras porte sur la manière dont les chercheurs comprennent l'impact de leurs propres travaux. À l'aide de sondages, son équipe déterminera jusqu'à quel point les chercheurs savent qui, en dehors du milieu universitaire, utilise les résultats de leurs recherches. M. Gingras et son équipe identifieront également les mécanismes de diffusion des résultats de recherche qui sont connus des utilisateurs. Ce projet permettra de caractériser les types de résultats de recherche généralement identifiés comme étant ceux que retiennent les utilisateurs, les mécanismes de diffusion ainsi que les types d'impact les plus souvent observés dans le domaine des sciences humaines</p>
<p>Myra Hird Queen's University</p>	
<p>Project Title Capturing the outcomes and impacts of publicly funded health research: Knowledge translation and public understandings of science issues</p> <p>Project Summary By 2020, cardiovascular disease is predicted to become the world's leading cause of disability and death. The Canadian Pre-Eclampsia New Emerging Team (PE-NET) is an ongoing multi-member, multisite Canadian research program. It has demonstrated that pre-eclampsia can identify women who have underlying cardiovascular risk factors. The PE-NET identifies knowledge translation (KT) and public understandings of science (PUOS) as key aspects of maximizing the</p>	<p>Titre de projet Saisir les résultats et les impacts de la recherche en santé financée par l'État : utilisation des connaissances et compréhension de la science par le public</p> <p>Résumé de projet D'ici 2020, on prévoit que les maladies cardiovasculaires deviendront la principale cause d'invalidité et de mortalité. PE-NET (Canadian Pre-Eclampsia New Emerging Team) est un programme canadien comportant de nombreux membres et de multiples emplacements. Il a démontré que la prééclampsie peut cibler les femmes qui sont sujettes à des affections cardiovasculaires. PE-NET considère l'utilisation des connaissances et la compréhension de la science par le public comme d'importants éléments qui permettent de maximiser la compréhension des résultats et des impacts de la</p>

<p>effective capture of outcomes and impacts of publicly funded research.</p> <p>This study is the first of a four-phase program including baseline survey, guideline development, guideline dissemination and evaluation survey. The aims of Phase 1 are to:</p> <ol style="list-style-type: none"> 1) better understand how patients process/mediate medical information through their attitudes towards, and behaviour concerning, their own health and that of their offspring; 2) accelerate the flow of knowledge about long-term cardiovascular disease in women with pre-eclampsia to obstetrical and primary care providers; 3) improve the communication strategy between obstetrical care providers (obstetricians, family doctors and midwives) and primary care physicians about the development of PE in pregnancy; and 4) better inform patients about their individual risks of later cardiovascular disease should they develop pre-eclampsia during pregnancy. <p>The study will provide timely information about PUOS and KT that will inform the conduct of PE-NET research; provide further guidance for pre-natal research generally; and contribute to badly needed self-reflexive, researcher-initiated development of KT guidance for the conduct of health research. It will help researchers understand the kinds and degree of tacit and other knowledge used by patients/subjects about health research and in making treatment decisions, and also benefit communication between researchers who may approach the same research findings in quite different ways. The study will also provide a practical example of transdisciplinary science. The existing literature tends to restrict social scientific input to social, economic and cultural indicators of health, rather than use the social sciences' much broader skills in epistemology, the study of scientific knowledge and expertise in PUOS.</p>	<p>recherche financée par l'État.</p> <p>Cette étude est la première d'un programme en quatre étapes qui comprend une enquête de référence, l'élaboration de lignes directrices, la communication de ces dernières et une enquête d'évaluation. Les objectifs de la première étape sont les suivants :</p> <ol style="list-style-type: none"> 1) mieux comprendre comment les patients traitent les renseignements médicaux en fonction de leur attitude et de leur comportement en ce qui concerne leur propre santé et celle de leurs enfants; 2) accélérer la diffusion de connaissances relatives aux maladies cardiovasculaires à long terme des femmes atteintes de prééclampsie aux prestataires de soins obstétricaux et primaires; 3) améliorer la stratégie liée à la communication entre prestataires de soins obstétricaux (obstétriciens, médecins de famille et sages-femmes) et de soins primaires au sujet de l'évolution de la prééclampsie au cours de la grossesse; et 4) mieux renseigner les patientes sur leur propre risque d'être atteint d'une maladie cardiovasculaire lorsqu'elles souffrent de prééclampsie lors d'une grossesse. <p>Cette étude fournira des renseignements opportuns sur la compréhension de la science par le public et l'utilisation des connaissances, ce qui documentera les recherches de PE-NET, fournira une orientation supplémentaire sur la recherche prénatale et contribuera à l'élaboration d'une orientation autoréflexive de l'utilisation des connaissances dont on a grand besoin et qui sera entreprise par les chercheurs pour la poursuite de travaux de recherche en matière de santé. Cela aidera les chercheurs à comprendre les types et les niveaux des connaissances tacites et autres utilisées par les patients en ce qui concerne la recherche sur la santé et la prise de décisions liées aux traitements. De plus, cela favorisera la communication entre des chercheurs qui pourraient aborder les mêmes résultats de recherche, mais d'une manière différente. Par ailleurs, l'étude sera un exemple pratique de science transdisciplinaire. La littérature existante tend à limiter les perspectives scientifiques sociales à des indicateurs sociaux, économiques et culturels de la santé plutôt que d'employer les aptitudes beaucoup plus vastes des sciences sociales en ce qui concerne l'épistémologie, l'étude des connaissances scientifiques et l'expertise liée à la compréhension de la science par le public.</p>
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Bonnie Jeffery

University of Regina

Project Title

Evaluating the use of *Community Health Indicators Toolkit* and *Program Logic Models*

Project Summary

In this project, we will evaluate the effectiveness of our knowledge translation activities in the dissemination and uptake of two key deliverables. These were the result of a project recently completed with nine First Nation and provincial communities in northern Saskatchewan. The deliverables, a *Community Health Indicators Toolkit* and *Program Logic Models*, were distributed to the First Nation and northern health organizations who partnered with us on this project. The *Toolkit* and *Logic Models* have since been shared with other communities across Canada, in response to requests from them.

We will assess the impact of our dissemination strategy with two groups: the northern Saskatchewan communities participating in this research; and other interested communities, health professionals, academics and policy-makers beyond Saskatchewan.

Our participatory evaluation methodology involves our community partners in this project. The methodology focuses on producing findings that will result in deliverables of benefit to our partners as well as others conducting research in this area. Using a qualitative approach, we will conduct key informant interviews and focus groups to elicit detailed information on the use of the project material in research, policy and practice settings. We will also use GIS technology to create a time-space model of the diffusion of the *Toolkit* and *Logic Models* with both our partner communities and those outside the communities and province. This integrative map will show the geographic distribution of our research products and incorporate video clips or text from each location to provide information on their specific use of the deliverables.

The results of this project will contribute in two primary areas: the testing of evaluation techniques that others can use for assessment of knowledge translation strategies; and findings that can contribute to a greater understanding of the art of communication when conducting research with community-based organizations and partners.

Titre du projet

Évaluer l'utilisation d'indicateurs de santé communautaire et de modèles de logique de programme

Résumé de projet

Dans le cadre de ce projet, nous allons évaluer l'efficacité de nos activités de vulgarisation des connaissances pour la diffusion de deux éléments produits à la suite d'un projet mené auprès de neuf communautés provinciales et des Premières nations dans le nord de la Saskatchewan. Les deux éléments produits, une trousse d'information d'indicateurs de santé communautaire (*Community Health Indicators Toolkit*) et des modèles logiques de programme (*Program Logic Models*), ont été rendus aux organisations de la santé des Premières nations et du Nord qui ont été nos partenaires dans ce projet. Ils ont également été distribués à diverses communautés canadiennes, qui en ont fait la demande.

Nous évaluerons l'impact de notre stratégie de diffusion auprès de deux groupes : les communautés du nord de la Saskatchewan qui ont été nos partenaires dans ce projet ainsi que les partis intéressés (communautés, professionnels de la santé, universitaires et responsables de l'élaboration des politiques), hors de la Saskatchewan.

Notre méthodologie d'évaluation participative incite la participation de nos partenaires communautaires au projet et vise principalement à réaliser des constats menant à des résultats qui seront bénéfiques tant pour nos partenaires que quiconque entreprend des recherches dans ce domaine. Par une approche qualitative, nous procéderons à des entrevues et nous mettrons sur pied des groupes de consultation afin d'obtenir des renseignements détaillés sur l'utilisation des documents du projet dans un contexte de recherche, d'élaboration de politiques et de mise en pratique. Nous utiliserons également un système d'information géographique afin de créer un modèle temps-espace de la distribution de la trousse d'information et des modèles logiques au sein à la fois de nos communautés partenaires et des communautés à l'extérieur de la province. Cette carte intégrative permettra de localiser, d'un point de vue géographique, la distribution de nos produits de recherche et d'ajouter des clips vidéos ou du texte à chaque emplacement pour décrire l'utilisation qui en est faite.

Les résultats de ce projet toucheront deux domaines en

	particulier : la mesure des techniques d'évaluation des stratégies de vulgarisation des connaissances et une meilleure compréhension de l'art de la communication en contexte de recherche avec des organismes et des partenaires communautaires.
<p>Mustafa Koç Ryerson University</p>	
<p>Project Title Developing a methodology to capture impacts of SSHRC-funded food studies</p> <p>Project Summary The main objective of this project is to develop a methodology to capture impacts of SSHRC-funded food studies research. The methodology is to be based on a systematic understanding of impacts as affected by the activities and interactions of the funding agency, researchers and research users through the research process. The project aims to provide an evaluation model that can be adapted to the context of other disciplines and/or funding agencies.</p> <p>We will use a conceptual framework based on the four stages of the research process through which research funding results in outputs, outcomes and societal impacts: allocation of funding; research outputs and impact in the scientific community; knowledge transfer; and utilization of research and resulting impacts.</p> <p>In this framework, impact is conceptualized as resulting from activities and interactions of research funders, research performers and research users. Using multiple qualitative- and quantitative- research methods (bibliometric analysis, surveys, expert panels and statistical analysis), we will develop a methodology to evaluate the impacts of research in the context of an emerging, interdisciplinary field—food studies. By identifying the different mechanisms by which food research impacts different users, this project will address the evaluation challenges associated with</p>	<p>Titre de projet Élaboration d'une méthodologie visant à saisir les impacts d'études alimentaires financées par le CRSH</p> <p>Résumé du projet Le principal objectif de ce projet consiste à élaborer une méthodologie permettant de saisir les impacts qu'a la recherche portant sur les études alimentaires financée par le CRSH en comprenant l'ensemble des impacts des activités et des interactions de l'organisme subventionnaire, des chercheurs et des utilisateurs de la recherche dans le cadre du processus de recherche. Le projet vise à fournir un modèle d'évaluation pouvant être adapté au contexte d'autres disciplines ou organismes subventionnaires.</p> <p>Ce projet sera basé sur un cadre conceptuel axé sur les quatre étapes du processus de recherche, à l'issue desquelles le financement de la recherche se traduit par des résultats et des impacts sociétaux : l'attribution de fonds, les résultats de recherche et leur impact dans la communauté scientifique, le partage de connaissances ainsi que l'utilisation des résultats de recherche et les impacts connexes.</p> <p>Dans ce cadre, un impact est considéré comme lié aux activités et aux interactions de bailleurs de fonds, de chercheurs et d'utilisateurs de la recherche. À l'aide de diverses méthodes - qualitatives et quantitatives - de recherche (analyses bibliométriques, sondages, groupe d'experts et analyses statistiques), nous élaborerons une méthodologie permettant d'évaluer les impacts de la recherche dans le contexte d'un nouveau domaine de</p>

<p>appropriation, inequality and time lag.</p> <p>Food studies, as an emerging interdisciplinary research field, offers an interesting and challenging context in which to evaluate the impact of funding structure on research and the impact of this research on academic and non-academic users. The research will assess how the current funding structure impacts the advancement of food-related research in social sciences and humanities—taking into account the inherent interdisciplinarity of the subject matter—and how it can be improved.</p>	<p>recherche interdisciplinaire, soit les études alimentaires. En déterminant comment la recherche alimentaire influence les utilisateurs dans le cadre d'un projet, on abordera les défis liés à l'affectation budgétaire, à l'inégalité et aux décalages.</p> <p>En tant que nouveau domaine de recherche interdisciplinaire, les études alimentaires fournissent un contexte intéressant et stimulant permettant d'évaluer l'impact qu'a la structure du financement sur la recherche et l'impact qu'a cette recherche sur les utilisateurs universitaires et non universitaires. Ce projet permettra de déterminer comment la structure de financement actuelle influence le progrès des recherches alimentaires en sciences humaines étant donné le caractère interdisciplinaire de la question étudiée et comment cette structure peut être améliorée.</p>
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Cooper H. Langford

University of Calgary

Project Title

Capturing the outcomes and impacts of publicly funded research

Project Summary

To begin constructing the longitudinal datasets required to demonstrate outcomes and especially impacts, we first have to know *how*, *where* and *with what motivation* does knowledge from publicly funded research travel to various application contexts. A significant gap in this regard is that there was no empirically grounded framework for demonstrating the following:

- 1) the scope of knowledge that is actually exchanged between postsecondary institutions and various public and private application contexts;
- 2) which types of research outputs contribute to which functions;
- 3) which translation modalities are most common or effective; and
- 4) which knowledge streams are combined in specific contexts.

Our strategy was to identify as many links as possible between publicly funded research in Canadian postsecondary institutions (as embedded in its many and various “receptors”). The results from a survey of an active panel of respondents in seven universities across Canada were classified and evaluated qualitatively according to their social, procedural, organizational and economic characteristics. Finally, we have been able to conduct a statistical analysis to give some quantitative grounding to the lessons learned.

We focused our study on the full-faculty research university. As medical-doctoral universities now have similar profiles, we assumed for our purposes that the research and knowledge transfer characteristics revealed in the survey involving seven universities (two of which were drawn from the comprehensive doctoral and primarily undergraduate categories) are sufficiently typical. The data support parallel behaviour among the institutions represented.

Key messages from the study include:

- 1) Knowledge exchange with non-academic user communities is extensive, paralleling levels found in science, engineering, and medicine domains (STEM);
- 2) Levels of interaction are similar across the social

Titre du projet

Saisir les résultats et les impacts de la recherche financée par l'État

Résumé de projet

Pour commencer à bâtir les ensembles de données longitudinales dont on aura besoin afin de montrer les résultats et surtout les impacts, il faut tout d'abord savoir dès maintenant comment, où et pourquoi les connaissances issues de la recherche financée par l'État sont utilisées dans divers contextes. À ce sujet, il existe une importante lacune, à savoir que, pour l'instant, il n'y a pas de cadre empirique permettant de déterminer :

- 1) l'ampleur des connaissances qui passent des établissements postsecondaires aux divers contextes d'utilisation publics et privés;
- 2) quels types de résultats de recherche apportent une contribution à quelles fonctions;
- 3) quels modes d'application sont les plus populaires ou les plus efficaces;
- 4) quels courants de connaissances sont combinés dans certains contextes précis.

Notre stratégie consistait à définir le plus de liens possible entre les entreprises de recherche financées par l'État dans les établissements postsecondaires canadiens (tels qu'intégrés dans un grand nombre de « récepteurs »). Nous avons mené un sondage auprès d'un groupe de répondants actifs de sept universités au Canada. Nous avons ensuite classé et évalué qualitativement les résultats selon leurs caractéristiques sociales, procédurales, organisationnelles et économiques. Enfin, nous avons réalisé une analyse statistique pour aider à appuyer quantitativement les leçons apprises.

Notre étude portait sur les universités de recherche comportant la plupart des disciplines. Étant donné que les universités offrant des programmes de médecine et de doctorat ont désormais des profils analogues, nous avons supposé, pour nos propres besoins, que les caractéristiques de la recherche et du partage de connaissances révélées par le sondage mené dans sept universités (dans deux cas, elles sont tirées de catégories doctorales et, pour la plupart, de 1^{er} cycle) sont suffisamment représentatives. Les résultats montrent la présence de comportements similaires dans les différents établissements étudiés.

Voici les principales conclusions de notre étude :

- 1) Les activités de vulgarisation des connaissances auprès d'utilisateurs non universitaires sont nombreuses, à un

<p>sciences, humanities, and fine arts domains.</p> <p>3) The user profile shifts compared with STEM domains with greater emphasis on not-for-profit ('NGO') organizations and a reduced (but not minor) engagement with industry.</p> <p>4) Addressing an identified problem or need (96%) and pursuing research from curiosity (97%) are both sufficiently cited reasons for undertaking research as to imply overlap of the two motives.</p> <p>5) Benefits to knowledge users were commonly of a general nature with 70% reporting identification of specific beneficiaries, but only 40% identifying benefits in specific form.</p>	<p>degré comparable à ce que l'on trouve en sciences, en génie et en médecine (SGM).</p> <p>2) L'importance des interactions est similaire dans tous les domaines des sciences humaines et des arts.</p> <p>3) Comparativement aux domaines des SGM, les utilisateurs de la recherche sont davantage composés d'organismes sans but lucratif (ONG) que d'entreprises de l'industrie (quoique leur présence ne soit pas négligeable).</p> <p>4) Répondre à un problème ou à un besoin donné (96 %) et mener une recherche par curiosité (97 %) sont citées suffisamment souvent comme raisons pour entreprendre une recherche pour conclure que ces deux motifs de recherche sont présents simultanément.</p> <p>5) Les avantages des connaissances pour les utilisateurs sont habituellement de nature générale. En effet, si 70 % des répondants disent cibler des utilisateurs en particulier, seulement 40 % sont en mesure de décrire des avantages précis.</p>
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Brian Lewis

Simon Fraser University

Project Title

Evaluation of formal research networks

Project Summary

Science policy has increasingly turned to formal research networks (those with an organizational structure and mandate) as a mechanism to meet objectives such as collaboration, multidisciplinary and, more importantly, the linking of researchers and perceived relevant stakeholder communities (industry and population groups). Examples of such formal networks are the Networks of Centres of Excellence (NCEs) and the Major Collaborative Research Initiatives (MCRIs).

This project by Lewis, Holbrook and Wixted aims to develop an approach to evaluate the core policy objective of networks, that is, the networking. Our framework is to conceive of the different stakeholders in formal networks as clusters of actors, rather than as individuals connecting within social networks. From this starting point, the goal is develop tools to evaluate how well formal networks connect researchers with stakeholder communities and how well these channels carry information (communications).

One important dimension of our work program is to consider the effects of strong clusters of researchers or stakeholders (established centres or associations) on the performance of the network as opposed to the effects of weak clusters (geographically diffuse or nascent in development).

A background paper has been prepared and is available at:

www.sfu.ca/cprost/docs/wixtedholbrook08-1.pdf

Titre du projet

Évaluation de réseaux de recherche officiels

Résumé de projet

Les politiques scientifiques sont de plus en plus orientées vers les réseaux de recherche officiels (ceux qui possèdent une structure organisationnelle et un mandat), comme les Réseaux de centres d'excellence (RCE) et les Grands travaux de recherche concertée (GTRC), dans un souci d'atteindre des objectifs tels que la collaboration, la multidisciplinarité et surtout l'établissement de liens entre des chercheurs et des communautés d'intervenants considérées comme importantes (industrie et groupements de population).

Le projet de M. Lewis, de M. Holbrook et de M. Wixted consiste à élaborer une approche qui permet d'évaluer le principal objectif stratégique des réseaux, c'est-à-dire le réseautage. Notre cadre de travail vise à faire des intervenants des réseaux officiels des groupements de participants plutôt que des personnes en lien avec des réseaux sociaux. Pour y parvenir, il faut créer des outils permettant d'évaluer l'efficacité avec laquelle les réseaux officiels établissent des liens entre les chercheurs et les communautés d'intervenants ainsi que l'efficacité de ces moyens de communication.

Un aspect important de notre programme de travail consiste à tenir compte des effets que peuvent avoir des groupements de chercheurs ou d'intervenants importants (associations ou centres reconnus) et modestes (géographiquement dispersés ou à leurs débuts) sur le rendement du réseau.

On a préparé un document d'information, qui se trouve à l'adresse suivante :

www.sfu.ca/cprost/docs/wixtedholbrook08-1.pdf

Glen Lowry

Emily Carr Institute of Art + Design

<p>Project Title Research/creation outcomes and impacts</p> <p>Project Summary The purpose of this study was to assess Research/Creation Grants from the perspective of the recipients. Since its inception in 2003, the SSHRC three-year Research/Creations pilot project has funded 91 individual research projects and impacted the work of hundreds of researchers, co-investigators, collaborators and students.</p> <p>Our goal was to examine the effects of this SSHRC initiative on practice-based research in design, media, literature, and the visual and performing arts in various institutional contexts. Interviewing artist-researchers from across the country and situating our data in relation to a growing body of literature, we aim to generate an informed and nuanced discussion of the collocation of research and creation.</p> <p>We focus in this study on Research/Creation Grants as the impetus for methodological innovations in the development, translation and dissemination of new knowledge in areas of Canadian culture and cultural diversity. To this end, our research has helped to track and analyze the ways in which the SSHRC pilot project has begun to reconfigure the work of professional artists, designers and media creators in Canada's postsecondary institutions.</p> <p>Findings from the interviews and dialogues undertaken point to significant changes to the structures of visual art and design research and pedagogy that can be directly linked to receipt of Research Creation grants. Participants describe the funding as pivotal to their own creative and academic developments as well as to changing dynamics within their particular academic contexts. This point was especially important to creative-practice researchers employed in smaller, specialized, and art and design universities.</p>	<p>Titre de projet Résultats et impacts de la recherche-cr�ation</p> <p>R�sum� du projet L'objectif de cette recherche est d'�valuer les subventions de recherche-cr�ation du point de vue de ceux � qui s'adresse le programme. Depuis son lancement en 2003, le projet pilote en recherche-cr�ation du CRSH, d'une dur�e de trois ans, a servi � subventionner 91 projets de recherche individuels et a eu une incidence sur les travaux de centaines de chercheurs, de cochercheurs, de collaborateurs et d'�tudiants.</p> <p>Notre but est d'analyser les effets de cette initiative du CRSH sur la recherche pragmatique dans les domaines de la conception, des m�dias, de la litt�rature, des arts visuels et des arts de la sc�ne dans divers �tablissements d'enseignement. Par l'interm�diaire d'entrevues aupr�s de chercheurs-cr�ateurs de partout au pays et par la comparaison de nos donn�es avec un nombre croissant de publications, nous cherchons � amorcer une discussion inform�e et nuanc�e sur la coexistence de la recherche et de la cr�ation.</p> <p>Ce projet se penchera surtout sur les subventions en recherche-cr�ation comme �l�ment incitatif d'innovations m�thodologiques pour la cr�ation, la vulgarisation et la propagation de nouvelles connaissances dans les domaines de la culture canadienne et de la diversit� culturelle. Ainsi, le projet comptabilisera les fa�ons dont le projet pilote du CRSH a permis de former ou de restructurer le travail d'artistes, de concepteurs et de cr�ateurs m�diatiques professionnels dans les �tablissements postsecondaires canadiens.</p> <p>Les conclusions issues des entrevues et des conversations entreprises ont r�v�l� d'importantes modifications dans les structures de la recherche et de la p�dagogie en arts visuels et en design, une �volution directement attribuable � l'obtention de subventions de recherche-cr�ation. Les participants affirment que ce financement a �t� d�terminant pour leur d�veloppement cr�atif et scolaire ainsi que pour le changement de dynamique survenu au sein de leur milieu de recherche. Cet �l�ment �tait particuli�rement important aux yeux des chercheurs en pratique-cr�ation travaillant dans des universit�s de plus petite taille ou sp�cialis�es et dans des �coles d'art et de design.</p>
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Cheryl Misak

University of Toronto

Project Title

Performance Indicators Project

Project Summary

This project follows up on a report “Humanities on Performance Indicators” (HOPI) that was issued by an ad hoc committee of humanities chairs at the University of Toronto in 2006. The HOPI Report argues that the crafting of performance indicators in these fields stems from a number of factors: the importance of the book as an output of research; discipline-specific variability in the most prestigious presses and journals; and the “essential contestability” of humanities research. The HOPI report concludes that merely quantitative measures of performance evaluation are inadequate for humanities research. The report calls for a combination of qualitative and quantitative measures that reflect how humanists actually assess one another’s work. A pilot project followed up on the report by collecting data related to book publication and major awards in several humanities departments at the University of Toronto.

The current Indicators Project will expand both the number of departments involved and the kinds of data collected, in particular by including press and journal quality assessments. Special attention will be paid to the difficulties of developing adequate performance indicators for multidisciplinary departments, interdisciplinary work and work in languages other than English or French.

Titre de projet

Projet d’indicateurs de rendement

Résumé de projet

Le projet d’indicateurs de rendement dans le domaine des sciences humaines de l’University of Toronto fait suite à un rapport intitulé *Humanities on Performance Indicators*, produit en 2006 par un comité spécial formé de titulaires de chaires en sciences humaines de l’université. Le rapport soutient que l’établissement d’indicateurs de rendement dans ce domaine s’inspire de différents facteurs : avère difficile puisque la recherche en sciences humaines est constamment sujette à la contestation. Ce type de recherche n’a généralement pas comme objectif d’expliquer le monde, mais plutôt de découvrir son sens. Toutefois, les désaccords raisonnables concernant le sens sont inévitables. Le rapport conclut que de simples critères de rendement de nature qualitative ne suffisent pas à la recherche en sciences humaines. Le comité avance qu’il est nécessaire de combiner des critères qualitatifs et quantitatifs qui rendent compte de la façon dont les chercheurs en sciences humaines évaluent véritablement leurs travaux. À la suite de la publication du rapport, un projet pilote a été mis sur pied afin de recueillir, auprès d’universitaires dans plusieurs départements de l’University of Toronto, des données relatives à la publication de livres et à l’attribution de prix importants.

Le projet décrit ici visera un plus grand nombre de départements et recueillera un plus grand éventail de données que le projet pilote, plus spécifiquement par la prise en compte des évaluations de la qualité des maisons d’édition et des revues. Une attention particulière sera accordée aux difficultés liées à la création d’indicateurs de rendement pertinents pour les départements multidisciplinaires, le travail interdisciplinaire et les activités qui s’effectuent dans des langues autres que le français et l’anglais.

Anwar Naseem

McGill University, Macdonald Campus

Project Title

Public-private research partnerships: Evaluating research supported by Agriculture and Agri-Food Canada's (AAFC) Matching Investment Initiative (MII)

Project Summary

Publicly funded agricultural research in Canada has undergone significant change over the past three decades, precipitated by budgetary cutbacks and changing research agendas. One major development has been the increasing role of the private sector in funding and performing agricultural research—research that traditionally has had strong public-good characteristics and hence formed the basis for government support and intervention.

These changes have important policy implications for Canada's agricultural research system as it affects how research is financed, who conducts it, the scope and scale of technological developments and how technologies developed in government labs are transferred to industry for commercialization. Partly as an acknowledgement of these realities, AAFC in the early 1990s began a cost-sharing program—the Matching Investment Initiative (MII). This was perceived as a way of promoting joint research activities with industry that would not only shore up AAFC's finances but also introduce more market-oriented research activities that would deliver commercially attractive technologies. Despite almost 15 years of experience with MII and more than 3,000 projects, the MII has not been carefully evaluated for its effect on AAFC research priorities and for its economic impact. This is surprising as the program may have important policy lessons not only for agricultural research but also for public-private partnerships in other federal science departments.

The objective of this project is to examine and evaluate AAFC's public-private partnership program with a view towards addressing:

- how the program has affected the direction, magnitude and scope of research among the public and private partners;
- whether MII has fostered technology transfer;
- whether MII effectively meets the research needs of

Titre du projet:

Partenariats de recherche entre les secteurs public et privé : évaluer la recherche financée par le Programme de partage des frais d'Agriculture et Agroalimentaire Canada (AAC)

Résumé du projet

La recherche agricole canadienne financée par l'État a connu de profonds changements au cours des trois dernières décennies, lesquels se sont accélérés en raison de contraintes budgétaires et de l'évolution des programmes de recherche. Un important développement a été le rôle de plus en plus grand joué par le secteur privé quant au financement et à la poursuite de travaux de recherche agricole - traditionnellement axés sur le bien public et représentant donc le cœur du financement du gouvernement et des mesures qu'il prend.

Ces modifications comportent d'importantes implications politiques pour le système de recherche agricole canadien, car elles déterminent le mode de financement de la recherche, les personnes qui y participent, la portée et l'envergure des progrès technologiques ainsi que la manière dont les technologies mises au point dans les laboratoires gouvernementaux sont transférées dans l'industrie à des fins commerciales. Au début des années 1990, notamment dans le but de tenir compte de ces réalités, AAC a mis sur pied un programme de partage des coûts - le Programme de partage des frais - afin de promouvoir une collaboration de recherche avec l'industrie qui non seulement consoliderait ses propres finances, mais comprendrait davantage d'activités axées sur le marché offrant des technologies commerciales attrayantes. Après 15 années d'existence du Programme et plus de 3 000 projets, on n'a toujours pas évalué avec soin les effets de ce dernier sur les priorités de recherche d'AAC et son impact économique. Cela est surprenant, car on pourrait tirer d'importantes leçons stratégiques du Programme en ce qui concerne la recherche agricole et les partenariats financés par l'État au sein d'autres ministères fédéraux à vocation scientifique.

L'objectif du projet consiste à évaluer le programme de partenariat d'AAC établi entre les secteurs public et privé en tenant compte des points suivants :

- déterminer l'influence que le projet a eue sur l'orientation, l'envergure et la portée de la recherche chez les partenaires des secteurs public et privé;

<p>small producers and producers of specialty crops.</p> <p>The project methodology will analyze and document trends related to the type of projects supported (and not supported), the characteristics of the project partners, and the beneficiaries of the technologies that are developed. By examining such trends, we will be able to assess whether the MII has aided technology development and dissemination and how the benefits have been distributed.</p>	<ul style="list-style-type: none"> • déterminer si le Programme a favorisé un transfert de technologie; • déterminer si le Programme répond efficacement aux besoins de recherche des petits producteurs et des producteurs de cultures spéciales. <p>Dans le cadre du projet, on analysera et documentera les tendances liées au type de projets financés (et non financés), les caractéristiques des partenaires de projet et la clientèle des technologies mises au point. En étudiant ces tendances, nous serons en mesure de déterminer si le Programme a contribué à la conception et au partage de technologies ainsi que comment ces avantages ont été offerts.</p>
<p>David Phipps York University</p>	
<p>Project Title</p> <p>Design, dissemination and evaluation of research summaries</p> <p>Project Summary</p> <p>In social sciences and humanities, the principal investigator of every SSHRC Standard Research Grant (SRG) must submit a final research report. These one-page research summaries vary in quality, format, language and utility. They are not always effective tools for knowledge mobilization as they neither systematically capture the results of the research nor do they clearly communicate the impact of this research to different audiences.</p> <p>Working from the research summaries of completed York University SSHRC SRGs, my overall objective is to design an effective format and dissemination strategy for research summaries to maximize their ability to capture and communicate research results to research user communities.</p> <p>Since 2008 we have produced over 170 Research Snapshot clear language research summaries. We are now working with the University of Guelph, the Centre for Addictions and Mental Health and the Ontario Knowledge Network for Applied Education and Research, training their staff and students to produce an estimated 300 new Research Snapshots.</p>	<p>Titre de projet</p> <p>Conception, diffusion et évaluation des sommaires de recherche</p> <p>Résumé de projet</p> <p>Dans le domaine des sciences humaines, le chercheur principal de chaque subvention ordinaire de recherche (SOR) du CRSH doit déposer un rapport de recherche final. Ce sommaire de recherche d'une page, dont la qualité, la forme, la langue et l'utilité varient, n'est pas toujours efficace pour la mobilisation des connaissances : non seulement ne saisit-il pas systématiquement les résultats de la recherche, mais il n'en communique pas clairement les incidences aux différents auditoires.</p> <p>À partir des sommaires de recherche des projets couverts par les SOR du CRSH attribuées à York, l'objectif global du projet de York est d'élaborer un format efficace ainsi qu'une stratégie de diffusion des sommaires de recherche pour optimiser la capacité de saisir les résultats de la recherche et de les communiquer dans les milieux susceptibles de les utiliser.</p> <p>Depuis 2008, nous avons produit plus de 170 aperçus de recherche en langage clair. Nous travaillons présentement avec l'University of Guelph, le Centre de toxicomanie et de santé mentale et le Réseau d'échange des connaissances pour la recherche appliquée en éducation à la formation du personnel et des étudiants dans le but de produire 300 autres aperçus.</p>

John Robinson

University of British Columbia

Project Title

Measuring the societal effects of problem-oriented participatory sustainability research

Project Summary

Given the increase in publicly funded sustainability and climate change research involving non-academic partners, the question about the effectiveness of participatory approaches becomes more paramount for funding agencies.

The proposed project introduces and demonstrates a methodology for capturing the societal effects of publicly funded participatory sustainability and climate change research. We propose an innovative methodology that integrates the measurement and aggregation of multiple-effect variables, e.g., knowledge, networks, and decision capacity and policy, ideally in a pre- and post-evaluative design. To allow for straightforward comparisons between research projects, we propose an aggregated index, the Societal Effect Index (SEI), complementary to standard bibliometric measures such as the Citation Index. The project outlines the challenges encountered when applying this methodology during the evaluation of three empirical sustainability research projects in Canada and proposes strategies to cope with these challenges.

Titre de projet

Mesurer les effets sociétaux de la recherche participative en matière de durabilité axée sur les problèmes

Résumé de projet

Compte tenu de l'augmentation des activités de recherche subventionnées par les fonds publics en matière de durabilité et de changement climatique, auxquelles participent des partenaires non universitaires, la question de l'efficacité des approches participatives acquiert une grande importance pour les organismes subventionnaires.

Le projet proposé présente et démontre une méthodologie qui permet de cerner les effets sociétaux de la recherche participative subventionnée par les fonds publics en matière de durabilité et de changement climatique. Nous proposons une méthodologie novatrice, qui intègre la mesure et le regroupement d'une multitude de variables (par exemple le savoir, les réseaux, la capacité de prise de décision et la politique décisionnelle), idéalement dans un cadre qui permet une évaluation a priori et a posteriori. Afin de simplifier la comparaison entre les projets de recherche, nous proposons un indice global, un index d'effet sociétal, qui est complémentaire aux mesures bibliométriques habituelles, notamment l'index des citations. Ce projet expose les difficultés associées à l'application de cette méthodologie pendant l'évaluation de trois projets de recherche empiriques sur la durabilité au Canada et propose des stratégies pour les surmonter.

Murray Rudd

Sir Wilfred Grenfell College,
Memorial University of Newfoundland

Project Title

Quantifying non-market benefits to Canadians of social sciences and humanities research investments

Program Summary

Murray Rudd proposes to apply the methods that economists commonly use to understand and quantify non-market benefits of social sciences and humanities research investments. Using surveys, he will produce a snapshot of the public's willingness to pay for social sciences and humanities research. His research will help build an understanding of where the public expects to see or feel the impacts of social science and humanities research.

Titre de projet

Quantifier les retombées non commerciales des investissements faits dans la recherche en sciences humaines pour les Canadiens

Résumé de projet

Murray Rudd se propose d'appliquer les méthodes couramment utilisées par les économistes afin de comprendre et de quantifier les retombées non commerciales des investissements faits dans la recherche en sciences humaines. Grâce à des sondages, il pourra donner un aperçu de la volonté du public à « payer » pour la recherche en sciences humaines. Ses travaux contribueront à mieux comprendre les attentes du public, c'est-à-dire dans quels secteurs et de quelles façons ce dernier souhaite que l'impact de la recherche en sciences humaines se fasse sentir.

Nadine Wathen

The University of Western Ontario

Project Title

Evaluating the impact of research evidence on decision-making in the area of violence against women

Project Summary

This project will assess the uptake and use of the results of a randomized controlled trial on the effectiveness of screening, in health-care settings, for exposure to intimate partner violence against women (IPV), as well as data from a number of related projects regarding the health sector's response to woman abuse. This builds on ongoing work by our group to synthesize research results into key messages appropriate for various kinds of stakeholders, including policy-makers, health-care providers, women's advocates and members of the public. Our knowledge translation strategies are multifaceted, including traditional dissemination methods, as well as targeted and interactive knowledge-sharing among established networks of stakeholders. Using case-study methodology and mixed-methods data collection approaches, we will evaluate whether and how our strategies are working, and whether the research knowledge is influencing decision-making in this area. Innovative approaches, including an online community of interest, social network analysis and knowledge mapping, will be applied

Titre de projet

Évaluer l'impact qu'ont les résultats de recherche sur la prise de décisions concernant la violence faite aux femmes

Résumé de projet

Dans le cadre de ce projet, on évaluera la compréhension et l'utilisation des résultats d'un essai clinique comparatif aléatoire portant sur l'efficacité du dépistage, dans divers milieux de soins de santé, de l'exposition à la violence faite aux femmes par des partenaires intimes ainsi que des données tirées de nombreux projets connexes portant sur l'intervention du secteur de la santé en matière d'abus commis à l'endroit des femmes. Cela s'inspire de travaux que mène présentement notre groupe afin de synthétiser les résultats de recherche pour en faire d'importants messages destinés à divers types d'intervenants, notamment les responsables de l'élaboration de politiques, les prestataires de soins de santé, les défenseurs des femmes et le public. Nos stratégies d'application des connaissances comportent de multiples aspects, entre autres des méthodes de diffusion classiques ainsi qu'un partage de connaissances ciblé et interactif au sein de groupes d'intervenants et de réseaux établis. À l'aide d'une méthodologie axée sur l'étude de cas et d'approches de collecte de données à méthodes variées, nous déterminerons à quel point nos stratégies ont du succès et si les connaissances issues de la recherche ont un impact sur la prise de décisions dans ce secteur. Pour ce faire, on fera appel à des approches novatrices, notamment une communauté d'intérêts en direct, l'analyse du réseau social et la cartographie du savoir.