

CONCEPTUALIZING RESEARCH IMPACT: THE CASE OF EDUCATION RESEARCH

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Abstract: This qualitative study aims at conceptualizing research impact generally by studying the specific case of research impact in the field of education. An analysis process akin to grounded theory was applied to the analysis of sections of reports provided by educational researchers. Literature on the subject of research impact was used to substantiate and complete the portrait of educational research impact that emerged from the data. The resulting conceptual framework proposes five interdependent stages, each one characteristic of certain categories of research impact that are typically interrelated in time and in terms of researcher control. It is hoped that this conceptual framework will help program evaluators and researchers tackle the larger task of uncovering and arguing the meaningfulness of alternative ways of measuring the impacts of research in the social sciences and humanities.

Résumé : Cette étude qualitative vise à conceptualiser l'impact de la recherche en général, en étudiant le cas particulier de l'impact de la recherche dans le domaine de l'éducation. Un processus d'analyse inspiré de l'approche de la théorie à base empirique a été appliquée à l'analyse de sections de rapports fournis par des chercheurs en éducation. La littérature portant sur l'impact de la recherche a servi à appuyer et à compléter le portrait de la recherche en éducation émergeant des données. Le cadre conceptuel produit propose cinq stades interdépendants, chacun représentant différents types d'impact de la recherche qui sont généralement interdépendants en terme de temps et de contrôle exercé par le chercheur. Il est souhaité que ce cadre conceptuel aidera les évaluateurs de programmes ainsi que les chercheurs à entreprendre la tâche plus considérable de découvrir et débattre le sens d'alternatives servant à mesurer les impacts de la recherche dans le domaine des sciences humaines et sociales.

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Those in social science research — producers, funders, or (potential) users — are increasingly aware of the limitations of simple models (descriptive or prescriptive) of research use and research impact. There are concerns about the narrowness of existing assessments of the impact of social research, such as RAE [Research Assessment Exercise] assessments, bibliometrics, and citation counts. The diversity of social science research, and the complexity of the means by which research findings may come into use, make understanding and assessing non-academic research impacts a challenging task. (Davies, Nutley, & Walter, 2005, p. 4)

As a performance and evaluation officer at the Social Sciences and Humanities Research Council of Canada (SSHRC), I participate in the evaluation of the Council's research funding programs. Evaluation issues of interest in this context include program purpose, design and delivery issues, and program impact. It is the evaluation of program impact, and more specifically the measurement of the impacts of the research funded by SSHRC, that has proven over the years to be one of our greatest evaluation challenges. Through its evaluation policy (Treasury Board of Canada Secretariat [TBS], 2001) and policy on transfer payments (TBS, 2000), the Treasury Board of Canada requires that all federal government departments and agencies track and report on the performance and results of their programs. The assessment of research impacts that can be attributed (directly or indirectly) to SSHRC's research funding programs is therefore a key and growing concern.

Although the craft of research evaluation (i.e., the evaluation of research funding programs, of programs of research, and of the outcomes and impacts of research) has been evolving over the past 20 years (Cozzens, 2002), its focus has largely been on the evaluation of research in the areas of science and technology, as opposed to research in the social sciences and humanities. This observation is consistent with the conclusions of a 1999 study commissioned by the Canadian Federation for the Humanities and Social Sciences (CFHSS), which examined what was being done to assess the impact of research in the humanities and social sciences (Hart, Lang, Watson, & Oldfield, 1999). The study noted the need for additional research in the area of research impact measurement in the social sciences and humanities, and pointed out that, although we can learn from what is being done in the areas of science and technology, there is a need to develop impact indicators specific to the social sciences and humanities that

are viable and reliable. More recently, the report from a symposium on assessing the non-academic impact of research hosted by the United Kingdom's Economic and Social Research Council (ESRC) appeals for new ways of assessing research impact, and calls for the development of clear frameworks that model the processes of communicating and using research findings (Davies et al., 2005).

The overall lack of a solid body of knowledge on understanding, describing, and measuring research impact in the social sciences and humanities (Davies et al., 2005; Hart et al., 1999) and its related disciplines and fields of study — such as education (National Educational Research Forum, 2000) — leaves SSHRC and other social sciences and/or humanities research granting agencies around the world in a very vulnerable position. This is also true for health research funding agencies, which face challenges similar to those of social sciences and/or humanities research funding agencies, namely defining causal links, measuring value (monetary or other) of research results, attribution, and multiple stakeholder priorities (Canadian Institutes of Health Research [CIHR], 2005). These challenges are currently being tackled through a variety of means such as special studies, funding initiatives, and/or workshops and events launched by research funding organizations or other stakeholders around the world (e.g., American Academy of Arts & Sciences, 2002; Council for the Humanities, Arts & Social Sciences [CHASS], 2005; Davies et al., 2005; Organisation for Economic Co-operation and Development [OECD], 2006; SSHRC, 2006; UK Evaluation Forum, 2006).

PURPOSE OF THE STUDY

The broad purpose of the qualitative study reported here is to contribute in a small but hopefully meaningful way to the burgeoning body of knowledge on the impacts of research in the social sciences and humanities. The more specific purpose of this study is to better understand research impact generally, by studying the specific case of research in the field of education. Using a qualitative analysis approach akin to the grounded theory approach as advanced by Strauss and Corbin (1998), I attempted to conceptualize research impact in the field of education by drawing on two main sources of data: sections of reports provided by researchers working in the field of education and funded through SSHRC, and scholarly and grey literature on the subject of research impact. This article presents the conceptual framework that has emerged from this study. It is my hope that this

framework will help feed into the larger task of uncovering and arguing the meaningfulness of alternative ways of measuring the impacts of research, by first providing a description of research impact in a particular field.

METHOD

Analytical Approach

Strauss and Corbin (1998) tell us that qualitative research “can be used to explore substantive areas about which little is known” (p. 11), and Maxwell (2005) reminds us that generating results (or in this case, drawing out a description of research impacts) that are both “understandable and experientially credible” (p. 24) is a practical goal that is particularly well suited to qualitative research.

In terms of the epistemological stance that has framed this study, I have taken a pragmatic approach, as described by Patton (2002), which advocates the breaking down of paradigm allegiances as a way of increasing methodological options, and the judging of a piece of research on its quality and intended purpose, procedures, and results, taking into account the goals of the study, the context in which the study was completed, and its intended audience. This approach emphasizes methodological appropriateness rather than orthodoxy – in essence, doing what makes sense.

As such, I searched for the qualitative method or methods that would make the most sense for this study. I was particularly interested in documenting what emerged from researchers’ own descriptions of the impact of their work, as opposed to coding for what has already been identified as impacts in the literature. As a result, I made use of an analytical approach akin to grounded theory (Strauss & Corbin, 1998), which is further described below.

Grounded theory, as defined by Strauss and Corbin (1998), involves the derivation of theory from data, which is “systematically gathered and analyzed through the research process” (p. 12). This method encourages researchers to begin *without*¹ a pre-conceived theory in mind, and emphasized both critical and creative thinking. Although Strauss and Corbin put forward very detailed and systematic procedures, they point out that “these procedures were designed not to be followed dogmatically but rather be used creatively and flexibly by researchers as they deem appropriate” (p. 13). The analytical approach that I

applied to this study differed from the grounded theory approach in two ways: (a) the purpose of the analysis was to develop a conceptual framework, not a theory²; and (b) I applied those parts of the grounded theory approach that relate to the early phases of theory development – open coding and axial coding, and, to some degree, coding for process (Strauss & Corbin, 1998). I therefore stay at a very descriptive level, while allowing early thoughts on the process through which research impact occurs to emerge. Further details on the analytical approach follow the description of the data sources below.

Data

As previously mentioned, I drew from two main sources of data for this study. I requested access to data collected through SSHRC's Final Research Report (FRR), which must be completed for all funded research projects six months after the end of a grant. This report collects both quantitative and qualitative data on research results and impacts, such as the number of publications that have resulted from the grant, and descriptions of the impacts that have been achieved to date. I was interested in two of the report's questions. The first question asked researchers to summarize their research results and their general significance for Canadians, while illustrating actual and/or potential impacts that could be attributed to these findings. The second question asked researchers to discuss any additional impacts not previously mentioned in the report. Fifty-one sets of answers, stripped of all identifying information such as file number and researcher name, and restricted to projects funded under SSHRC's Standard Research Grants (SRG) program in 1999³ in the field of education (adjudicated under the two committees for the field), were extracted from the database.

These data represent the responses of 62% of the projects in the field of education that received funding in 1999 (51 of 82 had submitted FRRs at the time of this analysis). Table 1 provides an overview of the degree to which the projects for which FRRs have been submitted are representative of all 1999 SRG-funded projects in the field of education, according to three variables of interest (province, area of research within the field of education, and language of application). I would note, however, that these variables do not speak to possible differences related to research impact, and do not give a sense of whether or not these projects represent well the range of research projects that are conducted in the field of education as a whole. I would therefore say that the sample of 51 is one of convenience, but

one that is reasonably representative of the research projects in the field of education that were funded by SSHRC in 1999, and covers a number of areas of research within the broad field of education. Although the sample limits the generalizability of the conceptual framework that has emerged from this study, this limitation is in part mitigated through the use of scholarly and grey literature to

Table 1
Comparison of All Projects Funded by SSHRC in the Field of Education (Standard Research Grants Program, 1999 Competition) to Those Projects That Submitted Final Research Reports

	Proportion of all projects funded (%) (<i>N</i> = 82)	Proportion of projects that submitted a Final Research Report (%) (<i>N</i> = 51)
Province		
Québec	40.3	45.1
Ontario	23.2	21.6
British Columbia	19.5	15.7
Alberta	11.0	11.8
New Brunswick	2.4	0
Nova Scotia	2.4	3.9
Manitoba	1.2	2.0
Area of Research		
Education	73.2	74.5
Children and Youth	6.1	7.8
Employment and Labour	4.9	5.9
Other	3.6	0
Family	2.4	3.9
Arts and Culture	1.2	2.0
Health	1.2	0
Literacy	1.2	0
Management	1.2	0
Multiculturalism and Ethnic Studies	1.2	2.0
Politics and Government	1.2	0
Science and Technology	1.2	2.0
Women	1.2	2.0
Language		
English	72.0	72.5
French	28.0	27.5

substantiate and complete framework elements. I describe this second data source below.

I identified scholarly and grey literature on the subject of research impact generally, then on research impact specific to the field of education through the use of four methods: (a) a keyword search of the Educational Research Information Center (ERIC) database; (b) a keyword search of the World Wide Web through the Google search engine; (c) an examination of reference lists of documents identified through the first two methods in order to locate other items of interest; and (d) an examination of the table of contents of scholarly journals in which items of interest were published, in order to locate additional items covering similar content. This resulted in over 40 items of interest. I proceeded to a cursory review of these items in order to select a manageable number of high-relevance items that could be analyzed more thoroughly. Seven such items were retained and content analyzed in order to extract findings related to the impact of research in the social sciences and humanities, and/or related specifically to the impact of research in the field of education.⁴ A summary description of these items is presented in Table 2.

Data Analysis Procedure

Adapting the grounded theory approach as described by Strauss and Corbin (1998) to the particular needs of this study, I analyzed the FRR data using three overlapping and interrelated analysis processes:

1. *Open coding*: This preliminary, exploratory process seeks to allow concepts to emerge from the data. Through the identification, comparison, and categorization of descriptions of research impact, I began to develop an understanding of the phenomenon of research impact in the field of education, and to establish ways of describing it. Open-coding also involved identifying the properties or characteristics of various categories of research impact. For instance, if “scholarly publication” is a category, then “peer-reviewed” would be a characteristic.
2. *Axial coding*: Axial coding involves the building of connections through relating categories to possible subcategories of descriptions of research impact at the level of their properties or characteristics. For instance, “journal article,” which shares the characteristic of “peer-reviewed” with “scholarly publication,” but fits within the broader category of “scholarly publication” can be thought of as one of its subcategories.

Table 2
Summary description of scholarly and grey literature on research impacts

Author(s)/Year	Type	Purpose/ Research Ques- tions	Design/ Research Methods	Relevant Findings
Taylor (1981)	Peer-reviewed, scholarly essay	Describe/classify educational research and development in the United Kingdom, its impact and future prospects	N/A	<ul style="list-style-type: none"> • Lack of pathways of information and influence that connect process and outcomes of research to practice — links more or less direct • Gaps in understanding of how research influences and is influenced by institutions and processes • Distinction between different kinds and levels of research impact in terms of duration, audience, and generalizability • Immediate impact through media attention • “Residue” of findings — over-simplification and misuse; entrance into knowledge base • Early impacts may influence potential long-term impact • Process of impact slow, expensive, sometimes inefficient • Cumulative effect to be seen not only in size of bibliographies and extent of specialization required to be knowledgeable in a field, but also in impact on understanding and judgement in decision-making • Increased awareness of effects of research diffusion/dissemination, collaboration across organizations, and lack of resources for educational research on research impact
Ormaia (1994)	Peer-reviewed, scholarly essay	Describe assessment of science and technology research impact and impact of other innovation policy measures in Europe	N/A	<ul style="list-style-type: none"> • Research and innovation mainly aimed at contributing to scientific progress and economic and social development • Impacts are dependent on/related to context • Impact can be measured at point in time or over medium/long term • Important to distinguish between levels of impact (e.g., organizational, national) • Complexity of impact exemplified through identification of “impact dimensions”: <ul style="list-style-type: none"> o Competitiveness and exploitation/market-related effects o Individual and organizational learning effects and behaviour changes o Impact on norms/standards o Structural effects

Author(s)/Year	Type	Purpose/ Research Ques- tions	Design/ Research Methods	Relevant Findings
				<ul style="list-style-type: none"> o Social effects o Contribution to knowledge base, scientific progress, academic institutions, and human capital • Issue of externalities and additionality in impact assessment
Department of Education, Training and Youth Affairs (DETYA) (2000)	Set of five studies (four commissioned by DETYA, one contributed by academic researcher)	Assess impact of educational research in Australia; explore the nature and value of the relationship between educational research and the teaching profession	Review of journal and citation indexes; questionnaires; surveys; interviews; observations; document analysis	<ul style="list-style-type: none"> • Evidence of impact of research on Australian education • Over 60% of publications reviewed dealt with school-level education • Evidence of direct links between producers and users of research • Evidence of research responsiveness to government/school priorities, of growth in the use of (and interest in using) research to inform policy-making, and of encouragement of research frame of mind • At school level, influence indirect, except in case of action research; evidence of burden of research on schools • Policy-makers/school administrators turned to researchers for information, whereas individual educators rely on readily available information • Ways of linking researchers/research to users include conferences, task forces, reports, media coverage, and internet sites • Research will be used if it is easily accessible during active search for information • Application of research requires interventions both on the part of producers and users — researchers argue need for shift in what is valued at university level • Evidence of direct and indirect influence of research on teaching practice; evidence of impact of direct involvement in research on use of research in teaching practice and of increase in practitioner involvement in research • Publication activity/citations noted as important measure of vibrancy of research, offering insight into quality, international competitiveness, and areas of strength • Evidence of high proportions of publications in areas of direct interest to practitioners such as teaching practice, educational policy making, administration — high applied nature of research • Relationship between educational research and practice not linear — rather a multi-layered, unpredictable, interacting process of engagement between researcher and educator • Impact more a question of effective and responsive linkages

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Author(s)/Year	Type	Purpose/ Research Ques- tions	Design/ Research Methods	Relevant Findings
National Educational Research Forum (2000)	Working docu- ment	Argue that impact is an important theme in educational research; im- prove language/ concepts to discuss/analyze /further develop concept of im- pact; increase commitment to examine ways of increasing impact on policy/practice; stimulate discus- sion/debate	Document review, expert witnesses	<ul style="list-style-type: none"> • Small literature on impact on educational research on policy and practice • Impact of research as seen through the eyes of four communities of interest: <ul style="list-style-type: none"> o <i>Researchers</i>: impact on members of their own community; initiate/contribute to body of knowledge; stimulate further research; production of books/scholarly articles; intention that research findings have impact on other communities o <i>Funders</i>: meeting accountability requirements; encourage further support o <i>Policy-makers, practitioners</i>: intended impact on policy or practice o <i>Media/educational publishers or producers</i>: ensure commercial advantage; increase pressure for renewed funding; devise teaching materials based on findings • Dissemination does not necessarily lead to impact • Impact may be direct or indirect • Simple linear models of the process from research to impact misrepresent this interactive process • Impact is likely influenced by: involvement of intended audiences in early stages of research; support and encouragement by funders of dissemination and application of findings; the beliefs held by intended audiences; the characteristics of the knowledge; the absorptive capacity of the intended audiences and their ability to turn knowledge into action.
Organisation for Economic Co-operation and Develop- ment (OECD) (2002)	Examiners' report	OECD review of educational research and development in England, focusing on the contribution of educational R&D to the educa- tional knowledge base	Expert review team conduct- ing interviews, site visits, document reviews	<ul style="list-style-type: none"> • Basic purpose of educational R&D seen as developing, organizing, and disseminating knowledge that informs understanding of fundamental processes of education, thus improving the educational system • Characteristics of educational research system linked to use/application (thus impact): <ul style="list-style-type: none"> o System produces applied as well as basic research o Knowledge developed is of high quality and available to potential users o System is well resourced to effectively meet user needs o Products of system are useful for improving effectiveness of schools

Author(s)/Year	Type	Purpose/ Research Ques- tions	Design/ Research Methods	Relevant Findings
Levin (2004)	Peer-reviewed, scholarly essay	Provides view of nature of impact and examples of impact of research in education. De- velops model of research impact	N/A	<ul style="list-style-type: none"> • Contribution of research mediated through broader social/political processes • Characteristics of education affect role research can play • Education has less history of basing policy and practice on research than do some other fields • Research impact occurs over extended periods of time • Impact does not usually occur through direct contact between research and policy-maker—third-party knowledge delivery mechanisms include the media, professional development, etc. • Use of research embedded in personal/organizational beliefs/practices • Three elements to research impact: context of research production; context of research use; connections and interactions between these contexts. These elements sit within larger social context • Impediments to research impact identified (from review of developments in US, Canada, Britain, work of OECD): Insufficient research often narrowly conceived; limited capacity to use research; inadequate linkages
Davies, Nutley, & Walter (2005)	Symposium report	Summary of findings of Economic and Social Research Council (ESRC) symposium on assessing non- academic impact of research	N/A	<ul style="list-style-type: none"> • Several starting points for assessment of research impact: <ul style="list-style-type: none"> o <i>Forward looking</i>: how research outputs/findings make their way into user community and impact there o <i>Looking back</i>: understanding extent to which decisions and actions are impacted by research o <i>Link to initiatives</i>: focus on assessing success of initiatives to increase research use • Categories of outputs/expected impacts of research: <ul style="list-style-type: none"> o Knowledge production o Research capacity building o Policy or product development o Sector benefits o Wider societal benefits • Non-academic research impact relates to influences on policy, managerial and professional practices, social behaviour or public discourse — impact may be instrumental (changes in policy/practice/behaviour) or conceptual (changes in knowledge/understanding/attitude) • Symposium discussion emphasized that research impact not be seen as end-stage activity — more researchers engaging users throughout research process

3. *Process coding*: Throughout the process of open and axial coding, I tried to see how the categories and subcategories of research impact related to and interacted with each other in terms of timeline and logical sequence. For instance, although the impact category “research capacity” appeared to occur throughout the research process, “scholarly publication” tended to appear later. I also strived to create groupings of categories according to process similarities, which resulted in the identification of a number of overlapping, interdependent, and not necessarily sequential phases or stages of research impact.

In coding the data, I was careful to note descriptions of research impact that represented a category or subcategory exceptionally well. I have reproduced many of these exemplar descriptions in the results section of this article.

For practical reasons, I engaged in the analysis process in fits and stops over a number of weeks, and used time between sessions of analysis to contemplate and digest the data, and to reflect on how the analysis process was affecting my thoughts and ideas. Strauss and Corbin (1998) suggest that “[a]nalysis is the interplay between researchers and data” (p. 13) — this resulted in a number of research memos containing drafts of conceptual frameworks, theoretical musings, and ideas on how to interpret and present what was emerging from the data.

RESULTS

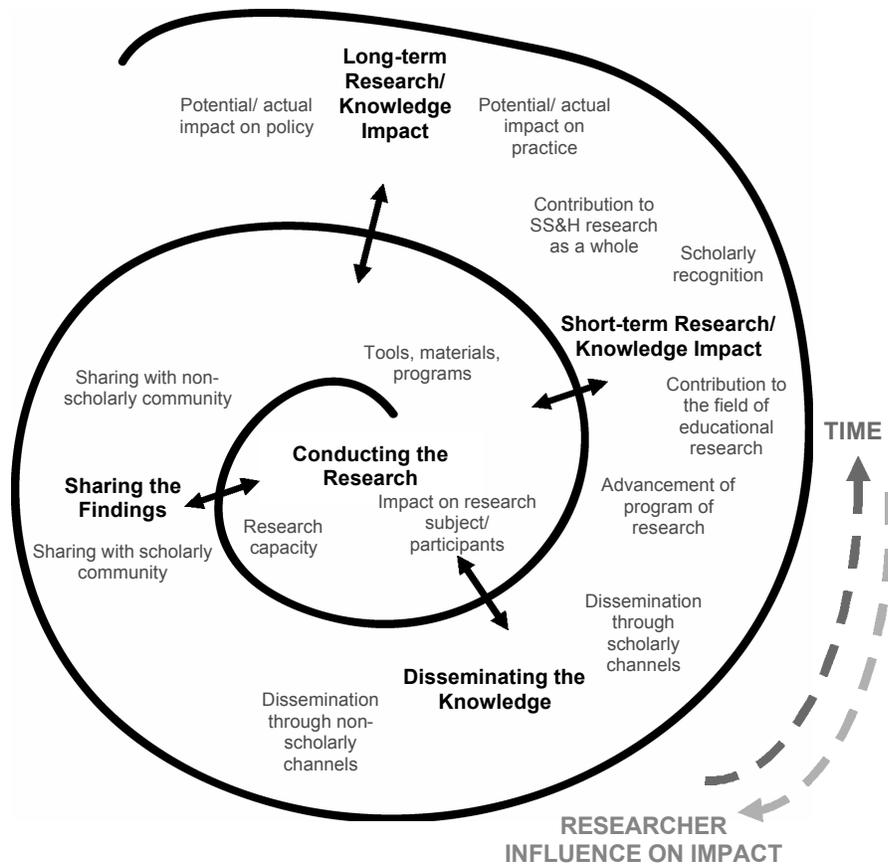
The final version of the conceptual framework that emerged from the analysis of project data is presented in Figure 1. It should be noted that findings from the content analysis of scholarly and grey literature were used to substantiate and complete framework elements.

Through this figure, I present five interdependent stages in the process of research impact, each stage characteristic of certain categories of research impact that are typically interrelated in time (as noted in the framework), but that need not be limited to a single stage. These stages are also related to each other in terms of the degree to which the researcher (or research team) has influence on possible impacts — the farther one moves away from the core of the spiral, the more external factors play a role in whether or not impact will occur. Although the conceptualization of research impact in terms of dimensions of time and influence may limit the degree to which

this figure is representative of the lived experience of researchers in the field of education, these dimensions will play an important role in determining *how* and *when* (Ormala, 1994) to measure research impact, and as such it is important to include them in the conceptual framework.

In the paragraphs that follow, I will try to convey the soundness of the framework presented in Figure 1 in describing the impact of research in the field of education. It should be noted that, for the purposes of this analysis, *research impact* refers to the contribution of research through its process, findings, products or outputs, and outcomes to *making a difference* (adapted from Levin, 2004) — in other words, to

Figure 1
Conceptual Framework of Research Impact in the Field of Education



affecting or influencing change in the status quo. Although *research results* has been used to encompass outputs, outcomes, and impacts of research (e.g., Garrett-Jones, 2000), it has been my experience that this term creates confusion for researchers who interpret it as limited to their research findings and outputs, rather than to longer-term outcomes or impacts. Although the examples provided in the following paragraphs note instances of positive impact, it should be noted that impact need not always be positive (National Educational Research Forum, 2000; Taylor, 1981).

Conducting the Research

The categories of impacts that are characteristic of this phase result from the very process of conducting a research project. Three main categories of such impacts have emerged from the data. *Research capacity* refers to the increase in knowledge and research skills acquired by those participating in the research process. This is not limited to the training of students; researchers, as well as non-academic research collaborators, partners, and research subjects who participate actively in the conduct of research (as is the case in action research) stand to gain much more than training from this experience, as is exemplified in the following statement:

In 2002–03 and 2003–04, four kindergarten teachers who participated in this SSHRC-funded research participated in a new action-research project aimed at elaborating and studying a parent-teacher partnership program in order to reach a larger number of parents [for the purposes of preventative intervention]. [Translated from French] (case 23)

Impact on research subjects / participants is a related but more specific category that points out the effects of participating in a research project — effects such as increased awareness, increased capacity to receive and respond to research results, and benefits that result from participating in an intervention.

Our research participants in phase 1 (interviews of educational policy makers) and in phase 3 (case studies in school districts) indicated that the research process was a catalyst for their examination and re-thinking of their beliefs and practices related to the integration of the Internet into teaching and learning. (case 35)

Assuming that participation of potential users in the research process increases the relevance of research results, these impacts are of interest to policy makers and other users of educational research who have noted that the lack of capacity to produce research of relevance to users is a factor that impedes educational research's impact on policy and practice (OECD, 2002).

Tools, materials, programs is a category that encompasses some of the “products” of the research process. These may include, for instance, tools that were developed for the purposes of research (e.g., learning tools, computer programs), testing instruments the research helped to validate, as well as teaching programs and interventions developed as part of the research. These products are an impact in their own right, and may result in subsequent impacts such as commercial opportunities (National Educational Research Forum, 2000).

This funding supported the development of ... a computer-based learning environment that increases students' scientific reasoning in the context of problem-based learning situations about disease. (case 7)

Sharing the Findings

Throughout the course of a research project, researchers and research team members actively share findings (at the preliminary and later stages) with peers in the research community, as well as with other audiences. Two categories of impacts that result from such sharing have emerged from the data.

Sharing with scholarly community refers to the early communication of findings to other academics through such means as scholarly conferences, tailored workshops, and international congresses. This sharing can fulfill the role of validating and confirming preliminary findings with peers and academic experts in the field.

Conference papers based on this project have been given regularly at meetings of the Canadian History of Education Association, American Educational Research Association, Canadian Society for Studies in Higher Education, and elsewhere. (case 46)

Sharing with non-scholarly community refers to the communication of findings to non-academics, such as research participants, research

partners, potential knowledge users, and members of the general public. This sharing can fulfill the role of testing the contextual appropriateness of findings, and of generating buy-in or interest in the future results of the research.

I have twice co-presented some of the findings related to Mi'kmaw language teaching at a regional Mi'kmaw language conference in which there were a number of my participants present, as well as a number of other Mi'kmaw educators and administrators. (case 29)

Disseminating the Knowledge

Although the dissemination of research findings can occur early on in the conduct of the research, it more often occurs after a few years and continues well after the end of a research project. *Dissemination through scholarly channels* refers to dissemination that is often done through traditional, academic means, through the publication of articles in peer-reviewed or non-peer-reviewed journals, the publications of manuscripts or book chapters, and the publication of student theses. These research outputs set the stage for additional future impacts presented later in this framework (National Educational Research Forum, 2000).

Detailed analyses and reports will appear in various academic conferences and academic journals in the next few years. At least one dozen research papers and one academic book are expected within the next few years. (case 47)

Dissemination can also be done through *non-scholarly channels*, such as publications in transfer or professional journals, through the media, through reports to potential users of the results of the research, and through the Internet. Levin (2004) notes that the “potential range of people and organizations interested in research in education is enormous” (p. 10). The impact of having one’s research quoted in the media, for instance, may increase the odds that one’s work “will receive systematic critical attention at the hands of other workers” (Taylor, 1981, p. 190). In the same vein, Willinsky (2003) notes the importance of making research available on the Internet, if one is interested in having an impact on policy development. As such, researchers interested in increasing the potential impact of their research are wise to consider disseminating beyond academe.

It is important to note that participating parents, teachers, and school administrators always receive a detailed description of our research findings. (case 28)

Short-term Research/Knowledge Impact

Once the initial phase of active dissemination is complete and researchers have managed to get all the significant findings of a particular research project out the door, the research project is for all intents and purposes complete. However, the success of a research project may lead to other benefits, and the knowledge created through the research is at the beginning of its life in terms of potential impact.

Advancement of program of research refers to impacts such as the receipt of additional grants as a result of the success of a previous research project, or the receipt of support to expand and broaden the program of research.

We applied for and received [additional] funding ... to use the research findings and think-aloud method to provide an intervention to enhance clinical teachers' awareness of how they impact nursing students' construction of cultural diversity. (case 43)

Contribution to the field of educational research is a broad category that encompasses many of the time-honored goals of conducting university research. Research can lead to greater understanding, new theories, new knowledge, the validation or refutation of previous findings, the generation of new questions, and the like (Ormalá, 1994). It is no surprise that these are the impacts that are most often referred to by funded researchers in their FRRs to SSHRC.

The results of our research put in question the usefulness of technology in mathematics teaching, especially in abstract domains. Our research calls for a conscious effort in designing teaching for the development of theoretical thinking in students. (case 8)

Scholarly recognition refers to the impact that research can have on a researcher's (or a research team's) career advancement and professional status. Impacts such as peer recognition, awards, citation of one's work, speaker invitations, and invitations to sit on editorial boards of scholarly journals are but a few examples. Because these

impacts make up much of what is considered important in decisions about tenure and future funding, they are therefore very important to the researcher and to the research enterprise.

During the course of this SSHRC award, I have received several awards for and acknowledgements of my work [5 awards listed, but examples were withdrawn to protect the identity of the researcher]. (case 32)

Contribution to SS&H research as a whole refers to impacts that span beyond the field of educational research. Examples of such impacts include the generating of new, innovative methods for data collection or analysis, and findings that are applicable to disciplines and fields of study other than education.

This research is having a direct impact on research methods for the social sciences. The use of video ... and the internet ... have allowed us to reach out to an international and cross disciplinary audience. (case 9)

Long-term Research/Knowledge Impact

This phase refers to actual and potential impact of the knowledge generated through research on such broader areas as teaching practice, educational policy, and curriculum development — impacts that tend to occur over extended periods of time. The impact can be direct or indirect, and the links between research processes and outcomes to these impacts can be more or less direct (Department of Education, Training and Youth Affairs [DETYA], 2000; Levin, 2004; Taylor, 1981). Two broad categories of such impacts emerged from the data.

Potential/actual impacts on practice refers to the appropriation or application of knowledge in order to effect changes in the way teaching is practiced, in the way schools are run, in the educational system as a whole (OECD, 2002), in the practices of fields related to education (such as social work), and in the training of new teachers and administrators. This impact is most often indirect and diffuse; its direct link to specific research projects is difficult to make. However, there are instances where direct impact is evident. For instance, a study of the link between educational research and its impact on Australian schools (DETYA, 2000) found clearly evident links. It should also be noted that impact tends to be facilitated when practitioners buy into

the possibility that change will lead to improvements (DETYA, 2000), are able to apply their professional judgement in deciding what fits within their practice, and when research is readily available to them for use (Gardner, 2002).

The importance of these findings led us to propose concrete solutions to teachers, the direct audience of our findings. The results of our research should also influence the training of future teachers. [Translated from French] (case 25)

Potential/actual impact on policy refers to the appropriation or application of knowledge in order to affect changes in educational and related policies, guidelines, and curricula. As in the case with impact on practice, impact on policy is also often indirect and diffuse. This is a source of much criticism of research in the field of education, as policy makers often expect research findings to provide clear recommendations on action (Levin, 2004). In addition, the OECD (2002) notes that barriers to accessing research knowledge severely limit the impact this knowledge can have on policy. Again, however, some instances of direct impact of research in the field of education on educational policy and the development of curricula have been noted.

The evaluation data on the impact of these children's rights education materials have received widespread attention and have been the impetus for other jurisdictions, nationally and internationally, to incorporate children's rights education into their school curricula. (case 34)

It should be noted that impact on policy and practice, of all the elements described in this framework, are the ones most often discussed in the literature on research impact in the field of education.

IMPLICATIONS AND CONCLUSIONS

The specific purpose of this study was to better understand research impact generally by studying the specific case of research in the field of education, with the eventual goal of informing the measurement and evaluation of research impact in the social sciences and humanities. The framework that emerged is based on a limited data set, that is, on self-reports of researchers about the impacts of their own research projects. The extent to which the researchers provided evidence supporting their claims was limited. However, this limitation is at least

partially mitigated by the use of scholarly and grey literature to substantiate and complete framework elements. It will be important to further test this framework by replicating this analysis process with data from other disciplines and/or areas of research, by testing its trustworthiness with a sample of educational researchers, and by including the review of literature that has since emerged.

I believe this preliminary framework is useful as a starting point for further research and for the evaluation of research impacts in the social sciences and humanities. In particular, it has the potential of guiding evaluators in the choice of measurement methods and in the timing of impact measurement. One important finding to emerge from this process is the identification of a series of impacts that result from the research *process*. This mirrors what is known in the field of program evaluation as *process use* (Patton, 1997), and refers to the impacts that result from the learning that occurs through involvement in the evaluation process. I would suggest that these process impacts are worthwhile measurement subjects that occur early in the research process and can more readily be attributed to research projects.

Despite these strengths, there are limitations to this framework, which present themselves as opportunities for further research.

Although the framework is consistent with my own observations, it does not convey the interplay between such complex variables as the context in which the research is conducted, the purpose of the research, the type of research that is conducted, and the personal and political interests of stakeholders — all of which can be expected to have an effect on the likelihood and intensity of research impact (Levin, 2004; Ormala, 1994).

The framework also does not give the researcher a sense of how impact can be facilitated. There are likely a number of factors that can be shown to facilitate impact — factors related to contexts of research production and use (Levin, 2004) — the design of the research, who is involved in the research team, how soon potential users are involved in the research process, to whom results are disseminated and in what format, research funding agencies' expectations, and so forth. In fact, one of the observations that I made in reviewing the FRRs submitted by SSHRC grantholders is that researchers from universities in Québec were generally more inclined to describe the impacts of their research in concrete ways. This may be an indirect impact of the Fonds québécois de la recherche sur la société et la culture (FQRSC) policies and expectations with regard to accountability and

performance reporting. This would warrant further exploration. Better understanding of the factors that facilitate research impact could prove extremely important, both in providing researchers with the knowledge required to increase the potential impact of their research and in providing those interested in measuring the impact of research in education (and more broadly in the social sciences and humanities) with clues to guide their investigations.

Despite these limitations and the challenges inherent to the study of such a complex phenomenon, I hope the results of this study will assist program evaluators and researchers interested in research impact by providing a conceptualization of what research impact looks like in the field of education, which can then help to conceptualize and develop measures appropriate to the social sciences and humanities.

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NOTES

1. It should be noted that, given the context in which I work, the objective of beginning without preconceptions proved difficult to achieve. In order to allow for a conceptual framework to *emerge* from the data provided by researchers, the scholarly and grey literature reviewed was used to *support* the conceptual framework, rather than guide the coding of the data.
2. For the purposes of this study, theory was defined as “a set of concepts and the proposed relationships among these” (Maxwell, 2005, p. 42) – an explanation of how things work. Although the term “conceptual

framework” can be thought of as synonymous to theoretical framework (Maxwell, 2005), or as encompassing theory, for the purposes of this study, a conceptual framework is seen as preliminary to theory development.

3. The 1999 competition year was selected in order to maximize the number of Final Research Reports received.
4. It should be noted that a number of important studies have emerged since this analysis was conducted (e.g., CHASS, 2005; Cozzarin, 2006; OECD, 2006).

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