education policy analysis archives
A peer-reviewed, independent, open access, multilingual journal

Arizona State University

Volume 22 Number 88 September 1st, 2014 ISSN 1068-2341

The Use of Online Strategies and Social Media for Research Dissemination in Education

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Citation: Cooper, A. (2014). The use of online strategies and social media for research dissemination in education. *Education Policy Analysis Archives, 22*(88). http://dx.doi.org/10.14507/epaa.v22n88.2014

Abstract: Alongside a growing interest in knowledge mobilization (trying to increase the connection between research, policy and practice) there has been a transformation of how knowledge is produced, accessed and disseminated in light of the internet and social media strategies. Few studies have explored the use of social media for research dissemination. This paper explores the online strategies used by 44 research brokering organizations (RBOs) in education across Canada. It is organized in four parts. The first provides a literature review of the terminology associated with Web 2.0 and social media as well as outlines the sparse empirical work that exists. The second presents empirical findings of online practices of 44 RBOs. The third section reports on the frequency of social media activity of RBOs as well as the nature of posts in order to ascertain whether or not research is actually being disseminated through these mechanisms. The final section discusses the implications of social media for research dissemination. Overall, use of additional online strategies by RBOs (other than websites) remains modest. Many of the strategies used are passive and do not allow two-way communication. Thirty percent of RBOs use social media; however, this usage in not pervasive and Facebook and Twitter networks are small. Other mechanisms to encourage active participation will be required

Journal website: http://epaa.asu.edu/ojs/
Facebook: /EPAAA
Twitter: @epaa_aape

Manuscript received: 4/9/2013
Revisions received: 5/28/2014
Accepted: 5/29/2014

alongside Web 2.0 and social media tools, if these strategies are to become robust avenues for knowledge mobilization and research dissemination.
Keywords: education; knowledge mobilization; intermediary organizations; research brokering organizations; social media; research dissemination

El uso de estrategias online y de las redes sociales para difundir investigaciones en educación.

Resumen: Junto a un creciente interés por la movilización del conocimiento (que trata de aumentar la conexión entre la investigación, el ámbito político y de la práctica profesional), Internet y las redes de comunicación social han transformado las formas en que se produce, se accede y se difunde el conocimiento. Pocos estudios han explorado el uso de redes de comunicación social para la difusión de la investigación. Este artículo explora las estrategias online utilizadas por 44 organizaciones que diseminan investigación en educación (RBO por su sigla en inglés) en Canadá. Esté trabajo esta organizado en cuatro partes. Primero se ofrece una revisión de la literatura de la terminología asociada con la Web 2.0 y los medios sociales, así como describe el trabajo empírico que existe escasa. La segunda presenta los análisis empíricos de las prácticas online de 44 RBOs. La tercera sección se refiere a la frecuencia de la actividad en redes sociales de RBOs, así como la naturaleza de los mensajes y textos que se publican en las redes a fin de determinar si son sobre investigación en educación lo que están difundiendo a través de estos mecanismos. La sección final discute las implicaciones de usar redes sociales para la difusión de investigación. En general, el uso de estrategias online por RBOs (distintos sitios web) sigue siendo modesto. Muchas de las estrategias utilizadas son pasivas y no permiten una comunicación bidireccional. 30% de los RBO usan redes sociales; Sin embargo, este uso no es generalizado y es escaso en Facebook y Twitter. Serán necesarios otros mecanismos para fomentar la participación activa junto a la Web 2.0 y las herramientas de redes sociales, para que estas estrategias se conviertan en vías sólidas para la movilización de conocimientos y de difusión de la investigación.
Palabras clave: educación; movilización del conocimiento; organizaciones de intermediación de investigación; redes sociales; difusión de la investigación

Usando estratégias online e mídias sociais para divulgar pesquisas em educação.

Resumo: Junto com um crescente interesse na ideia de mobilização do conhecimento (que procura aumentar a conexão entre pesquisa, política e âmbito da prática), Internet e as redes sociais têm transformado as formas em que a pesquisa ocorre, como se acessa e o conhecimento é disseminado. Poucos estudos têm explorado o uso das mídias sociais para a divulgação da pesquisa. Este artigo explora as estratégias on-line utilizadas por 44 organizações que divulgam pesquisa em educação (RBO por sua sigla em Inglês), no Canadá. Este trabalho está organizado em quatro partes. Primeiro fornece uma revisão da literatura sobre a terminologia associada com a Web 2.0 e mídias sociais, e descreve que há pouco trabalho empírico. A segunda parte apresenta uma análise empírica de práticas on-line de 44 RBOs. A terceira seção refere-se à freqüência da atividade nas redes sociais das RBOs, e a natureza das mensagens e textos publicados na rede para determinar se o que estão se espalhando através destes mecanismos é pesquisa em educação. A seção final discute as implicações do uso de redes sociais para a divulgação da pesquisa. Em geral, o uso de estratégias on-line RBOs continua a ser modesto. Muitas das estratégias utilizadas são passivas e não permitem a comunicação de duas vias. 30% das RBOs usan redes sociais; No entanto, essa utilização não é generalizada e é mínima no Facebook e Twitter.

Outros mecanismos serão necessários para incentivar a participação ativa na Web 2.0 e ferramentas de redes sociais, para que estas estratégias virem caminhos sólidos para a mobilização dos conhecimentos e divulgação da investigação.
Palavras-chave: educação; mobilização do conhecimento; organizações de intermediárias de pesquisa; redes sociais; divulgação de pesquisas.

The Use of Online Strategies and Social Media for Research Dissemination in Education

> In many respects, the potential of the Internet as a research dissemination resource is to an extent bounded only by the imagination and skills of those who build and use it. (Duffy, 2000, p. 350)

There is widespread global interest in bridging the gap between research, policy and practice in public services so that research can have more impact on educational and health related outcomes. In many other areas of social policy, the increase of research use and mobilization of empirical findings has resulted in better outcomes (such as seatbelt usage, anti-smoking policies, hand washing in hospitals among others). The Social Sciences and Humanities Research Council (SSRHC) of Canada defines these efforts as knowledge mobilization (KMb). Knowledge mobilization includes the creation of empirical knowledge in university settings, the subsequent dissemination of that research through various channels to its ultimate use (or lack thereof) in policy and practice settings. As sectors focus on increasing KMb strategies for large-scale system improvement, a number of intermediary bridging organizations that connect researchers to policymakers and practitioners have arisen (Cooper, 2014). This study refers to these intermediaries as research brokering organizations (RBOs). The predominant form of research dissemination has been double-blind peer review research articles that practitioners and policymakers rarely access (Nutley, Walter & Davies, 2007). Alongside the growing interest in KMb has been the transformation of how knowledge is produced, accessed, and disseminated in light of the Internet and the use of social media. One question that emerges from these changes is: Are online mechanisms and social media being used for research dissemination and, if so, how are they used?

This paper provides empirical data in relation to the online strategies used by 44 research-brokering organizations (RBOs) in education across Canada. There has been little empirical work that explores the use of online research dissemination. Edelstein, Shah and Levin (2012) conducted a study exploring the use of online research using data from Google Analytics in conjunction with longitudinal surveys of nine educational organizations from three countries (five Canadian, one New Zealand and three UK). They found that downloads of research related products remain modest and research related pages get very little traffic relative to the sites as a whole (in many cases getting less than 1% of total visitors). Edelstein et al. (2012) highlight that "this finding fits with other research that indicates that passive availability of research is not an effective dissemination strategy compared with active outreach (i.e. through personal connections)" (p. 9).

More work is needed to understand the use of online strategies in order to assist organizations in how to go about this work more effectively; but, before being able to offer advice on effectiveness, we need to know more about what online strategies RBOs are using, how frequently, with what audiences and for what purposes. The empirical data outlined in this article begins to scratch the surface of these issues, although these data are admittedly exploratory and more work is needed. Findings from this study confirm that, overall, the use of additional online strategies by RBOs (other than websites) remains modest. Many of the strategies used are passive

and do not allow two-way communication. Thirty percent of RBOs use social media; however, this usage in not pervasive and Facebook and Twitter networks are small. Other mechanisms to encourage active participation will be required alongside Web 2.0 and social media tools, if these strategies are to become robust avenues for knowledge mobilization and research dissemination.

This article is organized in four parts. The first provides a literature review outlining the significance of the topic and gives a brief overview of the terminology associated with Web 2.0 and social media. The second presents empirical findings of online practices of 44 RBOs. The third section reports on the nature and frequency of social media activity and the extent to which research is being disseminated through these mechanisms. The final section discusses new empirical studies on social media in relation to KMb – specifically, how researchers are using (or not using) social media to disseminate research.

Significance

The use of the technology and the Internet is pervasive (Duffy, 2000; ICT, 2010). The uptake of online and social media usage is outpacing past technologies. It took 38 years for radio to have 50 million users, 13 years for TV to have 50 million users and only four years for the Internet to reach 50 million users. Facebook took nine months to double that figure and hit 100 million users (ICT, 2010)! Projected estimates of Internet users climbed from 500 million users in 2001, to 1.2 billion users in 2005, to 1.9 billion users by 2010 (ICT, 2010). Alongside this proliferation has been a changing conception of the Internet and its users. The idea of online users as passive consumers of knowledge is antiquated in 2014. This notion has been eclipsed by a multitude of new interactive technological tools, interfaces and platforms that facilitate rapid dissemination (often at very low costs) and opportunities for collaboration across time and distance in ways that were not possible even a decade ago. Web 2.0 is a term utilized to describe more interactive applications and software, rather than static online environments that only allow one-way communication (Cann, Dimitriou, & Hooley, 2011; Kaplan & Haenlein, 2010). Ullrich, Borau, Luo, Tan, Shen and Shen (2008) highlight that, "these new, Web 2.0, applications take full advantage of the network nature of the web: they encourage participation, are inherently social and open… these principles are in line with modern educational theories… and thus make Web 2.0 applications very attractive for teachers and learners" (p. 705). This rise of Web 2.0 tools and various types of social media are fundamentally shifting the way that people communicate.

The use of web-based social media has been rising exponentially since its conception. Some statistics on usage from a popular YouTube video as of 2011 were: 255 million websites as of December 2010 with 21.4 million added that year; Bing estimates more than 1 trillion pages of content on the internet (that is almost 150 pages per person alive!); 30 million emails are sent each day; 152 million blogs (17.5 million build on Wordpress); Facebook has overtaken Google as the most visited site with 175 million users logging in every 24 hours, with 65 million of these accessing Facebook through mobile devices; 30 billion pieces of content (web-links, news stories, blog posts, notes, photos) are shared on Facebook every month; 25 billion tweets were sent in 2010; 3000 photos are uploaded each minute to Flickr; 3 billion photos uploaded a month to Facebook; and 2 billion videos are watched on YouTube every day (Omobono, 2011, YouTube Video on Social Media statistics as of 2011). Public and private sectors are beginning to explore the many issues surrounding online mechanisms and are becoming more involved in social media as a regular way of doing business, although some remain skeptical of the impact of these strategies.

Emerging technologies are changing conceptions of community, collaboration and interaction, and the world of research dissemination is no exception. Due to the proliferation of

online mechanisms transforming public service sectors, Duffy (2000) discusses the internet as a research and dissemination resource:

> The rapid growth of the internet and the advantages of the medium over traditional communication formats in terms of flexibility, speed and reach make it an obvious route for research dissemination. Given the emphasis on evidence-based decision-making as a way of improving the allocation of scarce resources to improve health, and given the focus on dissemination therein, the potential of the web to get digestible information to the right people at the right time is even more apparent (p. 349).

While many articles champion the use of online dissemination strategies, these widespread endorsements of Web 2.0 and social media are not well substantiated by empirical studies of their effectiveness (Levin, 2008).

Literature Review

There is sparse empirical evidence on knowledge mobilization across sectors and countries; however, what we do know is that research often fails to have the impact that it might on policy and practice due to passive dissemination strategies in formats that are often unappealing (such as double-blind research articles) or lack actionable messages for policymakers and practitioners on the front lines (Nutley et al., 2006). Due to the scope of this article, I will not provide a full overview of the KMb literature, but I have written other articles with colleagues that outline efforts being made both in Canada (Cooper & Levin, 2010) and globally in education (Cooper, Levin & Campbell, 2009). Rather, in this brief literature review, I explore the terminology associated with Web 2.0 and social media, outline the various kinds of tools that exist, and explore the sparse empirical work on social media that exists specifically in relation to research dissemination.

Web 2.0 and Social Media Defined

Anderson (2007) produced a report titled *What is Web 2.0? Ideas, technologies and implications for education*. This report explores the many concepts and tools associated with Web 2.0 and discusses whether or not the hype underpinning Web 2.0 is warranted. Anderson explores what he calls the six big ideas behind Web 2.0: 1) Individual production and User Generated Content: this idea relates to the change from users as consumers of knowledge to users as active producers of knowledge; 2) Harness the power of the crowd: crowdsourcing is an idea used to conceptualize the process of using the crowd of global internet users to solve problems; 3) Data on an epic scale: volumes of data and content are perpetually being generated by high levels of internet activity globally; 4) Architecture of participation: the format of web platforms can potentially be as important to participation as the content of web-based interaction: "this means the way a service is actually designed can improve and facilitate mass user participation (i.e. low barriers to use)" (p. 19); 5) The network effect: "is a general economic term used to describe the increase in value to the existing users of a service in which there is some form of interaction with others, as more and more people start to use it" (p. 20); and, 6) Openness: much of the underlying principles of Web 2.0 platforms have to do with open standards, open source software and making data freely available. In the end, Anderson (2007) concludes that Web 2.0 has significant potential for research networks to assist with collaboration and dissemination in a variety of contexts. Kaplan and Haenlein (2010) outline the technical mechanisms of Web 2.0:

> Although Web 2.0 does not refer to any specific technical update of the World Wide Web, there is a set of basic functionalities that are necessary for its functioning. Among them are Adobe Flash (a popular method for adding animation, interactivity, and audio/video streams to web pages), RSS (Really Simple Syndication, a family of

> web feed formats used to publish frequently updated content, such as blog entries or news headlines, in a standardized format), and AJAX (Asynchronous Java Script, a technique to retrieve data from web servers asynchronously, allowing the update of the web content without interfering with the display and behavior of the whole page)… we consider Web 2.0 as the platform for the evolution of social media (p. 61).

Web 2.0, then, is characterized by its collaborative and fluid nature – it allows participation and content to be continually reinvented by the users who are engaged in producing and modifying it. Social media tools differ in their capacity for one-way and two-way communication. RSS feeds, for instance, are producer-push mechanisms allowing only a one-way flow of information to users. Blogs and online forums, conversely, allow for more two-way communication, as users can comment and create content.

Social Media Tools for Research Dissemination

Cann et al. (2011), in a new guide for researchers on social media, outlines three types of tools that can be utilized for research dissemination. Research dissemination is critical for KMb, because it is the starting point for mobilization processes – namely, for how practitioners find, access, assess, share and integrate research knowledge into their professional practice. Cann et al. (2010) provide extensive descriptions of the various social media tools categorized by function – communication, collaboration and multimedia (Table 1) (For further definitions of each type, see Appendix A). Cann et al. (2010) highlight that these diverse tools can be utilized throughout four stages of the academic research cycle: identification of knowledge, creation of knowledge, quality assurance of knowledge, as well as dissemination of knowledge.

Table 1
Social Media Tools for Researchers (summarized and adapted from Cann et al., 2010)

Function	Types	Examples (hyperlinked)
Communication Tools	Blogging	Blogger, LiveJournal, WordPress
	Microblogging	Twitter, Yammer
	Location	Foursquare, Facebook Places
	Social Networking	Facebook, LinkedIn, Myspace
Collaboration Tools	Conferencing	Adobe Connect, GoToMeeting, Skype,
	Wikis	PBworks, Wetpaint, Wikia
	Social Bookmarking	Delicious, Diigo, BibSonomy
	Social Bibliography	CiteULike, Mendeley
	Social News	Digg, Reddit, Newsvine
	Social Documents	Google Docs, Dropbox, Zoho
	Project Management	Bamboo, Basecamp, Huddle
Multimedia Tools	Photographs	Flickr, Picasa, SmugMug
	Video	Viddler, Vimeo, YouTube
	Live streaming	Justin.tv, Livestream, Ustream, Netflix
	Presentation Sharing	Scribd, SlideShare, SlideRocket,
	Virtual Worlds	Second Life, World of Warcraft

Empirical studies exploring the use of social media for research dissemination.

There is still a dearth of empirical work exploring social media in relation to research dissemination; however, in the past year, a few studies have emerged. In a recent report, funded by the Research Information Network in the UK, entitled, *If you build it, will they come? How researchers*

perceive and use web 2.0, Proctor, Williams, and Stewart (2010) explore current attitudes and patterns of adoption of social media and identify problems, needs, and aspirations of researchers. The first phase included an online survey sent to 12,000 addresses of academic staff and PhD students. The 1,477 responses represent 1% of full time UK academics and PhD students. The second phase of the study included in-depth semi-structured interviews with a stratified sample (n = 56). The third phase of the study included a series of Web 2.0 based case studies. The respondents (n = 1,321) were organized into three categories based on the extent and frequency of their use of social media: 13% frequent users (use social media at least once a week), 45% occasional users (use social media occasionally), and 39% non-users (never use social media). It is often assumed that use of social media is more prevalent among younger generations; however, Proctor et al. (2010) found that frequent use of the kinds of Web 2.0 tools associated with producing, sharing and commenting on scholarly content is positively associated with older age groups: frequent use was highest among the 35-44 age group and lowest among those under 25 years old. By role, use was highest among research assistants and lowest among PhD students, with professors and other academic roles in between these groups. By discipline, frequent users are disproportionately represented by respondents in Computer Science and Mathematics (27% frequent users; 51% occasional users), followed by Engineering (frequent users 16%; occasional users 47%), Arts & Humanities (frequent users 15%; occasional users 40%), Economic and Social Sciences (frequent users 12%; occasional users 43%), Physical Sciences (12% frequent users; occasional users 48%), Biological Sciences (frequent users 9%; occasional users 46%), Medical Sciences (frequent users 6%; occasional users 50%). Across disciplines, frequent users of social media are still rare, with most fields having less than 15% of researchers who utilize social media tools weekly for academic purposes.

Proctor et al. (2010) found that use of social media is positively influenced by researchers' involvement in collaborative research activities. Researchers who worked with collaborators in different institutions were more frequent users of social media (73%), followed by researchers working as a part of a collaborative team (68% frequent users). Researchers who participated in wider, discipline-based research networks also utilized social media tools more frequently (57% frequent users) as well as researchers who participated in informal local research network (55% frequent users). Researchers who did not engage in any form of collaborative research were much less likely to utilize social media tools frequently (9% frequent users). The Proctor et al. (2010) study found:

> Our study indicates that a majority of researchers are making at least occasional use of one or more web 2.0 tools or services for purposes related to their research: for communicating their work; for developing and sustaining networks and collaborations; or for finding out about what others are doing. But frequent or intensive use is rare, and some researchers regard blogs, wikis and other novel forms of communication as a waste of time or even dangerous (p. 5).

The survey results showed that most researchers use well-known tools such as Google scholar (79%) and Wikipedia (69%). A significant minority also use social networking services: YouTube (29%), Facebook (24%), and Twitter (10%). However, overall, the use of Web 2.0 and social media by UK researchers is relatively low.

A CIBER (2010) study (CIBER is an independent research group, no explanation of the acronym is found in any of their publications) investigated whether social media was affecting researchers' work by surveying nearly two thousand researchers (n = 1,923) across the globe (respondents from 215 countries) who are currently using social media to support their research activities. The study is unclear about how the sample was identified and about the response rate. The CIBER study (2010) uses a comparison group (n = 491) of researchers who have not yet used

social media. The survey asked about eight categories of social media tools: social networking, blogging, microblogging, collaborative authoring tools for sharing and editing documents, social tagging and bookmarking, scheduling and meeting tools, conferencing, and image or video sharing practices. Popularity of various types of social media being used were in order of prominence: collaborative authoring (62.7%), conferencing (48.3%), scheduling and meeting tools (41.0%), social networking (27.0%), image or video sharing (23.2%), blogging (14.6%), microblogging (9.2%), and social tagging and bookmarking (8.9%). This study also investigated how many of the eight categories researchers utilized: one category (35.6%), two categories (27.8%), three categories (17.1%), four (9.7%), five (5.5%), six (2.6%), seven (1.0%) and eight (0.7%). The two most common pairings of social media tools in the CIBER study were blogging/ microblogging (Pearson correlation 0.46) and social networking/ microblogging (Pearson correlation 0.42).

The CIBER (2010) survey found a large discrepancy between high awareness of social media tools within the research community, and low levels of actual use of the majority of social media tools. Similarly to Proctor et al. (2010), CIBER(2010) also found that researchers who work with collaborators in different institutions were 1.11 times more likely than the rest to use social media. The CIBER (2010) study also asked respondents about the use of different kinds of social media in various stages of the research life cycle: identify research opportunities, find collaborators, secure support, review the literature, collect research data, analyze research data, disseminate findings, and manage the research process. Researchers reported that social networking, blogging and microblogging were all useful to disseminating research findings. Scheduling tools were reported as most useful during the managing the research process and research collaboration stages. Conferencing tools were considered most useful in research collaboration. Different social media tools are appropriate for different research tasks; hence, more empirical research is needed in order to determine which tools are most effective in which areas and contexts.

The empirical work exploring social media as a mechanism for research dissemination is sparse; however, the findings from this study of RBOs will contribute empirical evidence on the use of social media for research mediation in education across Canada.

Method

This article arises from a study that investigates the KMb efforts of 44 RBOs to disseminate research knowledge (See Appendix B for a list of Canadian RBOs).

Sample Selection

This study aimed to identify all educational RBOs across Canada. Three sampling strategies were utilized to ensure systematic sample selection and consider a majority of Canadian educational organizations: 1) A directory of key contacts in Canadian education called the Ki-Es-Ki handbook, produced by the Canadian Education Association, containing over 4,000 individuals and organizations involved in the education sector across Canada; 2) Systematic searching of major internet search engines (e.g. Yahoo, Google) using combinations and permutations of key terms-search strings and results were recorded; and, 3) Organizations identified through the Research Supporting Practice in Education (RSPE) program, a team known internationally for their KMb work. These sampling strategies resulted in 541 potential organizations across Canada. RBOs were selected based on two inclusion criteria:

1. *Target Audiences:* they connected research producers **and** research users.
2. *Mission Statements*: organizations' mission statements, goals and/or strategic plans were explicitly related to KMb in some way and to increasing connections between research, policy and practice (although these aims were articulated using different terminology).

Mission statements were used because it was a common unit of analysis among diverse types of organizations

Of the 541 potential organizations: 24 were excluded because they did not have websites listed in the Ki-Es-Ki, 67 were excluded because they were French (the principal investigator is an Anglophone). The 450 remaining organizations were considered: 388 met neither inclusion criteria; 18 met criteria 1 only; and 44 met both inclusion criteria so were included in the study. For more information on the broader study and sampling, please see Cooper (2014). This paper presents findings from the following research question: What online dissemination mechanisms do RBOs in Canada use to mobilize their research?

Data Analysis

Organizational websites were visited in order to determine which online strategies were utilized in addition to the website itself. Frequencies and descriptive statistics were calculated using Excel. After general analysis of all online dissemination strategies, further analysis was conducted in relation to social media. Of the 44 RBOs, 16 RBOs (36%) were using Facebook and 15 RBOs (34%) were using Twitter to mobilize research. Twenty percent of the RBOs using each type of social media were further analyzed: three organizations were randomly selected of those that used Facebook. After that, wherever possible the same organizations were used to explore other social media mechanisms such as Twitter, blogs and RSS feeds, in order to provide more complete data about an organization overall. This also allowed one organization to be considered across various social media outlets (People for Education (P4E), for instance, used Facebook, Twitter, an online forum and a blog). Twitter data is provided for all 15 RBOs. The frequency and nature of posts was also analyzed for RBOs that used Facebook and Twitter, as well as a few of the other strategies such as blogs and online forums. In order to analyze the content of social media usage, all posts from September 2010 to December 2010 were entered into spreadsheets and inductively coded.

Findings

Canadian RBOs use five types of dissemination mechanisms: face-to-face interaction, media outlets, online technological platforms and social media, and other intermediary organizations. This article, however, focuses specifically on the online strategies utilized by 44 Canadian RBOs.

Low Levels of Use of Online Dissemination Strategies by RBOs

All 44 RBOs included in this study had an organizational website that they used to disseminate research. However, most RBOs use few online strategies in addition beyond a website:

- 32% of RBOs (n=14) use no additional online strategies;
- 36% of RBOs (n=16) use 1-2 additional online strategies;
- 25% of RBOs (n=11) use 3-4 additional online strategies; and,
- 7% of RBOs (n=3) use 5+ additional online strategies.

Additional strategies that were used included blogging and microblogging (blogs and Twitter), social networking (Facebook, LinkedIn, Online Discussion Forums), social bookmarking (Delicious), multimedia (YouTube channels, Flickr), share buttons embedded on websites (that allow users to email something, tweet it, post it to Facebook etc.), and RSS feeds. Figure 1 shows the number of RBOs that used these additional strategies in order of prominence. Some of the strategies are passive (such as an organizational website or a share button) or push strategies that allow only one-way transmission of research information (RSS feed); however, some strategies are more interactive

and allow two-way communication (Facebook, Twitter, Online Forums, Social bookmarking, and so on). The use of Facebook and Twitter were the most prominent additional strategies.

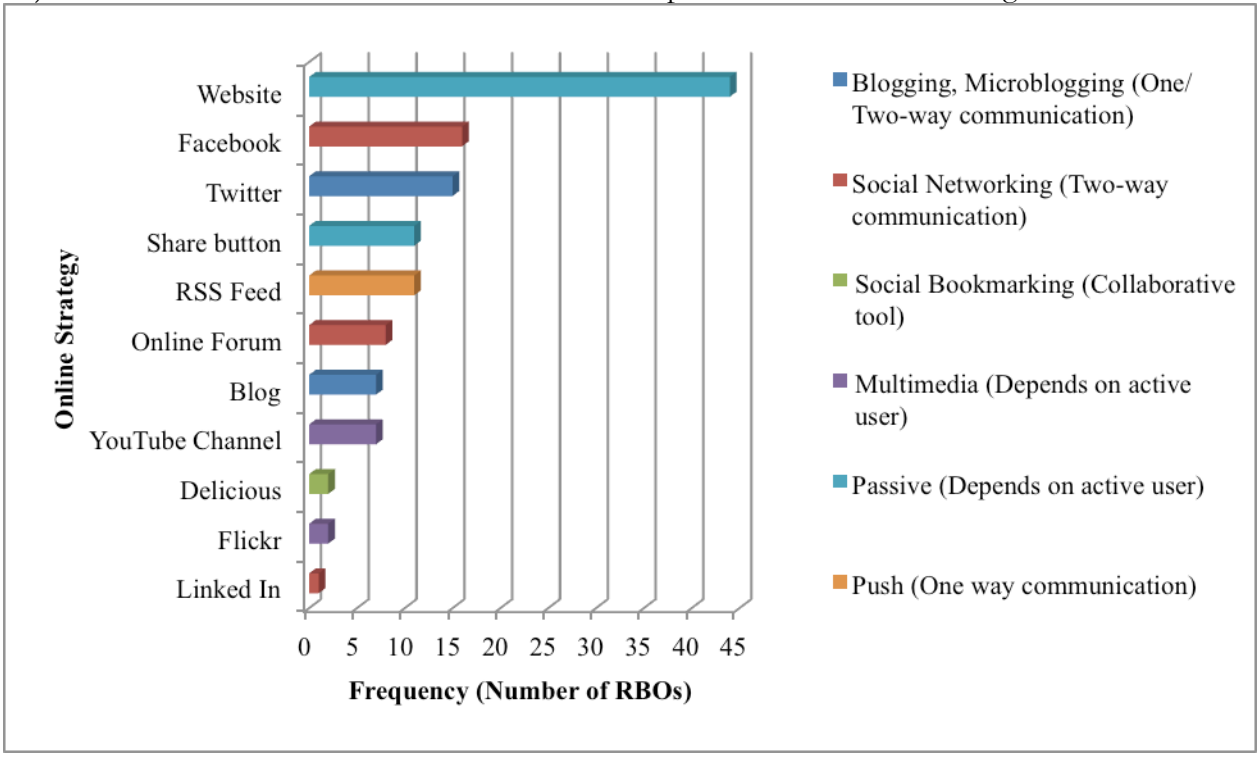

Figure 1. RBOs use of online dissemination strategies

Thirty-Six Percent of RBOs Use Facebook

Sixteen (36%) RBOs from the sample had Facebook pages or groups. On Facebook, users have the option of 'liking' a page or joining a group. Once a user has done this, the feed of posts from that organization are automatically posted to that user. Hence, 'liking' a RBO gives that RBO an automatic mechanism to push information continually to its networks. The number of 'likes' or groups, then, becomes a proxy of the size of the network that a RBO organization has utilizing social media. Figure 2 shows the size of each RBO Facebook network as indicated by the frequency of likes.

RBO Facebook pages and groups showed a wide range of network members as indicated by the number of likes, with the minimum being 17 and the maximum being 4,577. The mean of Facebook likes was 547, with a standard deviation of 1,161.

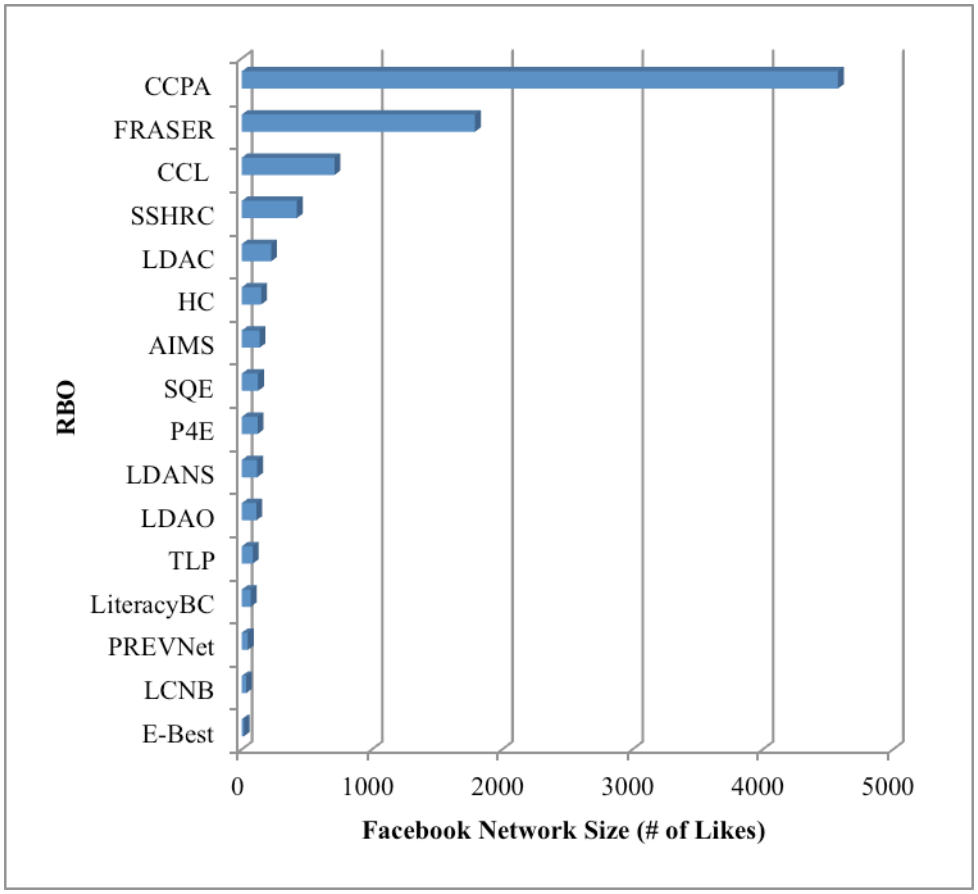

Figure 2. RBOs Facebook networks determined by frequency of likes

Thirty-Four Percent of RBOs Use Twitter

Twitter is a form of microblogging that allows members to post tweets (short messages under 140 characters) and can include hyperlinks to other websites or resources. A user interested in the posts of another user can become a Follower of that user. Fifteen RBOs (34%) were using Twitter to interact with their network and linked to Twitter accounts from their organizational websites. For each RBO twitter member, various statistics are shown online including the number of total tweets for that member, the number of other Twitter members a person is following, the number of people following a user (followers), as well as the number of groups that a member is involved in. (Listed is the number of lists or groups the twitter member is a part of.)

The study also sought to determine the intensity of the use of twitter by RBOs. In order to do so, the number of tweets for a short period, from September 2010 to December 2010 were counted and analyzed. Table 2 shows some Twitter statistics for the RBOs in this study.

Table 2
Twitter Statistics for RBOs

RBO	Total Tweets	Following	Followers	Listed	Total Tweets (Sept-Dec 2010)	Average Tweets per month	SD Tweets per month
RI	2250	208	868	78	594	149	18.7
Fraser	1406	260	4913	348	388	97	13.5
E-Best	803	271	886	43	191	48	16.58
AIMS	323	260	309	19	40	10	16.3
SSHRC	293	273	490	32	293	21	5.2
HC	222	134	292	19	44	11	1.4
LiteracyBC	222	47	102	17	124	31	3.7
P4E	210	2326	2172	109	80	20	13.52
CEA	208	29	266	21	12	3	2
TLP	207	1	342	19	159	40	26.3
SQE	206	141	89	4	57	14	6.07
LDAC	138	47	79	5	71	18	5.6
CCPA	137	803	2027	184	36	7	2.7
LCNB	13	17	97	8	13	3	6.5
PREVNet	7	22	11	1	0	0	0
Mean	416	344	905.5	63	149.29	34	9.719
Max	2250	2326	4913	348	594	149	26.3
Min	7	1	11	1	0	0	0
SD	612	589	1309	94	167.26	41	7.748
Total	6645	4839	12943	907	2102		

RBOs have diverse sizes of Twitter networks, with some having 11 followers and others having 2,326 followers. The same is true for the number of other Twitter members that RBOs follow, ranging from one to 2,326. RBOs are also involved in a number of Twitter groups also with large variation (one group – 328 groups listed). Figure 3 shows the intensity of use of Twitter by RBOs.

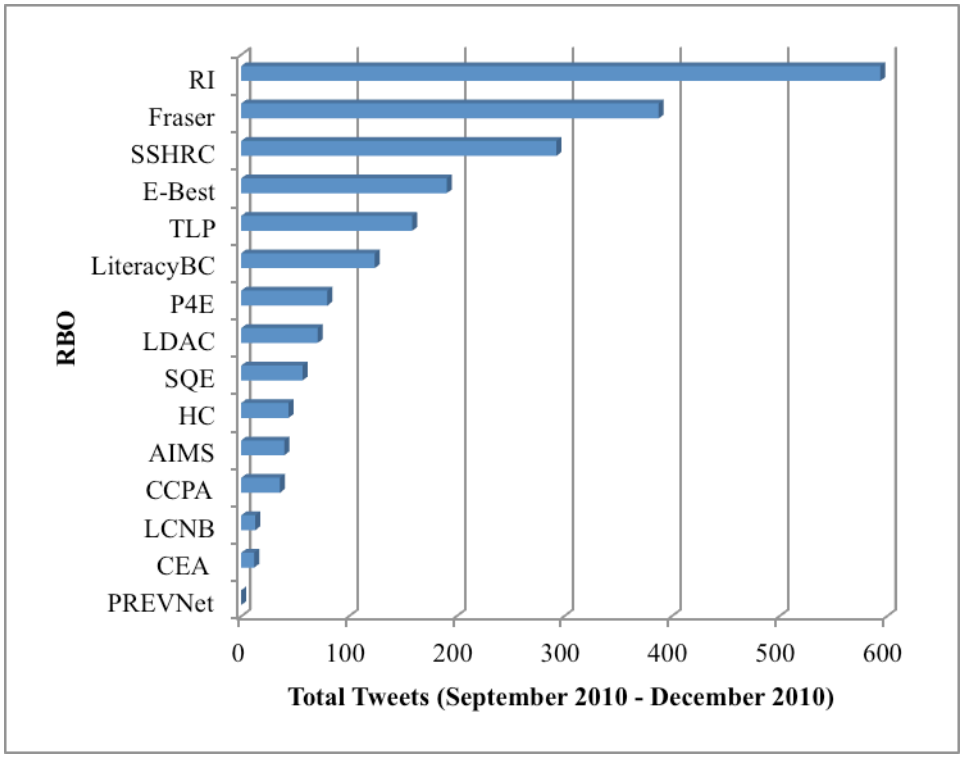

Figure 3. Intensity of Twitter Usage by Canadian RBOs

There was wide variation in the intensity of RBOs' use of Twitter with the average tweets posted by RBOs per month ranging from zero to 149. There is also a function that allows others from your Twitter network to 'retweet' a post, which posts a tweet from someone they are following to their respective network. As a result, it is hard to know what is the actual impact of any tweet- it could be greater than the number of followers that an organization has or not. Since this study has concluded, various programs have arisen to measure the impact of social media such as Bit.ly, and Klout scores among many others.

The Nature of Posts for Online Strategies

This study also briefly explored the nature of RBO posts to online strategies, in order to determine the purposes of the communication to the various networks. Five categories emerged from analysis of the types of posts that existed (Table 3).

Table 3
Types of Twitter Posts from RBOs

Nature of Post	Description and Examples from People for Education
Opinion	Viewpoints on particular educational issues: • "Are parents really partners in education? Should they be? Join the PfE/TVO livestream debate 2pm Nov 13" • "A FABULOUS article with accurate info to debunk all the bad research in Waiting for Superman http://ning.it/czo3yP " • "Great editorial on private money in public schools in the Toronto Star today http://ning.it/aDpTnu"
Promotion	This includes promotional posts for the organization (for example, trying to get new members to join various social media outlets; circulating news about the org. such as hiring new CEO, and so on): • "Last chance to register for our P4e conference Nov 13 at York U Toronto"
Information	This includes circulating details about events, sharing newspaper articles, videos and so on: • "Premier's arts awards tonight" • "Don't forget to vote for a school trustee. It does make a difference"
Update	These posts are personal updates (such as, at great conference or on my way to dinner): • "Just watched waiting for Superman. Listening to Bill Gates talk up charters and Microsoft's involvement in teacher evaluation"
Research Based	These posts revolve around empirical research (examples include posting links to research products, highlighting statistics from educational research and so on): • "US poll: 55% parents say kids' education better than theirs; 78% rate kids' schools excellent or good (http://ning.it/fphrg4) " • "Canada and Ontario are above OECD average on PISA scores but article asks to 'Put PISA in Perspective' (http://ning.it/foCFVA) " • "A new report from New York shows middle schools don't work as well as K to 8 schools (http://ning.it/9yTXI4)" • "StatsCan: Canadian drop-out rate declining. Drop out highest in AB, MB, QC, lowest in NL, BC, ON http://ning.it/a2auTU"

These categories are not meant to be exhaustive, just meant to give a general sense of some of the purposes of the use of these online strategies from a brief scan on RBO posts. In order to determine the extent to which RBOs are using online tools and social media for research dissemination specifically, the logs of a few organizations were categorized according to the five categories: Opinion, Promotion, Information, Update and Research-Based. Approximately 20% of the sample in each category was analyzed (three of the 16 RBOs using Facebook; three of the 15 RBOs using Twitter; two of the seven RBOs using blogs; and two of the eight RBOs with an online forum). RBOs' posts to Facebook and Twitter were about 20% research-based, with virtually no research-based communications occurring in online forums and in blogs.

Different levels of two-way communication were occurring online depending on the RBO. When comparing CEA and P4E's online forums, the frequency of responses to and comments on the posts were wide, ranging with very few comments on the CEA forum (total comments from Sept. –Dec., 2010 = 16) as compared to a higher level of activity on the P4E forum (total comments from Sept. –Dec., 2010 = 764 comments).

Table 4
Nature of Posts by RBOs Using Online Strategies

	RBO	TOTAL Posts (Sept-Dec)	Average posts per month	Opinion (%)	Promotion (%)	Information (%)	Update (%)	Research Based (%)
Facebook	P4E	15	4	20	47	13	0	20
	E-Best	46	12	10	9	57	5	20
	CCL	21	5	5	0	86	0	19
Twitter	P4E	80	20	30	16	32	3	18
	E-Best	191	48	0	1	80	0	20
	CEA	12	3	33	25	0	8	33
Online Forum	P4E	46	12	48	0	52	0	0
	CEA	27	7	67	15	20	0	0
Blog	P4E	3	1	100	0	0	0	0
	CEA	7	2	74	0	0	19	7
Average		45	11	39	11	34	4	14

Although the small sample requires caution in interpretation, these data suggest that the vast bulk of Web 2.0 mechanisms are not being used to mobilize research knowledge; however, further analysis could include looking at the posts in relation to connecting people to one another. The methodology of categorizing the frequency, nature and level of two-way communication (determined by the number of comments on posts) may provide fertile ground for future research.

Discussion and Implications

While many studies have been conducted on the Internet and its many uses, very few studies investigate the internet in relation to research dissemination, with even fewer examining research dissemination in education.

Most RBOs Do Not Use Additional Online Strategies in Conjunction With Their Websites

An exploration of the use of online dissemination strategies revealed that most RBOs do not use many online strategies in addition to their websites (with 36% using between one and two, and 32% using none at all). These findings are similar to the empirical work by Proctor et al. (2010) and CIBER (2010) that report low levels of use of social media tools among researchers. Most of the online strategies used by RBOs are passive (such as an organizational website or a share button), or push strategies that allow only one-way transmission of research information (RSS feed); however, some strategies are more interactive and allow two-way communication (Facebook, Twitter, online forums, social bookmarking, etc.).

Online Strategies and Impact

Kaplan and Haenlein (2009) suggest the more interactive a form of social media, the more potential it has to change behaviour. In terms of KMb and research dissemination, this means that producer push mechanisms such as RSS feeds or emailed research bulletins to networks may be less effective than online strategies that allow more two-way communication (such as Facebook, Twitter, etc.). On the other hand, producer push mechanisms might reach far more people (due to modest participation with social media tools) so, on balance, could be more effective relative to effort. The relationship between relative effort required for various online strategies and the resulting impact of those strategies needs to be further explored. Resource allocation in online strategies and tools should be carefully considered by organizations in relation to the low levels of use of these mechanisms reported across various groups.

When RBOs Use Social Media Strategies, They Have Small Networks and Low Levels of Activity, Much of Which is Not Research-Based

Facebook and Twitter were the top two additional strategies used by Canadian RBOs. There was wide variation in size of networks and frequencies of posts; however, predominantly, the use of social media by RBOs was modest. Like the Proctor et al. (2010) study, only a minority of RBOs could be considered frequent users of social media. Even where there were platforms for two-way communication (such as online forums or commenting on blogs), there were usually very low levels of activity and very little of the communication was research-based (14%). Most posts (39%) were opinion with some being used to provide organizational information (34%) or promote the organization (11%). Hence, even when social media is being used by research brokering organizations, it is not primarily a vehicle for research dissemination. The value of social media, however, might be in relation to how it connects people and allows them to interact and engage with larger networks for free across the globe.

Like Other KMb Strategies, Social Media Must Be Embedded in Larger Processes in Order to Promote Higher Levels of Activity and Substantive Interaction

Building a technological platform for interaction while creating capacity for online interaction does not ensure actual use. An analogy of Tristram Hooley (September 1, 2011) (an author of the guide for social media for researchers) compares many online strategies as building elaborate empty rooms. The implications of reported low levels of activity mean that, on their own, social media mechanisms will not necessarily increase KMb. Rather, like other strategies, they need to be embedded in larger processes that promote sustained interaction among groups. Similarly, the purpose of any interaction must be clearly articulated. Dissemination mechanisms are only vehicles to fulfill specific purposes; without specific goals around using various mechanisms, online strategies will likely not amount to much more than disorganized interaction. As it stands, additional online strategies do not seem to reach very many stakeholders (as a proportion of the size of various public education systems) and, because of this, organizations should be careful about sinking a lot of time and resources into these strategies due to uncertain return on these investments. This does not mean that organizations should not use social media, but that RBOs should think through purposes, strategies and outcomes of social media usage in order to engage in dialogues about cost-benefit analyses. If the goal is largest possible reach, than investing in building a robust twitter network might be valuable.

Conclusion

Canadian RBOs are not using very many online strategies in addition to their organizational websites and, when they do, much of the content and communication is not research-based. Even where there is capacity for online interaction, there are predominantly low levels of actual activity. These findings are not meant to diminish the potential of social media as a research dissemination tool, especially for target audiences that might be active participants of social media; it is just to say that, according to this research, the buzz around social media has yet to be substantiated. In fact, due to social media being somewhat new (especially in relation to research dissemination), it perhaps mirrors the diffusion of innovation model by Everett Rogers (1995) with innovators and early adopters leading the charge, with the early and late majority of organizations to follow after watching other RBOs implement successful research dissemination strategies using social media. Dede (2000) similarly cautions that the Internet, if utilized in the same way that traditional research dissemination has occurred (for example, simply transferring large quantities of data to practice settings) will not yield different results. Hence, Dede (2000) suggests that, "reconceptualising the historic role of information technology in knowledge mobilization and use is central to its future effectiveness" (p. 3). So far, at least among Canadian RBOs, social media and online strategies equate to unrealized potential, like so many other research dissemination mechanisms that have come before. Other mechanisms to continually encourage active participation will be required alongside Web 2.0 and social media tools, if these strategies are to become robust avenues for KMb and research dissemination.

References

Anderson, P. (2007). *What is Web 2.0? Ideas, technologies and implications for education.* London: JISC Retrieved from http://www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf

Cann, A., Dimitriou, K., & Hooley, T. (2011). *Social Media: A guide for researchers.* London: Research Information Network. Retrieved fromwww.rin.ac.uk/social-media-guide

CIBER. (2010). Social media and research workflow. London: Emerald Group Publishing Ltd. Retrieved from http://ciber-research.eu/download/20101111-social-media-report.pdf

Cooper, A. & Levin, B. (2010). Some Canadian contributions to understanding knowledge mobilization. *Evidence and Policy, 6*(3), 351-369. http://dx.doi.org/10.1332/174426410X524839h

Cooper, A., Levin, B., & Campbell, C. (2009). The growing (but still limited) importance of evidence in education policy and practice. *Journal of Educational Change, 10*(2-3), 159-171. http://dx.doi.org/10.1007/s10833-009-9107-0

Cooper, A. (2014). Knowledge mobilisation in education across Canada: A cross-case analysis of 44 research brokering organizations. *Evidence and Policy, 10*(1), 29-59. http://dx.doi.org/10.1332/174426413X662806

Duffy, M. (2000). The Internet as a research and dissemination resource. *Health Promotion International, 15*(4), 349-353. http://dx.doi.org/10.1093/heapro/15.4.349

Edelstein, H., Shah, S., & Levin, B. (2012). *Mining for data: Empirical data from the Use of Online Research project. IJHSS*, 2(9), p.1-12. Retrieved from www.**ijhss**net.com/journal/index/982

ICT (2010). *The world in 2010. Facts and Figures.* Switzerland: International Telecommunication Union. Retrieved from http://www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf

Kaplan, A., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons, 53,* 59-68. http://dx.doi.org/10.1016/j.bushor.2009.09.003

Levin, B. (2008). Thinking about knowledge mobilization. *Paper prepared for an invitational symposium sponsored by the Canadian Council on Learning and the Social Sciences and Humanities research Council of Canada.* Vancouver: Canada.

Omobono.(2011, March 3). *The world of social media in 2011: All the statistics, facts and figures.* Retrieved from https://www.youtube.com/watch?v=mgp7GwHxV14&feature=related

Proctor, R., Williams, R., & Stewart, J. (2010). *If you build it, will they come? How researchers perceive and use Web 2.0.* London: Research Information Network. Retrieved from http://www.rin.ac.uk/system/files/attachments/web_2.0_screen.pdf

Rogers, E. M. (1995). *Diffusion of innovations* (5th ed.). New York: Free Press.

Ullrich, C., Borau, K., Luo, H., Tan, X., Shen, L., Shen, R. (2008). *Why Web 2.0 is good for learning and for research: Principles and prototypes.* The International World Wide Web Conference. Beijing: China.

Appendix A

Table A1
Social Media Tools for Researchers (summarized and adapted from Cann et al., 2010)

Type of Tool	Definition
Communication:	
Blog	"Short for 'web log', blogs are websites composed of serial short or medium-length entries. Entries are commonly displayed in reverse-chronological order. Most blogs are interactive, allowing visitors to leave comments and even message each other via widgets on the blogs and it is this interactivity that distinguishes them from other static websites. Blogs may be maintained by an individual or collaborating group" (p. 44). Examples: Blogger, LiveJournal, TypePad, WordPress (p. 7).
Microblog	"A medium which allows users to broadcast short entries (typically 140 characters or less) in the form of test, a picture or a very short video clip to other users of the service" (p. 45). Examples: Twitter, Yammer (p. 7).
Location	Programs showing where your location is at any given time, so that your friends can meet up with you. Examples: Foursquare, Facebook Places (p. 7).
Social Networking	"The process of building online communities, often accomplished both through 'groups' and 'friends lists' that allow greater interaction on the website" (p. 46). Examples: Facebook, LinkedIn, MySpace (p. 7).
Aggregators	"Refers to a web site or computer software that aggregates information distributed across multiple online sources into a single location" (p. 44). Examples: Google Reader, Netvibes, Pageflakes, iGoogle (p. 7).
Collaboration:	
Conferencing	Tools that allow several or many persons to work together. Examples: Adobe Connect, GoToMeeting, Skype (p. 7).
Wikis	"Collaborative websites which can be directly edited by anyone with appropriate permission" (p. 46). Examples: PBworks, Wetpaint, Wikia (p. 7).
Social bookmarking	"Services which allow users to store, tag, organise, share, and search for bookmarks (links) to resources online. Unlike file sharing, the resources themselves are not shared, only the bookmarks which point to them" (p. 45). Examples: Delicious, Diigo, BibSonomy (p. 7).
Social bibliography	"Dynamic reference lists created collaboratively by multiple contributors, e/g/ by sharing a common tag on a social bookmarking or social citation service" (p. 45). Examples: CiteULike, Mendeley (p. 7).
Social news	"Websites where users can both submit links and vote them up or down. These sites are generally designed so the content that gets voted up the most is rewarded with more exposure on the site. Examples: Digg, Reddit, Newsvine (p. 7).

Table A1 (cont.'d)
Social Media Tools for Researchers (summarized and adapted from Cann et al., 2010)

Type of Tool	Definition
Social documents	Shared documents hosted on a site which allows multiple authors to contribute to and to edit a document" (p. 46). Examples: Google Docs, Dropbox, Zoho (p. 7). Examples: Bamboo, Basecamp, Huddle (p. 7).
Multimedia:	
Photographs	Examples: Flickr, Picasa, SmugMug (p. 7).
Video	Examples: Viddler, Vimeo, Youtube (p. 7)
Live streaming	Multimedia content that is viewed while being delivered by a streaming provider. "This can mean live broadcasting of video or audio over the Internet, or can be used to allow the viewer to consumer the content without waiting for the files to download" (p. 45). Examples: Justin.tv, Livestream, Ustream (p. 7)
Presentation sharing	Scribd, SlideShare, SlideRocket (p. 7)
Virtual Worlds	"Online communities in the form of a computer-based simulated environment, through which users can interact with one anothr and use and create objects" (p. 46). Examples: OpenSim, Second Life, World of Warcraft (p. 7).

Appendix B

Table B1
Organizational Acronyms and Websites

Research Brokering Organization	Acronym	Website	Province
Association of Educational Researchers of Ontario	AERO	http://www.aero-ontario.org	ON
Atlantic Institute for Market Studies	AIMS	http://www.aims.ca/en/home/default.aspx	NS
Canadian Centre for Knowledge Mobilization	CCKM	www.cckm.ca	National
Canadian Centre for Policy Alternatives	CCPA	www.policyalternatives.ca	National
Canadian Council for Learning	CCL	www.ccl-cca.ca	National
Canadian Education Association	CEA	www.cea-ace.ca	ON
Canadian Policy Research Networks	CPRN	http://www.cprn.org	National
CD Howe Institute	CD Howe	http://www.cdhowe.org	National
Center of Excellence for Early Childhood Development	CEECD	http://www.excellence-earlychildhood.ca	QC
Centre for Community Based Research	CCBR	http://www.communitybasedresearch.ca	ON
Council of Directors of Education	CODE	http://www.ontariodirectors.ca/	ON
Council of Ministers of Education of Canada	CMEC	http://www.cmec.ca/Pages/splash.aspx	National
Curriculum Services Canada	CSC	www.curriculum.org	National
Early Years Education Ontario Network	EYEON	http://eyeonkids.ca/	ON
Education Quality and Accountability Office	EQAO	www.eqao.com	ON
Evidence-Based Education Services Team	E-BEST	http://www.hwdsb.on.ca/e-best	ON
Galileo Network for Leadership in Learning	Galileo	www.galileo.org	AL
Harris Centre	HC	http://www.mun.ca/harriscentre	NFLD
Human Early Learning Partnership	HELP	http://www.earlylearning.ubc.ca	BC
Leading English Education and Resource Network	LEARN	www.learnquebec.ca	QC
Learning Disabilities Association of Canada	LDAC	http://www.ldac-acta.ca/	National
Learning Disabilities Association of Nova Scotia	LDANS	http://www.ldans.ca/	NS
Learning Disabilities Association of Ontario	LDAO	http://www.ldao.ca	ON
Learning Disabilities Association of Saskatchewan	LDAS	http://www.ldas.org	SK
Literacy BC	LiteracyBC	www.literacybc.ca	BC

Table B1 (cont'd)
Organizational Acronyms and Websites

Research Brokering Organization	Acronym	Website	Province
Literacy Coalition of New Brunswick	LCNB	http://www.nb.literacy.ca/about.htm	NB
Manitoba Council for Leadership Development in Education	MCLE	http://www.mcle.ca/index.php	MB
Manitoba Education Research Network	MERN	http://www.mern.ca/index.asp	MB
Ontario Research Strategy and Evaluation	ERESB	http://www.edu.gov.on.ca/eng/research/strategy.html	ON
People for Education	P4E	http://www.peopleforeducation.com	ON
Provincial Centre of Excellence for Child and Youth Mental Health	the Centre	www.excellenceforchildandyouth.ca	ON
Research Impact	RI	http://www.researchimpact.ca	ON
Research Supporting Practice in Education	RSPE	www.oise.utoronto.ca/rspe	ON
Saskatchewan Literacy Network	SK Literacy	www.sk.literacy.ca	SK
Social Sciences and Humanities Research Council	SSHRC	www.sshrc.ca	National
Society for Quality Education	SQE	www.societyforqualityeducation.org	ON
Society for the Advancement of Excellence in Education	SAEE	www.saee.ca	ON
Strategic Knowledge Cluster on Early Childhood Development	SKE-ECD	http://www.skc-ecd.ca/home.html	QC
The childcare resource and research unit	CRRU	http://www.childcarecanada.org	ON
The Fraser	Fraser	www.fraserinstitute.org	National
The Hanen Centre	HANEN	www.hanen.org	ON
The Learning Partnership	TLP	www.thelearningpartnership.ca	ON
The Ontario Research and Innovation Optical Network	ORION	http://www.orion.on.ca/	ON
The Promoting Relationships and Eliminating Violence Network	PREVNet	http://prevnet.ca	National

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education policy analysis archives
Volume 22 Number 88 September 1st, 2014 ISSN 1068-2341