

**EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES
USE SOCIAL MEDIA**

By

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TABLE OF CONTENTS

TABLE OF CONTENTS	3
ABSTRACT	4
LIST OF TABLES AND FIGURES	5
TABLES.....	5
FIGURES.....	5
CHAPTER 1: INTRODUCTION	6
CHAPTER 2: LITERATURE REVIEW	10
INTRODUCTION	10
KEY DEFINITIONS	11
METHODOLOGY.....	13
DISCUSSION	15
ANALYSIS OF RESULTS.....	29
SUMMARY	31
CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY	33
INTRODUCTION	33
DESIGN.....	34
PROCEDURES	44
ANALYSIS	47
RELIABILITY AND VALIDITY.....	48
SUMMARY	49
CHAPTER 4: FINDINGS AND DISCUSSION CHAPTER	51
INTRODUCTION	51
ANALYSIS PROCEDURE.....	52
FINDINGS	54
DISCUSSION	67
SUMMARY	73
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS	74
INTRODUCTION	74
SUMMARY OF FINDINGS.....	74
CONTRIBUTION TO THE LITERATURE AND PRACTICE	77
FUTURE DIRECTION	78
CONCLUSION	79
REFERENCES	81
APPENDIX A: GUIDELINES AND RECOMMENDATIONS FOR SOCIAL MEDIA USAGE	87
APPENDIX B: RECRUITMENT TEXT	89
APPENDIX C: INFORMATION PROVIDED TO PARTICIPANTS AND CONSENT	90

ABSTRACT

While funding organizations increasingly expect research findings to be communicated to a variety of publics, researchers and academic research centres/institutes (ARCI) often have limited resources for communication and promotion, presenting an opportunity to explore how social media might be a low-cost solution. A review of recent literature reveals a lack of qualitative research informing how ARCI use social media and a gap in applying theory to practice based on a lack of social media guidelines. To address this gap and improve understanding of how ARCI use social media to communicate and engage with publics online, this study conducts an exploratory multiple case study of six ARCI from one Canadian university. A dialogic theory framework is chosen because of social media's capacity for two-way communication and the observed trend in public relations literature towards relationship building. Kent and Taylor's (2002) five principles of dialogic theory are used to construct the data collection tool and to analyze the findings. From semi-structured interviews and online sources analyzed using conventional content analysis, the findings indicate that social media are generally being used by ARCI for one-way communication to disseminate information and build awareness, in complement to other channels, and to target a variety of publics.

Recommendations for practice based on the findings include several strategic considerations regarding platform suitability, brand personality and voice, target publics, content planning and message features. These recommendations provide some preliminary guidelines for ARCI wanting to use or improve their usage of social media, and serve as a starting point for future research to build on and refine.

Keywords: Social Media, Research Centres, Research Institutes, Science Communication, Dialogic Theory

LIST OF TABLES AND FIGURES

Tables

Table 1 Data collection instrument for interviews.....42

Table 2 Background information about participants.....56

Figures

Figure 1 Gender of interview participants.....55

CHAPTER 1: INTRODUCTION

Since the invention of the Internet, the communications landscape has changed significantly as a variety of web-based media and platforms have been developed and widely adopted. Among these are several popular social media platforms (Facebook, Twitter, Instagram, etc.) we know today. Although social media have increasingly become used as marketing and communications tools in response to their mass adoption by the public, their full potential is still being explored among different groups and in various contexts. Unlike traditional communication channels, such as TV and radio, social media features enable the capacity for two-way communication and engagement, and they are typically low cost. These considerations and rapid public adoption of these tools have made social media attractive to various groups.

Researchers (or scientists) are one group that has gradually adopted social media. While some literature looks at how individual researchers use social media, as well as motivations for and barriers to usage (see Al-Aufi & Fulton, 2015; Collins, Shiffman & Rock, 2016; Donelan, 2016; Gruzd & Goertzen, 2013; Jamali et al., 2014; Li & Greenhow, 2015; Nandez & Borrego, 2013; Nikiphorou et al., 2017; Osterrieder, 2013; Ecklund, James & Lincoln, 2012; Nicholas & Rowlands, 2011), there is a lack of detailed guidelines on social media for researchers, indicating a gap between theory and practice. Veletsianos and Kimmons (2016) and Osterrieder (2013) provide some general guidelines in their research, but further details are needed to illustrate how social media can be used effectively. This gap is especially worth noting, as the literature indicates that a lack of knowledge and training are some barriers inhibiting social media uptake among researchers. In addition, although academic research centres and institutes (ARCI) are units often present within academic institutions and represent groups of researchers and their work, a review of the literature indicates a lack of research on how these groups use social

media. These gaps together form the problem addressed in this study. Despite funding restrictions, funding organizations are increasingly expecting researchers to actively promote the work being funded and to communicate to various publics, which is commonly acknowledged in the literature (Osterrieder, 2013; Wilkinson and Weitkamp, 2013). ARCIs often have limited resources to focus on communication and promotion, and social media presents an important opportunity, yet little guidance exists for how to use it effectively.

A broader search of the literature (beyond the gap regarding ARCIs) to examine the use of social media in science communication yields several major themes of discussion that form the context of this research. Several studies in the literature investigate the perceptions and usage of social media among researchers and organizations. Overall, these studies report mixed perceptions of social media, variance in social media uptake among academics, a variety of motivations and barriers of social media usage, and that most organizations primarily use social media for one-way communication. Some other key literature that provides valuable background for my study discusses the role of social media in the changing media landscape in research and academia, as well in the context of science communication and the related field of public relations. Liang et al.'s (2014) article was of particular significance, discussing the changing media landscape and examining social media usage in regards to increasing scientific impact. Although other science communication and public relations literature, such as Marin-Gonzalez et al. (2016), highlight the importance of strategy in using social media, few studies cover guidelines and recommendations for social media usage, illustrating a gap between theory and practice.

Contextualizing the research problem within the fields of science communication and public relations, this research explores how ARCIs use social media to communicate and engage

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

with online publics, in an effort to better understand successful practices. To address the gap between theory and practice, this study develops some preliminary guidelines for social media usage among ARCIs, based on the research findings. The study findings add to the body of knowledge, addressing two areas lacking in the literature, and provide a starting point for developing more detailed guidelines for ARCIs using or wanting to use social media.

A qualitative research design is applied to answer the question of how ARCIs use social media. While cross-sectional research, descriptive research, and comparative studies are some designs that have been considered, an exploratory multiple-case study approach is chosen for several reasons. The exploratory case study design allows researchers to gain an “in-depth understanding of a single or small number of cases to produce an invaluable and deep understanding...hopefully resulting in new learning about real-world behavior and its meaning” (Yin, 2012, p. 4). In addition, the case study approach is useful in situations where little information is available about a phenomenon or topic (University of Southern California, 2018), as is the case with ARCIs and social media guidelines. Cases are selected from the University of Alberta list of ARCIs, and data are collected via semi-structured interviews and online documents. A dialogic theory framework is chosen because of social media’s capacity for two-way communication and the observed trend in public relations literature towards relationship building. Kent and Taylor’s (2002) five principles of dialogic theory and elements of public relations and communications strategy inform the design of the data collection tool. The data collected from interviews and documents are then analyzed using conventional content analysis and assessed in terms of the dialogic theoretical framework and elements of public relations strategy. Conventional content analysis is chosen over directed or summative content analysis because it is suitable “when existing theory or research literature on a phenomenon is limited”

and involves “allowing the categories and names for categories to flow from the data...without imposing preconceived categories or theoretical perspectives” (Hsieh & Shannon, 2005, p. 1279). Thus, conventional content analysis is appropriate for the exploratory nature of the study.

The study sample is limited to ARCIs at the University of Alberta due to time and financial constraints. While the study findings are valuable in terms of providing insight into a phenomenon that is lacking research, future research should investigate ARCIs from other academic institutions to determine if institutional differences reveal any variation in findings.

In summary, this research addresses the question of how ARCIs use social media to communicate and engage with online publics, to gain a better understanding of successful practices among ARCIs and address the gap between theory and practice. An exploratory multiple case study design is used to gather rich data from six ARCIs at the University of Alberta. The study findings from conventional content analysis contribute knowledge to the identified areas lacking in the literature and are used to provide some preliminary guidelines for ARCIs using or wanting to use social media.

This research report is divided into several chapters. Chapter 2 reviews the related literature in the fields of science communication and public relations. Chapter 3 discusses the research design and methodology chosen to conduct the study. Chapter 4 summarizes the study findings, and presents the analysis and results. Lastly, Chapter 5 concludes the study and highlights recommendations for social media usage based on the research findings.

The following chapter reviews literature related to the research problem and discusses key findings from the literature that further refine the research question and direct the study.

CHAPTER 2: LITERATURE REVIEW

INTRODUCTION

As popular social media platforms (Facebook, Twitter, Instagram, etc.) have emerged, they have undeniably changed how we communicate, and we are still striving to understand the different contexts and ways in which these media are being used by individuals and organizations. In contrast to traditional communication channels, such as TV and radio, which typically communicate in a one-way direction, social media channels provide the potential for two-way communication and engagement between users. In addition, social media are much more affordable communication and marketing tools than traditional broadcast media.

Researchers (or scientists) are one such group that has started to use social media, as evidenced from the literature. While some literature looks at how individual researchers use social media, as well as motivations for and barriers to usage, a gap exists with regards to how academic research centres and institutes (ARCI) use social media and in applying theory to practice.

Governments and other funding organizations increasingly expect researchers to actively promote the work being funded and to communicate to various publics, as commonly acknowledged in the literature (Osterrieder, 2013; Wilkinson and Weitkamp, 2013). Researchers and ARCI, however, often have limited resources to put towards communication and promotion, due to reliance on funding and funding restrictions, emphasizing a need for low-cost communication options—such as social media. Because ARCI are entities (within academic institutions) supported by public and/or private funding, they could potentially be using social media not only to communicate research with other academics and publics, but also to build the brand identity of the ARCI as part of a broader marketing strategy. Thus, it is necessary to better

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

understand the context and manner in which ARCIIs are using social media, in order to develop guidelines on best practices for ARCIIs.

The following sections of my literature review introduce key terms that apply to my research; explain the methodology used to conduct my literature review; discuss themes and key findings from the literature related to my research topic; analyze the literature review results; and conclude with a summary of the key findings.

KEY DEFINITIONS

Academic Research Centres and Institutes (ARCIIs)

Using the definition in the University of Alberta Policies and Procedures On-Line (2013) to frame my research, academic research centres are units that form to conduct a research program beyond a single project and are typically mandated under one Faculty; research institutes are similar but usually have a broader scope than centres and are interdisciplinary. Even though some differences in terminology may exist, I have chosen to define ARCIIs as research groups that operate under a name (or brand) that is distinctive and indicative of a particular research area within a faculty, or across faculties, and yet still tied to its reputation. Academic institutions, however, are much larger and broader in scope than centres and institutes, with their communications strategies reflecting the diversity of the research and activities happening within the whole institution. Thus, although ARCIIs are units within an academic institution, the extent of the work that they do may not be communicated to other researchers and the public unless they take the initiative themselves to share their work across communication channels.

Social Media and Social Network Sites

Social media is a term that can be broadly interpreted, and must be defined for the purpose of my research. To distinguish between social media and other similar terms, Kaplan and Haenlein (2010) define social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (p. 61). However, this definition is still relatively broad and does not help to classify different types of sites/platforms.

The definition of social network sites by boyd and Ellison (2008) more closely defines social network sites as:

web-based-services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system (p. 211).

While Kaplan and Haenlein’s (2010) definition helps to distinguish social media from Web 2.0 and User Generated Content, boyd and Ellison’s (2008) definition is more detailed, defining social media in terms of features. When users sign up for a social media platform, they are directed to create a profile that will be public or visible to a list of contacts/friends. Users can then connect with and interact with others within the social network, building connections or relationships. These characteristic features of profile creation, friend lists, and means of viewing and contacting potential connections within a bounded network support the cultivation of two-way interactions, distinguishing social media from traditional media. boyd and Ellison’s (2008) definition aligns with several popular social media platforms, such as Twitter and Facebook, as

well as with more research-oriented platforms, such as ResearchGate. Both definitions together set the context in which I use the term social media.

METHODOLOGY

My literature review is designed to provide an overview of recent key literature informing my research direction. Initially, my search focused on ARCI and their use of social media, but the evidence gap led me to expand my search more broadly to include social media usage in the context of scholarly communication and science communication.

In establishing the study context, it is helpful to provide some historical background of the field of science communication by referencing Liang et al. (2014). “Historically, changing socio-cultural patterns and an evolving communication environment have led to renewed attention to scientists’ roles in communicating science outside the ivory tower” (Liang et al., 2014, p.773). Since World War I, the “desire for public acceptance of scientific research” has grown, particularly with regards to new technologies that have “significant social and ethical implications” (Liang et al., 2014, p. 773). Scientists and institutions have come to pay more attention to media, and vice versa (Liang et al., 2014). The Internet has played a major role in altering the “media environment and audiences’ media consumption habits” (Liang et al., 2014, p. 773). The public now consumes science news and information through both traditional and online channels, and roughly half of the public obtain updates on scientific developments via online channels (Liang et al., 2014). Thus, the field of science communication serves as an appropriate context in which to set my questions and my study, as social media platforms have emerged with the invention of the Internet and play a role in the evolution of the communication environment.

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

Given this context, I used two main literature review questions (LQ) to guide my search of the literature:

- LQ1: What studies within the science communication literature examine the use of social media by researchers and research centres/institutes?
- LQ2: What articles in the past 20 years examine the use of social media in science communication?

To answer these questions, I created a systematic library search process, aiming to capture recent research as well as important foundational studies that have been commonly cited in the literature. Through the University of Alberta library portal, I used EBSCO and Google Scholar to conduct my search. Key terms I used to start my search included the following:

- Scientists
- Researchers
- Social media
- Social network
- Information communication technology
- Communication
- Scholars
- Science organizations
- Social media usage
- Digital media
- Information Dissemination
- Public communication

After finding several key articles, I also looked at the reference lists of articles to search for additional sources that have been commonly cited in the literature. Approximately 70 articles were initially identified, based on details presented in the abstract, and included in my Mendeley library; after more in-depth reading and assessment, about 50 of these articles were selected after being found to meet my criteria for inclusion in my literature review.

Eligibility criteria used to narrow down my final selection of articles included relevancy, date of publication, citation frequency, peer review, academic rigor and bias. The methodology

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

and theoretical frameworks were also considered and evaluated for relevancy in relation to my research questions. Much of the literature included is quite recent, spanning primarily from 2008 to 2017, which aligns with my intention of covering recent research to best reflect the latest findings and trends in social media research with respect to my topic.

One article outside this date range is an essay by Kent and Taylor (2002) that explains dialogic communication and its value in communications and public relations. Dialogic communication is relevant to my paper because social media tools are uniquely capable of supporting dialogic communication in contrast to traditional media such as TV and radio (although social media's dialogic capabilities are not always utilized, as discussed later in this paper).

While most sources are from peer-reviewed academic journals, a few websites were also selected as relevant. For instance, I used the definition from the University of Alberta's website to define ARCI, and I included some websites that contributed to my section on guidelines and recommendations for social media usage, as few journal articles provide social media guidelines.

DISCUSSION

This section is divided into themes that emerged from my literature search and includes discussion of the selected literature, as related to my research topic and the questions (LQ1 and LQ2) that directed my search.

Perceptions and Usage of Social Media by Researchers

This section discusses literature on perceptions and usage of social media by researchers, addressing LQ1.

Mixed Perceptions. Social media usage is associated with both positive and negative perceptions in the literature. Positive perceptions by researchers and scholars include viewing social media as having a role in the academic context and for research purposes (Joshi et al., 2013). In Al-Aufi and Fulton's (2015) study of academics in the humanities and social sciences, the majority of respondents perceived using social media as important or very important for informal scholarly communication, but almost one third of respondents had never used social media, indicating a gap between perception and usage. Grande et al. (2014) found that researchers want to use social media, but desire strategies and guidance.

In contrast, other research reveals that researchers do not perceive social media as useful or suitable to their work. Donelan (2016) found that only 50% of survey respondents felt social media contributed positively to their career progression. Collins, Shiffman and Rock (2016) surveyed scientists from different fields, and most reported using Facebook for personal communication; few respondents perceived Facebook as "suitable for science communication to the general public" (p. 8). Some negative perceptions were also found to be associated with perceived barriers to using social media (Ecklund, James & Lincoln, 2012).

Benefits and Motivations. Several articles in the literature have studied researchers' motivations for and benefits of using social media. Motivations have also been found to differ by tool (Manca & Ranier, 2017); for example, LinkedIn is professionally oriented. Other factors found to influence the usage of different channels include age, years of teaching and discipline (Manca & Ranier, 2017).

Networking, knowledge exchange (or information gathering), collaboration and research dissemination are the most commonly reported benefits and motivations of scholarly social media usage in the literature (Al-Aufi & Fulton, 2015; Collins, Shiffman & Rock, 2016;

Donelan, 2016; Gruzd & Goertzen, 2013; Jamali et al., 2014; Li & Greenhow, 2015; Nandez & Borrego, 2013; Nikiphorou et al., 2017; Osterrieder, 2013). Nicholas and Rowlands (2011) also found ease of accessibility to be a benefit that motivates users. Pilaar Birch's (2013) study additionally notes that social media enable research communication to be open access as well as accessible potentially across multiple online channels.

Murthy and Lewis (2014) studied social media usage by applying social network theory to assess weak and strong ties in a hybrid online/face-to-face community. The community structure was found to be conducive to weaker types of collaboration—information aggregation and knowledge sharing—which aligns with commonly cited benefits of social media in other studies.

Veletsianos (2013) took a unique approach, employing self ethnography and a constructivist perspective to exploring practices and activities that occur when researchers use social media, concluding that social media provide a place where academics can gather and share their research, thoughts and experiences.

Alabi, Onifade and Sokoya (2013) found significant benefits of social media within the context of Nigerian agricultural researchers, where traditional research methods such as seminars and workshops are unable to reach large audiences. Alabi, Onifade and Sokoya (2013) noted that social media were beneficial in solving problems related to geographic separation, locating a mentor and place of research, as well as in improving the speed of publication.

Barriers to Usage. While it is evident from the literature that researchers perceive benefits and motivations to using social media, several barriers to usage are also perceived and could explain why some researchers have not yet adopted social media. The most commonly mentioned barriers include lack of time, lack of knowledge (or digital literacy), lack of training,

institutional disincentive, and concerns about online security (or trust) (Al-Aufi & Fulton, 2015; Donelan, 2016; Ecklund, James & Lincoln, 2012; Nicholas & Rowlands, 2011; Nikiphorou et al., 2017). In other literature, researchers have expressed concerns that social media could allow misinterpretation or oversimplification of research findings (Grande et al., 2014) and potentially result in information overload (Jamali et al., 2014). Additional concerns have been voiced regarding how social media factor into career advancement and funding, as well as visibility (Jamali et al., 2014).

Many barriers can be overcome if institutions encourage usage and assist with educating and training scholars on how to effectively use social media as well as how to manage it as part of the research workflow. Jaring and Back's (2017) case study of a technology development company provides some evidence of the positive effects of implementing a social media policy and training sessions to familiarize researchers with social media and best practices. Tran and Lyon (2017) also discuss providing support to overcome barriers to social media use, suggesting that librarians be equipped with the knowledge to help researchers (for example, through creating tutorials and hosting workshops).

Social Media Uptake. While some studies highlight low social media usage among researchers (Liang et al., 2014; Gu and Widen-Wulff, 2011), more recent research has found a significant number of researchers using social media (Al-Aufi & Fulton, 2015). In particular, a number of studies have examined social media usage among researchers in the social sciences and humanities, possibly indicating a disciplinary difference in social media uptake.

Al-Aufi & Fulton (2015) found that Facebook, Twitter and Google+ were the most frequently used within a sample of academics from the humanities and social sciences, and almost half of respondents had been using social media for three years. Their research also found

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

that just over 70% of respondents used social media for scholarly communication, indicating a relatively high uptake of social media. Similarly, Gruzd and Goertzen (2013) looked at social science scholars and concluded that “the percentage of non-users and those who do not plan to use social media for professional purposes was less than 30%” (p. 3339). Of different types of social media platforms considered, non-academic social media, such as Facebook and Twitter, were the most popular, with 71% of respondents being frequent users (Gruzd & Goertzen, 2013). Jamali et al. (2014) also surveyed researchers from the humanities and social sciences, but found that the most actively used platforms were Facebook and LinkedIn.

Kjellberg, Haider and Sundin (2016) conducted a review of 80 articles and found that uptake of different online tools, including social media, varies among different groups of academics and that “the most popular tools are not necessarily the ones primarily intended for direct interaction or communication, but rather for maintaining a network or to support (collaborative) writing” (p. 7). The authors also note that demographic differences related to usage are not obviously associated with age or seniority, although some studies conclude that younger faculty are more likely to use social media. Ortega’s (2015) study also examined differences in the use of social media by researchers, finding that different disciplinary groups tended to use different social media tools; however, the sample focused on researchers who use academic-oriented social media sites, such as Academia.edu and ResearchGate, and did not consider popular mass-adopted social media channels.

In conclusion, recent literature indicates that a significant amount of variance still exists in the level of social media uptake among different groups of researchers, as well as in the types of social media used by different groups.

Social Media Complementing Traditional Media. Some studies have concluded that social media complement traditional media, rather than replace them in the academic context. Tenopir, Volentine and King (2013) surveyed a large sample of academic staff in the UK and found that social media complemented traditional tools and resources for teaching and research.

In the Digital Research Video Project studied by Pilaar Birch (2013), traditional methods used included radio interviews and poster presentations in complement to promoting research across a variety of online channels, including websites and social media. The combination of traditional and online media resulted in several positive outreach effects, including tweets, retweets, and emails from instructors asking to use videos from the project in their classrooms.

In contrast, Wilkinson and Weitkamp (2013) surveyed environmental researchers and concluded that traditional channels such as journals and face-to-face communication were preferred over social media for research dissemination. However, responses did indicate “that researchers are still adapting to more novel communication approaches (such as social media) and are engaging largely for individual reasons, rather than to fulfil a particular communication or impact agenda” (Wilkinson and Weitkamp, 2013, p. 7).

Considering that communications and public relations strategies employ a range of media, it would seem logical that social media and traditional media complement each another. Noting that the literature on barriers to social media usage indicates a need to train and educate researchers on how to use social media, it may also be important to educate researchers on how to integrate both traditional and social media into a combined communications strategy. This consideration could also potentially apply to ARCIIs and their use of social media.

In summary, the literature on perceptions and usage of social media by researchers illustrate that social media usage is associated with both positive and negative perceptions and

uptake continues to be relatively gradual, although varying levels of uptake and usage of different platforms have been reported by different studies. In addition, social media have been observed to complement traditional media. Networking, knowledge exchange, collaboration and research dissemination are the most commonly reported motivations of researchers using social media, while the most commonly mentioned barriers include lack of time, lack of knowledge, lack of training, institutional disincentive, and concerns about online security.

Perceptions and Usage of Social Media by Organizations

As my research seeks to address the gap on how ARCI's use social media, my expanded search of the literature revealed research on organizations' use of social media, which could potentially relate to my topic on how ARCI's use social media, since centres/institutes are essentially small organizations.

Affordances of Social Media. In gaining a better understanding of social media within the organizational context, Treem and Leonardi's (2013) review of literature provides insight into the main social media affordances (i.e., perceptions of utility) among organizations. They conclude that social media yield four main affordances for organizations: visibility, persistence/recordability, editability, and association/relationship. Unlike other forms of communication, social media provide all these affordances at once. These affordances are significant factors to consider in the use of social media for research communication by both individuals and organizations, as these essential functions of social media should be utilized in a strategic manner.

Engaging in Dialogue. Several studies have revealed that organizations are not maximizing the dialogic capabilities of social media and continue to primarily employ one-way

communication. Examining how the National Oceanic Atmospheric Association (NOAA) uses Facebook to interact with publics, Lee, VanDyke and Cummins (2017) concluded that the NOAA primarily used Facebook for one-way information dissemination and engaged in very little dialogue on their posts. Additionally, the NOAA did not allow users to post directly to the page, so users would have to comment on a particular post just to ask a question, and even then, most questions were ignored by the NOAA. Similarly, Lee and VanDyke (2015) analyzed several Facebook and Twitter pages from U.S. federal science agencies. Considering science communication and public relations theory, they concluded that the potential of social media for two-way communication is being largely neglected since federal science agencies are primarily using Facebook and Twitter to disseminate information. Lovejoy, Waters and Saxton (2012) looked at tweets from 73 nonprofit organizations, discovering that some used Twitter to engage in dialogue, but most continued to use one-way communication to disseminate information. Coming to a similar conclusion, Veletsianos et al. (2017) studied Twitter usage among universities, and found that universities primarily used Twitter for broadcasting, promoting and branding.

As evidenced from the literature, organizations still tend to use one-way communication and are not fully utilizing the dialogic capabilities of social media, which indicates an opportunity to improve communication and engagement with publics. In my research on how ARCIIs are using social media, it will be interesting to examine whether ARCIIs are engaging in dialogue to reach their desired publics.

Using Humour to Engage Publics. Incorporating humour in social media messages can be a strategic way to engage people's attention. Examining the use of humour, Fraustino and Ma (2015) looked at the Centre for Disease Control's (CDC) health awareness campaign, which

creatively referenced zombie apocalypse preparedness to promote emergency preparedness.

While humour can improve message likeability and persuasion, Fraustino and Ma (2015) caution that humour is likely more suitable to generating buzz and awareness than in achieving behavioural change. Thus, this study illustrates the importance of aligning message content and tone with goals when deciding whether to employ humour as an engagement tactic.

In summary, social media afford several features as a tool in terms of visibility, recordability, editability, and association, and unlike other forms of communication, social media provide all these affordances at once. However, despite these affordances, organizations still tend to use social media for one-way communication and are not fully utilizing the dialogic capabilities of social media, which indicates an opportunity to improve communication and engagement with publics. Although incorporating humour in social media messages has been popularly observed as one strategic way to engage people's attention, the importance of aligning message content and tone with goals is highlighted as an important strategic consideration.

Changing Media Landscape in Research and Academia

The Internet has significantly changed how we communicate, giving rise to the online media we are familiar with today. To give context to social media usage by researchers, I included a selection of literature that consider the shifts taking place in the media landscape of research and academia. As Liang et al. (2014) well describes,

The Internet has fundamentally changed our modern media environment and audiences' media consumption habits... In light of these changes, the boundaries of communication that exist between scientists, journalists, and public audience [have] become more blurred. The public relies on various media across both traditional and online platforms

for science news and information, and almost half of the public turns to online sources to follow developments in scientific fields. This poses new opportunities for scientists to play an active role in communicating directly with various publics. (p. 773).

Information Consumption. Although Liang et al. (2014) point out that the general public have begun to consume information primarily from online sources, this may not be happening at the same rate for researchers and scientists. Allgaier et al. (2013) surveyed neuroscientists on their usage of new media (such as blogs and social media) and traditional media (such as journals) with respect to their information-seeking habits. Interestingly, traditional media were found to dominate, as neuroscientists “continue to rely heavily on journalistic outlets such as newspapers, magazines, radio, and television,” and although “they have clearly embraced online analogs of those channels...[they] show less interest in monitoring science developments through blogs or other types of social channels” (Allgaier et al., 2013, p. 286). However, many neuroscientists did report perceiving blogs and social media as channels that significantly influence public opinion and decisions in politics. Despite this finding, few reported actually using online channels.

Publishing. Another key trend in the information age is the movement towards openness and transparency in publishing, and the traditional idea of what constitutes a scholarly publication is changing (Scanlon, 2014). Scanlon (2014) concluded that some academics are “involved in a variety of different forms of publication whether informal (blogs, web pages) or formal (journal papers and conference proceedings) while having a developed view of how these forms of publication relate to forms of verification such as (open) peer review” (p. 19).

Communication and Dissemination. While new media such as social media provide an opportunity for researchers and scientists to take on a more active and direct role as content

creators and communicators, the literature indicates that the impact of online media, such as social media, in relation to traditional media, such as print and radio, is still being examined as the media landscape continues to shift and as researchers gradually adopt online tools. Gu and Widen-Wulff (2011) found from their survey of academic staff at a Finnish university that nearly 40% of researchers perceived social media as useful for scholarly communication—including collaboration within one's university and externally, as well as information dissemination—even though they themselves were not very active. The finding of low social media usage for scholarly communication aligns with Liang et al.'s (2014) study.

Scientific Impact. Some literature has also looked at how online media, including social media, may contribute to scientific impact, as “science journalism has shifted from traditional to online media platforms, [and] scientists are interacting with reporters more frequently and seamlessly” (Liang et al., 2014, p.774). Liang et al. (2014) surveyed nano-scientists on their use of traditional and online media, including Twitter, and their interactions with science journalists. They found that Twitter mentions of respondents and their research were associated with higher scientific impact. This finding indicated that “outreach activities, such as interactions with reporters and being mentioned on Twitter, can assist a scientist's career by promoting his or her scientific impact” (Liang et al., 2014, p. 781).

In summary, although social media have been gaining awareness among researchers and scientists, mixed levels of social media uptake within the scientific community have been reported. While some research points to beneficial usage of social media among academics, adoption of social media generally continues to be gradual, making it difficult to assess the extent to which social media are impacting the research community.

Science Communication Context and the Field of Public Relations and Communications

The field of public relations has developed alongside technology, with practitioners adopting different internet tools as they have emerged (Huang, Wu & Huang, 2016). As one category of online tools adopted by public relations and communications practitioners, social media are often used to communicate science to different publics, and as a result, several studies have been conducted. This section provides an overview of literature involving social media usage within the broader context of science communication and the related field of public relations and communications (addressing LQ2).

One-Way Versus Two-Way Communication. Su et al.'s (2017) recent research is particularly significant in this area, as they use both science communication and public relations theory to frame their study of Twitter usage for one-way and two-way communication in the context of science festivals. Despite the changing media landscape and the capabilities of social media to be used for two-way communication (in contrast to traditional media that afford only one-way communication), Su et al.'s (2017) research found that two-way communication features are not being fully used, illustrating that the traditional one-way model of communication remains heavily ingrained. One reason that many organizations may continue to use one-way communication could be concern regarding potential exploitation of content disclosed; however, dialogue can be viewed as a more ethical approach that builds trust and “[increases] the likelihood that publics and organizations will better understand each other and have ground rules for communication” (Kent & Taylor, 2002, p. 33).

Message Language and Clarity. In science communication, message clarity and accuracy are especially important since scientific findings are being communicated to the general public as well as other academics. In one study, presenters were asked to rate the effectiveness of

conference tweets about their research, and those that were found to be less effective exhibited issues in communicating the presenter's point accurately or clearly (Bombaci et al., 2016). This finding indicates the importance of language in science communication and in ensuring that social media are used to communicate accurately and effectively.

Strategic Message Content. Message content is important and should also be crafted with strategy, as evidenced from the literature. In Hwong et al.'s (2016) study of space science-related messages, tweets with high informational value were noted to garner more retweets/shares, and engagement was also a notable factor in messages.

Communications Strategy. Social media are often used in combination with other forms of dissemination to create an integrated communications strategy, as illustrated by Marin-Gonzalez et al. (2016). They examined how the results of a collaborative health project funded by the European Commission were communicated. Both in-person and online methods of dissemination were used, with a particular focus on online tools (e.g., Twitter, Storify) to reach target audiences. Williams (2011) also illustrated how a combination of different media can be effective, using a Facebook page to drive traffic to a website on soccer-related research and facilitate knowledge translation for coaches and athletes.

Kapp, Hensel and Schnoring (2015) draw attention to the importance of employing a strategy with their research on Twitter usage among healthy policy makers. By studying the activity level and engagement of policy makers on Twitter, they identified those which are active and could be potentially targeted by researchers, suggesting ways that researchers can engage policy makers on Twitter. However, Kapp, Hensel and Schnoring (2015) concluded that further research is still needed to identify successful approaches for social media use in disseminating findings, translating research and informing policy decision making. Nisbet and Scheufele

(2009) pointed out a need for strategy as well after reviewing several studies on how the public interprets and takes part in societal discussion and decisions about science and technology. More specifically, they emphasize a need to craft science communication initiatives that are informed by research, incorporate a range of media platforms and audiences, and engage in dialogue tailored to public interests, perspectives and values.

Overall, the selected literature on science communication illustrate the importance of a communications or public relations strategy, which should include targeted and engaging messaging for specified audiences, as well as consider including a range of different communication channels. These elements may be useful to consider in assessing how ARCIs are using social media.

Guidelines and Recommendations for Social Media Usage

This section is relevant to LQ1 and LQ2 in terms of what information could be influencing how researchers and ARCIs use (or do not use) social media, and the scholarly literature indicates a necessity for more detailed guidelines to help researchers use social media effectively. To expand on the topic of guidelines and recommendations for social media use, which inform my own research outcomes regarding best practices for ARCIs, I also included some internet sources in my discussion. Due to length constraints, the discussion of literature and other sources on this topic are included in Appendix A.

In summary, while some studies look at perception and usage of social media among scientists and organizations, these studies do not consider how to bridge the gap between theory

and practice to improve usage. There has been little research investigating or recommending best practices and guidelines for social media use by scientists and/or research organizations.

ANALYSIS OF RESULTS

This section summarizes key findings from the literature, highlighting research gaps and relating the topic of the present study to the broader area of research; establishes the theoretical framework to be applied; and concludes with the resulting research questions that guide the study.

Key Findings from the Literature

While some literature looks at how scientists and/or research organizations use social media, as well as motivations for and barriers to usage, a gap exists with regards to how ARCI's use social media and how theory can be applied to practice to improve social media usage within the academic community.

Although several studies have pointed to a need for guidelines to direct academics on how to use social media, little scholarly research actually provides recommendations.

Veletsianos and Kimmons (2016) and Osterrieder (2013) provide some general guidelines, but further details on effective and strategic social media usage are needed.

Reviewing some related public relations literature within the context of science communication reveals strategic considerations for social media usage among researchers and/or research organizations, which could potentially contribute to developing social media guidelines. Key findings suggest that a communications strategy taking into account target publics, message content and language, and the integration of different communication channels is an important

factor in successful communications practice. In addition, dialogic theory within the context of public relations was found to be suitable as a theoretical framework for the research, which is further discussed in the following section. Together, principles of dialogic theory combined with elements of public relations strategy could be associated with successful social media usage among ARCIs, and could help to better understand the context and manner in which ARCIs are using social media, informing guidelines on best practices.

Dialogic Theory in Public Relations

Given that funding organizations are increasingly expecting researchers to communicate findings with publics, examining the usage of social media among ARCIs within the framework of public relations theory is deemed appropriate. Public relations essentially focuses on managing communication between organizations and different publics, and ARCIs are types of organizations typically associated with a larger academic institution.

Within the body of public relations research, “the field of public relations has seen a theoretical shift, from a one-way approach of managing communication to an emphasis on relationship building through dialogue” (Waters et al., 2011, p. 214). This shift towards more ethical practice is explained well by Botan: “Traditional approaches to public relations relegate publics to a secondary role, making them instruments for meeting organizational policy or marketing needs; whereas, dialogue elevates publics to the status of communication equal with the organization” (as cited in Kent & Taylor, 2002, p. 24).

Kent and Taylor (2002, 2014) provide some historical context, explaining that Pearson’s work in 1989 is credited with the idea of using dialogue as a public relations theory and with developing a framework for more ethical public relations practice. Although the concept of

dialogue has existed previously in other disciplines “as a framework for thinking about and fulfilling relationships,” it is necessary to define dialogue in the context of public relations as “communicating about issues with publics” (Kent & Taylor, 2002, p. 22). Kent and Taylor (2002) built on Pearson’s work, aiming to more clearly define dialogue in terms of five key features: mutuality, propinquity, empathy, risk and commitment. These five characteristics provide the basis for a theory framework to explore how ARCI’s are using social media.

Considering the capability of social media to support two-way communication, the dialogic theory framework is suitable for assessing the extent to which social media are being used not only to communicate with but also to engage with publics, which has become a significant focus in the field of public relations. The methodology chapter of this report elaborates on how Kent and Taylor’s (2002) five principles inform the study design and methodology.

SUMMARY

Finding a gap in the literature on how ARCI’s use social media in response to my first search question, I focused my review of the literature on the use of social media in science communication. Broad themes that emerged from the literature include the use of social media in science communication, perceptions and usage of social media by researchers and organizations, the changing media landscape in research and academia, and guidelines and recommendations for social media usage. The literature illustrates that as social media have emerged, researchers and academics have been slow to adopt these tools and mixed levels of uptake have been reported in studies over the past couple of decades. Several studies have also revealed common barriers to usage, which may explain gradual adoption and negative perceptions of social media. While several studies have indicated that researchers perceive benefits in using social media,

barriers such as a lack of knowledge and training continue to persist. Few articles investigating social media usage for research activities set forth guidelines, exposing a gap between theory and practice.

My research thus seeks to address the gap in applying theory to practice and to contribute to the literature on the use of social media among ARCIIs. From a review of the related science communication and public relations literature, principles of dialogic theory combined with elements of public relations strategy are deemed suitable to form the theoretical framework for the study. Given these key findings from the literature review, the following questions are chosen to guide the research:

RQ 1: How do ARCIIs use social media to communicate and engage with online publics?

RQ 1a: What kinds of publics are being targeted?

RQ 1b: Is social media usage part of a larger integrated public relations strategy?

The following chapter sets out the approach to answering these research questions and details the methodology.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

INTRODUCTION

As discussed in the previous chapter, a review of the literature revealed a lack of studies on the use of social media by academic research centres/institutes (ARCI) and a gap in applying theory to practice was evidenced by a lack of social media guidelines. As funding organizations increasingly expect research findings to be communicated with various publics, the purpose of this research is to explore how ARCI use social media to communicate and engage with different publics, in an effort to better understand successful practices. A review of related science communication and public relations literature suggests that principles of dialogic theory combined with elements of public relations strategy could be associated with successful social media usage; thus, it was identified as a useful framework for the study. The following research questions were used to guide the design of the study.

Research Questions (RQ)

RQ 1: How do ARCI use social media to communicate and engage with online publics?

RQ 1a: What kinds of publics are being targeted?

RQ 1b: Is social media usage part of a larger integrated public relations strategy?

Qualitative research was chosen as suitable for addressing the overarching “how” question of the research, and an exploratory multiple-case study approach was deemed appropriate for collecting rich information from more than source. Case studies were selected from the University of Alberta list of academic research centres and institutes, and data were collected in the form of interviews and online documents, such as annual reports and strategic plans. Principles of dialogic theory and elements of public relations strategy were used to design

the interview questions directed at social media managers for the ARCI. The data collected from interviews and documents were analyzed using content analysis.

The remainder of the chapter includes an explanation of the study design, with details about data collection, case selection, research setting and participants, the instrument for data collection, and the study procedures. The process for analyzing the data is then discussed and a summary section concludes the chapter.

DESIGN

This section discusses why a qualitative research design was suitable to answer the research question. More specifically, an exploratory case study design was identified as fitting.

Subsections discuss data collection, case selection, the research setting and participants, the instrument for data collection and the study procedures.

The question of how ARCI use social media was found to be best suited to qualitative research for several reasons. Qualitative research is concerned with “how people make sense of their world and the experiences they have in the world” (p. 15) and yields rich, descriptive information about a phenomenon (Merriam & Tisdell, 2016). It is also an inductive process, whereby “researchers gather data to build concepts, hypotheses, or theories, rather than deductively testing hypotheses” as is more commonly the case in quantitative research (Merriam & Tisdell, 2016, p. 17). Qualitative research thus tends to be used in descriptive or exploratory studies (Leavy, 2017, p. 124). In contrast, quantitative research is typically used “in explanatory research investigating causal relationships, associations, and correlations” (Leavy, 2017, p. 87). Bhattacharjee (2012) explains the suitability of exploratory research:

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

Exploratory research is often conducted in new areas of inquiry, where the goals of the research are: (1) to scope out the magnitude or extent of a particular phenomenon, problem, or behavior, (2) to generate some initial ideas (or “hunches”) about that phenomenon, or (3) to test the feasibility of undertaking a more extensive study regarding the phenomenon... This research may not lead to a very accurate understanding of the target problem, but may be worthwhile in scoping out the nature and extent of the problem and serve as a useful precursor to more in-depth research (p. 5-6).

Regarding the specific design of the qualitative study, the following potential designs were considered: cross-sectional research, descriptive research, comparative studies, and a few different case study designs (Flick, 2007; University of Southern California, 2018). The exploratory case study approach was the best fit for several reasons. Exploratory case study design allows researchers to gain an “in-depth understanding of a single or small number of cases to produce an invaluable and deep understanding... hopefully resulting in new learning about real-world behavior and its meaning” (Yin, 2012, p. 4). In addition, the case study approach can be useful in situations where little information is available about a phenomenon or topic (University of Southern California, 2018). Another advantage of case studies is that data are collected from multiple sources, which enables triangulation in data collection and analysis, helping strengthen the findings of the study (Evers & van Staa, 2012).

While the case study approach in qualitative research can be beneficial for the abovementioned reasons, it has received some criticism. Case studies have been criticized as less credible, due to a lack of trust in the procedures conducted by case study researchers, a perception of inadequate precautions taken to prevent bias, and a “perceived inability to generalize the case study’s findings to any broader level” (Yin, 2012, p. 6). However, the first

two of these concerns were mitigated by implementing carefully planned procedures and being aware of the potential for bias. Regarding the third concern, “case study findings can be generalized to other situations through analytic (not statistical) generalization” (Yin, 2012, p. 6). Because qualitative research quite often uses purposeful sampling to gather rich data, statistical generalization is not supported by the data unless it is representative of the population. With regards to case studies, analytic generalization involves “the extraction of a more abstract level of ideas from a set of case study findings—ideas that nevertheless can pertain to newer situations other than the case(s) in the original case study” (Yin, 2013, p. 325). To aid analytic generalization, “carefully linking an analytic generalization to the related research literature by identifying overlaps as well as gaps will help” (Yin, 2013, p. 325-326).

A few different case study designs were considered to further refine the research design: exploratory case studies, descriptive case studies, comparative case studies, multiple-case studies and embedded case studies (Wiebe, Durepos & Mills, 2010; Yin, 2014). Because a gap in the literature exists regarding ARCI social media usage, an exploratory case study design was determined to be most appropriate. The exploratory case study is used to investigate “distinct phenomena characterized by a lack of detailed preliminary research” and “provides the researcher with a high degree of flexibility and independence with regard to the research design as well as the data collection” (Streb, 2012, p. 2). Yin (as cited in Streb, 2012) has defined “exploratory case studies as a means to define the necessary questions and hypotheses for developing consecutive studies” (p. 2). By conducting an exploratory case study, the aim of the present study is to provide a foundation for future research.

In addition to being exploratory, this study was structured as a multiple-case study, meaning that more than one case was examined. An advantage of multiple-case studies is that

“the evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust” (Yin, 2014, p. 57). However, greater time and resources are required for multiple-case studies, compared to single-case studies.

As part of the present case study design, principles of Kent and Taylor’s (2002) dialogic theory and elements of public relations strategy from the literature review were incorporated as a theoretical framework. Applying a theoretical framework helps refine the study design and generalize the findings from the case study (analytically) (Yin, 2012). The chosen framework was helpful in directing data collection, and was applied to designing the interview questions and will be discussed with respect to the findings in the next chapter.

Data Collection

As mentioned previously, the case study design typically uses more than one source of data (Yin, 2012). Data for each case were gathered through face-to-face semi-structured interviews with individuals managing/using the ARCI social media accounts, websites and any other documentation that provided information about the cases and their use of social media (e.g. annual reports, strategic plans, social media policies).

Interviewing is useful when it is not possible to observe people’s behaviour, feelings and how they perceive the world around them (Merriam & Tisdell, 2016). Semi-structured interviews were chosen because they balance between fully structured and unstructured interviews, allowing a combination of more and less structured questions to be used (Merriam & Tisdell, 2016). A set of structured questions were prepared (see the data collection instrument section) to guide the interview, and flexibility was maintained in terms of question order and asking any follow-up or probing questions that were appropriate. Interviews were conducted face to face so that facial

expressions and body language could provide contextual cues during the interview. The interviews were limited to one hour to accommodate participants' schedules and avoid causing fatigue. However, when the interviews took place, some individuals were interested in continuing the discussion for an additional 15-20 minutes.

Document gathering was employed as a second strategy to collect data from websites and other relevant documents such as annual reports and strategic plans. An open-minded approach was taken to discover documents that would be useful (Merriam & Tisdell, 2016); therefore, prior to the interview, and during the interview, participants were asked to suggest any potentially useful documents. Additional considerations when collecting documentation included assessing the authenticity and potential for bias of documents (Merriam & Tisdell, 2016). For example, it was important to verify official social media accounts associated with the ARCIs and differentiate from personal accounts that individuals from ARCIs may be using. These additional sources of data were identified as contributing additional insight into how ARCIs use social media. For instance, asking participants about documentation of social media policies contributed to understanding what practices were being followed in planning and implementing message content.

Case Selection

Sampling in qualitative research tends to be non-random and purposeful, in contrast to larger, more random sampling in quantitative research, as the aim of qualitative research is to obtain rich information (Merriam & Tisdell, 2016). However, using the term "purposive sampling" when it comes to case study design can cause some confusion, as it "risks misleading others into thinking that the case comes from some larger universe or population of like-cases, undesirably

reigniting the specter of statistical generalization” (Yin, 2014, p. 44). The aim of case study research is to achieve analytic generalization and not statistical generalization because the study does not involve collecting a representative sample that can be statistically generalized to a population. Thus, this section discusses the process and criteria for case selection used in the present multiple-case study.

In conducting a multiple-case study, the minimum number of cases that must be selected is two. As the number of cases increases, more effort and time must be spent on studying the context of each case, collecting data, and analyzing it. Considering the time and resource constraints of the current study, four to six cases was the number selected as appropriate and manageable, so as to ensure a reasonable basis for comparison. Conducting even a two-case study is considered to yield better results and higher analytic benefits than a single-case study (Yin, 2014). With a small number of cases, special care was taken in selecting cases with increased emphasis on the chosen criteria.

Accessibility to the data was also considered an important factor in choosing cases, as pointed out by Yin (2014), to ensure that sufficient data is collected to answer the research question. Because the researcher works at the University of Alberta in Edmonton, Alberta, it was assumed that individuals may be more likely to respond to an inquiry from someone who works within the same university. In addition, it was assumed that it would be easier to arrange face-to-face interviews with local individuals. Thus, ARCIIs from the University of Alberta were chosen for the case study. The University of Alberta’s official list of centres and institutes online (see <https://www.ualberta.ca/faculties/centresinstitutes>) was consulted in choosing potential cases. Given that ease of accessibility was considered as a factor, it should be acknowledged that an aspect of convenience sampling was present. “There is an element of convenience sampling in

many qualitative studies, but a more thoughtful approach to selection of a sample is usually justified” (Marshall, 1996, p.523). Although convenience sampling is perceived as less rigorous, often qualitative research will involve some overlap between these different types of sampling, and “the relative balance will depend upon the research question and the chosen style of data analysis and interpretation” (Marshall, 1996, p. 524). Considering that I had limited time and resources for my research, some aspect of convenience sampling was necessary to make the present research manageable; however, additional thought was put into purposeful sampling from within the University of Alberta framework by establishing a set of case selection criteria. Another reason for involving convenience sampling to some extent was the importance of being able to access people and observe them “in natural settings rather than in artificial isolation” (Marshall, 1996, p. 524); thus, geographic limitation was necessary due to a lack of resources. As Marshall (1996) sums up, sampling “has to take account not only of the individual’s characteristics but also temporal, spatial and situational influences, that is, the context of the study” (p. 524).

To select which cases would yield the most rich information about how ARCIIs use social media, the following criteria were used to select particular ARCIIs from the University of Alberta:

- Types of social media accounts used
- Number of followers/fans
- Frequency of activity (i.e., posting) over the past month
- Level of engagement (in the form of retweets, replies/comments, likes, shares, etc.) in the past month

Considering the types of social media accounts used was important in ensuring that the cases selected use the same social media channels, so as to allow for meaningful comparison across the same channel. The number of followers/fans, frequency of activity, and level of engagement are commonly observed indicators that an organization is successfully building online relationships. In terms of which cases were chosen, ARCIIs with the highest number of followers, most frequent activity and highest level of engagement were considered as cases that would be most likely to have experience using social media and provide richer data.

Research Setting and Participants

As already mentioned, ARCIIs at the University of Alberta were chosen as cases for reasons of accessibility and a greater likelihood of obtaining the necessary data to conduct a multiple-case study. Once the shortlist of ARCIIs was obtained based on the abovementioned criteria, potential interview participants were also identified. Specifically, individuals who manage or use the social media accounts of an ARCI were of interest as a source of information that could contribute to answering the research question. To ensure that the interviewees felt comfortable and to increase the likelihood of their participation, interviewees were given the choice of where to conduct the interview (within Edmonton), with the resulting choices being located at University of Alberta North Campus. Participants were then asked to choose a quiet space conveniently located near them on campus. The aim was to host the interview in a location that is “quiet, safe, and non-threatening” (Jacob & Furgerson, 2012, p. 7), so as to encourage open conversation and be able to obtain a quality recording. The locations chosen by participants were their offices or nearby meeting spaces, which they were already familiar with.

In terms of ethical considerations, informed consent and protection of privacy and confidentiality are two common considerations when research involves humans (Yin, 2014). In this study, informed consent was obtained from all participants and their personally identifying information was kept confidential by assigning a number to each participant.

Data Collection Instrument

While the document gathering method involved manually searching for documents and background information from social media accounts to provide context for the interviews, the semi-structured interviews were guided by a set of questions to help ensure the data collected aligned with the study research questions and the dialogic theoretical framework. The following table shows how the five features of Kent and Taylor (2002)’s dialogic theory (oriented towards public relations) were applied to generating questions to investigate ARCI social media usage. In addition, elements of strategy that emerged as important in the literature review provided a base for some questions to help determine how ARCI social media usage fits into the context of public relations strategy.

Table 1 Data collection instrument for interviews.

Dialogic Theory Features (from Kent & Taylor, 2002)	Interview Questions
Mutuality <ul style="list-style-type: none"> • Collaboration • Spirit of mutual equality 	Tell me about how you interact online with other social media users.
Propinquity <ul style="list-style-type: none"> • Immediacy of presence • Temporal flow • Engagement 	Tell me about how you involve or reach out to publics on different matters or topics. <ul style="list-style-type: none"> • Do you gather opinions? When do you get these publics involved?

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

	<ul style="list-style-type: none"> Do you use social media to consult publics potentially impacted by the research of your centre/institute?
<p>Empathy</p> <ul style="list-style-type: none"> Supportiveness Communal orientation Confirmation 	<p>What are you looking for in public response to your posts? Can you point out a good example?</p> <p>How do you acknowledge comments or responses from others? Can you show me an example?</p> <p>Do you aim to build relationships locally as well as internationally? Can you give/show me an example?</p>
<p>Risk</p> <ul style="list-style-type: none"> Vulnerability Unanticipated consequences 	<p>What risks do you think using social media poses, if any? To whom?</p> <p>Tell me a bit about your planning process when you are preparing a message or response.</p> <p>Compared to messages that you plan, what types of messages do you craft spontaneously? Can you show me an example?</p> <p>Tell me a bit about what kinds of information you share via social media. Are there certain kinds of information that you're more hesitant to post? Such as?</p> <p>How do the benefits of social media compare with the risks you identified?</p>
<p>Commitment</p> <ul style="list-style-type: none"> Genuineness Commitment to conversation Commitment to interpretation 	<p>Compared to just getting the message out there, how important is it to actually engage with the public online?</p> <p>Would you describe your interactions with others as a conversation? How do you feel you accomplish this?</p> <ul style="list-style-type: none"> Can you show me some examples where you engaged in a conversation?
Elements of Public Relations Strategy	Interview Questions
Integrated Strategy	Does your centre/institute implement a communications or public relations strategy?

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

	<ul style="list-style-type: none">• If yes, can you tell me about how you use social media in relation to other forms of communication?
Target Publics	<p>What type of audience do you think reads and responds to your posts?</p> <ul style="list-style-type: none">• Is this the audience you want? Do you want to reach any other type of audience?
Messaging	<p>Tell me about how your messaging is designed to reach a particular audience.</p> <ul style="list-style-type: none">• Can you show me some examples of tailored messages?

In following best practices for crafting questions, the theoretical concepts were translated into more easily understood question terms, and the interview questions were “adapted to the intended participants” and written in a manner “to encourage interviewees to talk around a topic” (Rowley, 2012, p. 263). In addition, the questions were primarily open-ended to allow interviewees to provide additional information besides a simple yes or no answer, and prompts or probing questions were also included (Jacob & Furgerson, 2012). To ensure that interviewees understood the questions, academic jargon was omitted (Rowley, 2012). In addition, the questions were checked for the following potential issues: leading questions, two questions in one, vagueness, and invasiveness (Rowley, 2012).

PROCEDURES

This section details the case study protocol. Yin (2014) states that the “protocol is a major way of increasing the reliability of case study research and is intended to guide the researcher in carrying out the data collection” (p. 84). In determining where to begin and conclude the

procedure, I decided to begin with the case selection process and conclude with compilation of the findings.

Case Selection

The case selection process involved reviewing the University of Alberta list of official ARCIs. Using the previously mentioned criteria, 10 ARCIs were shortlisted as potential cases. Prior to contacting these ARCIs, ethics approval for the study was obtained. Then, an initial inquiry was sent out to these ten ARCIs and six positive responses from interested participants were received. The final list of six ARCIs formed the selected cases for the study, and interview participants were identified based on who managed the ARCI social media accounts.

Interview Procedure

The final list of six participants who expressed interest were sent the consent form to review and asked about their availability for a one-hour interview. Once the participants agreed to participate, an interview date and location (within Edmonton) were arranged at the convenience of the participants. The only restriction placed on location was that it must be sufficiently quiet, so that the interview could be recorded without noise interference (Jacob & Furgerson, 2012). Interviews were recorded to allow the researcher to focus more on listening and engaging with the participant, with less attention on note-taking during the interview (Jacob & Furgerson, 2012).

In conducting the interviews, a script was first developed for both the beginning and end of the interview, to ensure that the researcher did not forget to communicate critical information to the interviewee (Jacob & Furgerson, 2012). The script included information about the

researcher, the study and its purpose (Rowley, 2012; Jacob & Furgerson, 2012). In addition, the script provided a guide for explaining consent, how participant information will be kept confidential, and the participant's right to withdraw or decline answering, prior to conducting the interview. Permission to record the interview was also requested.

In initiating discussion with the participant, Jacob and Furgerson (2012) advised starting with asking about the interviewee's background "as a way of warming up" (p. 3). Background information pertinent to the study would be the person's role and involvement with managing or using the ARCI social media channels. Thus, an initial background question was added to the list of questions and used to start the conversation: "Tell me a bit about your role at the centre/institute." Following this question, the questions and prompts in Table 1 were used to guide the remainder of the discussion. I was mindful of time to try to get through all the questions within the one hour allotted, being respectful of each participant's donated time. If the interview was running late, I asked the participant whether they minded the interview running an additional 15 minutes. At the end of the interview, I followed a script informing participants how the study will proceed, provided my contact information and a copy of the consent form, and explained that a brief follow-up call may be needed to clarify any points of confusion.

Analysis and Findings

Following the interviews, the recordings were then transcribed and analyzed using content analysis (see the analysis section for further details). Conventional content analysis was used to code and categorize the data obtained from interviews and documents for each case. Emerging themes were then identified, and the findings were compiled and compared, which is discussed further in the next chapter.

ANALYSIS

Content Analysis

For qualitative research, content analysis is usually used to analyze text (Merriam & Tisdell, 2016). Three types of content analysis were considered: conventional, directed, and summative. Conventional content analysis is suitable “when existing theory or research literature on a phenomenon is limited” and involves “allowing the categories and names for categories to flow from the data...without imposing preconceived categories or theoretical perspectives” (Hsieh & Shannon, 2005, p. 1279). With this type of analysis, “relevant theories or other research findings are addressed in the discussion section of the study” (Hsieh & Shannon, 2005, p. 1279).

Conventional content analysis was chosen as appropriate for the exploratory nature of the multiple-case study and because there is a gap in the literature with regards to the usage of social media by ARCIIs, so the outcome of the study could not be predicted. Conventional content analysis was used to analyze the interview transcripts and documents.

The analysis procedure was designed with Hsieh and Shannon’s (2005) procedure for conventional content analysis in mind. The data were reviewed once “to achieve immersion” and become familiar with the data as a whole (Hsieh & Shannon, 2005, p. 1279). Preliminary coding took place while reading the data by “first highlighting the exact words from the text that appear to capture key thoughts or concepts” (Hsieh & Shannon, 2005, p. 1279). In the margins of the transcripts, I made “notes of first impressions, thoughts, and initial analysis” (Hsieh & Shannon, 2005, p. 1279). In the second review, codes were labelled, and then refined and sorted into categories during the third review. The categories and the patterns identified in the data were

then defined and explained with examples. The next chapter includes further details on the analysis and the findings.

RELIABILITY AND VALIDITY

As part of the methodology, validity and reliability were taken into account to ensure credible results. External validity “addresses the degree or extent to which such representations or reflections of reality are legitimately applicable across groups” (Brink, 1993, p. 35). Whereas, reliability is focused on the “ability of a research method to yield consistently the same results over repeated testing periods” (Brink, 1993, p. 35). However, in qualitative research, validity and reliability are intertwined, which is captured in “terminology that encompasses both, such as credibility, transferability, and trustworthiness” (Golafshani, 2003, p. 600). Golafshani (2003) discusses the different values associated with validity and reliability in qualitative research, as compared to quantitative research, illustrating the importance of framing validity and reliability within “the realities of qualitative research” (Strauss & Corbin, 1990, as cited in Golafshani, 2003, p. 601). For instance, as mentioned earlier, case study results can be generalized analytically but not statistically with the use of a theoretical framework, because the study does not involve collecting a representative sample that can be statistically generalized to a population. To aid analytic generalization, “carefully linking an analytic generalization to the related research literature by identifying overlaps as well as gaps will help” (Yin, 2013, p. 325-326). The next chapter discusses the findings in relation to the public relations–oriented dialogic theory framework and the literature review findings, and assesses the fit of the framework with regards to explaining social media practices.

One significant consideration in terms of validity and reliability is that the researcher has an involved role in the research as the instrument (Golafshani, 2003). Thus, the credibility of the research “depends on the ability and effort of the researcher” (Golafshani, 2003, p. 600). The present study procedures were designed with the values of quality, trustworthiness, transparency, and consistency in mind. The abovementioned description of my analysis procedure was documented to provide transparency and build trust and confidence in the resulting findings. In addition, I consistently kept notes of my coding process alongside the interview transcripts. External validity was addressed using triangulation, which is the process of using “two or more data sources, methods, investigators, theoretical perspectives and approaches to analysis in the study of a single phenomenon and then validating the congruence among them” (Brink, 1993, p. 37). Triangulation was employed in the present study with the use of multiple data sources and a theoretical framework to reduce the potential for biased analysis and to improve the quality and rigor of the study.

In addition, Brink (1993) emphasizes the need for researchers “to be trusted before they will be able to obtain any accurate reliable or credible data” (p. 36). Thus, to reduce the potential of participants responding abnormally, I sought to build trust with participants by introducing myself as a fellow communicator who also works with an ARCI at the same university and being open about my purpose for doing the study—to help ARCIs and add to the body of knowledge.

SUMMARY

In summary, this chapter set out the design for the present qualitative study, which took an exploratory multiple-case study approach to answer the primary question of how ARCIs use social media to communicate and engage with online publics. Dialogic theory and public

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

relations strategy elements together were applied as the theoretical framework to guide the research questions and the data collection instrument for interviews. The cases were selected from the University of Alberta database of centres and institutes, and data were collected via semi-structured interviews and document gathering. Procedures for data collection and content analysis were detailed to increase the validity and reliability of the study. The following chapter discusses the study findings with respect to the theoretical framework, areas for future research, and limitations of the study, in pursuit of answering the RQs:

RQ 1: How do ARCIIs use social media to communicate and engage with online publics?

RQ 1a: What kinds of publics are being targeted?

RQ 1b: Is social media usage part of a larger integrated public relations strategy?

CHAPTER 4: FINDINGS AND DISCUSSION CHAPTER

INTRODUCTION

Thus far, the problem addressed in this paper has been established and the method has been discussed in the previous chapter. To briefly reiterate, the literature review revealed a gap in understanding the use of social media by ARCIIs and in applying theory to practice (with respect to providing social media guidelines). Reviewing related science communication and public relations literature suggested that principles of dialogic theory combined with elements of public relations and communications strategy could be used to answer the following research questions (RQs) and improve understanding of social media best practices among ARCIIs:

RQ 1: How do ARCIIs use social media to communicate and engage with online publics?

RQ 1a: What kinds of publics are being targeted?

RQ 1b: Is social media usage part of a larger integrated communications or public relations strategy?

An exploratory multi-case study design was chosen to answer the research questions. Data were gathered through six face-to-face semi-structured interviews with individuals managing/using the ARCI social media accounts, ARCI websites and online documents, including annual and strategic reports. Once the interviews were completed, the data were transcribed and coded following conventional content analysis. The main categories that emerged from coding and are discussed in this paper include: 1) Purpose for Using Social Media; 2) Target Publics and their Responses; 3) ARCI Social Media Usage and Strategic Elements; 4) Communications Strategy and the Role of Social Media; and 5) Perceived Benefits, Challenges and Risks of Using Social Media. Some background information about the participants was also included from the findings in order to provide some context for the selected cases.

The remainder of the chapter details the analysis procedure, summarizes the key findings, and discusses the analysis results in relation to the RQs and the theoretical framework. The procedure for conventional content analysis is described in terms of steps taken. The findings section provides some information about the participants and is broken down by the abovementioned main themes, which were identified as relevant or interesting to the study, while the discussion section analyzes the data with regards to dialogic theory and the RQs.

ANALYSIS PROCEDURE

As mentioned in the methodology chapter, conventional content analysis was selected, as it is suitable for “when existing theory or research literature on a phenomenon is limited” and involves “allowing the categories and names for categories to flow from the data...without imposing preconceived categories or theoretical perspectives” (Hsieh & Shannon, 2005, p. 1279). Conventional content analysis was used to analyze the data obtained from interviews and documentation. All six interview participants were asked 15 main questions, with some additional prompts as needed, yielding six transcripts for analysis. Some additional data were also gathered via the ARCI websites, including publicly available strategic reports and annual reports, which provided further insight related to answering RQ 1b.

The transcripts and documents were reviewed thoroughly three times and manually coded during analysis. During the first review, first impressions and thoughts were noted and text of interest was highlighted. Then preliminary codes were derived from the text during the second review. Codes included key phrases taken from the transcript (i.e., In Vivo codes) and terms that summarized key ideas (i.e., descriptive codes), following Saldana’s (2009) definition of code types. For example, “building awareness” was an In Vivo code taken directly from some transcripts, while a descriptive code used was “target publics,” for when participants talked about

their publics and audiences. Coding for patterns (Saldana, 2009) also started to occur during the second review as codes were derived, and as repeated ideas were observed, these patterns were further taken into account when refining codes. In coding for patterns, the aim was to “group things together not just because they are exactly alike or very much alike, but because they might also have something in common—even if, paradoxically, that commonality consists of differences” (Saldana, 2009, p. 6). The third review was used to refine codes, and a table of the codes in each transcript with corresponding page numbers was formed to provide a visual representation of how frequently each code appeared. Once coding was complete, the codes were reviewed among all transcripts to determine if any codes were outliers that did not help to identify patterns or fit with the RQs, and codes that shared a common theme or idea were sorted together, resulting in several categories or broader themes. For example, codes such as “building awareness,” “relationship building,” and “information dissemination” were determined to fit under the category of “Purpose for Using Social Media.” As a result of sorting, the main overarching themes that guide the discussion of the findings and analysis are 1) Purpose for Using Social Media; 2) Target Publics and their Responses; 3) ARCI Social Media Usage and Strategic Elements; 4) Communications Strategy and the Role of Social Media; and 5) Perceived Benefits, Challenges and Risks of Using Social Media.

As part of the methodology, validity and reliability were taken into account to ensure credible results. As defined previously, external validity “addresses the degree or extent to which such representations or reflections of reality are legitimately applicable across groups” (Brink, 1993, p. 35). Whereas, reliability of the research is focused on the “ability of a research method to yield consistently the same results over repeated testing periods” (Brink, 1993, p. 35). However, as previously mentioned, Golafshani (2003) points out that in qualitative research,

validity and reliability are intertwined, which translates to “terminology that encompasses both, such as credibility, transferability, and trustworthiness” (Golafshani, 2003, p. 600). Several steps were taken to strengthen the research validity and reliability, in terms of quality, trustworthiness, transparency, and consistency of the study procedures and findings. Firstly, the abovementioned analysis procedure was documented to provide transparency and build trust and confidence in the resulting findings. In addition, I consistently kept detailed notes of my coding process alongside the interview transcripts. External validity was addressed using triangulation, which involves using “two or more data sources, methods, investigators, theoretical perspectives and approaches to analysis in the study of a single phenomenon and then validating the congruence among them” (Brink, 1993, p. 37). Triangulation was employed in the present study with the use of multiple data sources and a theoretical framework to reduce the potential for biased analysis and to improve the quality and rigor of the study. Using the theoretical framework and the existing literature to put the findings into perspective, congruence was sought among the data sources in order to answer the research questions. In addition, to increase validity of the data, I took care to avoid the holistic fallacy of making “data look more patterned or regular or congruent than they are” and to not “selectively observe and record certain data at the expense of other data” (Brink, 1993, p. 37).

FINDINGS

Data analysis yielded codes that could be categorized under five overarching themes: 1) Purpose for Using Social Media; 2) Target Publics and their Responses; 3) ARCI Social Media Usage and Strategic Elements; 4) Communications Strategy and the Role of Social Media; and 5) Perceived Benefits, Challenges and Risks of Using Social Media. Prior to discussing the findings

under each theme, some background information about the participants is presented to provide some context for the selected cases.

Participant Background and Experience

This section provides some background on the participants as some context for the findings and analysis. Of the six participants who chose to participate, four identified themselves as communications and/or public relations personnel, while two identified as program coordinators/administrators. The below chart also shows the equal gender balance in each of these groups, with females represented in pink and males represented in blue.



Figure 1 Gender of interview participants.

In addition, the ARCIs of the interview participants almost all focus on distinct areas of research. Only one institute included in the study has the potential to overlap different areas of research, as participant #3 explained that their institute supports interdisciplinary research and funds collaborative research projects. The table below provides a summary of the fields of research

corresponding to each participant's ARCI, the social media platforms for each ARCI, and number of corresponding followers, illustrating the diversity among participants.

Table 2 Background information about participants.

Interview Participants	ARCI Research Area	Social Media Platforms	Number of Followers (as of July 3, 2018)
Participant #1	Economic, social, cultural, and political issues	Twitter	3312
		Facebook	3262
Participant #2	Artificial intelligence	Twitter	1359
Participant #3	Interdisciplinary research in social sciences, humanities and fine arts	Twitter	948
		Facebook	286
Participant #4	Diabetes	Twitter	1156
		Facebook	227
Participant #5	Injury prevention	Twitter	1851
		Facebook	322
		LinkedIn	62
Participant #6	Rangeland, grassland	Twitter	685
		Facebook	172

Purpose for Using Social Media

When asked about their experiences using social media and interacting with online publics, participants revealed a variety of purposes for using social media. The most common motivations for using social media discussed by all six participants included promotion and information dissemination; building awareness and raising the ARCI profile/reputation; and building relationships and engagement. Two less mentioned reasons for using social media included education and increasing public understanding, as well as encouraging potential collaboration. Due to limitations on the length of this paper, only the three major purposes are discussed in detail below.

Promotion and Information Dissemination. All participants talked about promoting the work and researchers of their ARCI, as well as about sharing and distributing information via

ARCI social media accounts, illustrating one-way communication with online publics. The types of information disseminated typically were related to the ARCI, its research, or researchers, such as research publications, media mentions (i.e., news articles), and conferences. Other information shared via social media included content from other sources talking about the same field of research. Participant #2 mentioned that they tend to follow a guideline that only about “10% of [their] content should really be self-promotional,” and defined self-promotional content as being anything that is related to their research (e.g., projects) or the institute (e.g., organizational messaging). In contrast, participant #1 stated that their ARCI made an “editorial decision to not actively put stuff on [their] social media that’s not somehow related to [their] institute,” which indicates that their institute disseminates only content that in some way promotes the institute.

Building Awareness and Raising the ARCI Profile/Reputation. Building awareness of their respective ARCIs and raising their profiles/reputations was another common motivation for using social media. All participants mentioned that social media are being used as tools to build awareness among groups who are unaware of the ARCIs and their research. Participant #2 also added that they want to be using social media “to push [themselves] into the space as thought leaders,” and that while a lot of academics know who the researchers are, they do not know the ARCI that these researchers are associated with. While participant #4 was confident in using social media strategically to build awareness in alignment with their objective “to raise the profile” of the institute, participant #3 seemed uncertain of how to build awareness outside their current audience, stating that they wanted to reach groups that would find their research relevant.

Building Relationships and Engagement. Relationship building and engaging with their audiences emerged as a third significant focus of ARCIs using social media. Participant #4 talked the most about building relationships, describing it as a “high priority” in managing social

media: “My priority isn’t necessarily my posts, it’s often liking everyone and retweeting to build relationships.” After Participant #4, Participant #2 placed the second highest emphasis on building relationships and engagement. They work on relationships and engagement by entering conversations, retweeting people, and responding to people in a way that “[adds] value to the conversation” and also “[develops] that relationship and that trust.”

Relationship building was less a focus for participant #1 compared to information dissemination; however, they talked about how they encourage informed engagement and discussion. One way in which they engage with publics is by flagging comments or questions from people and then asking their researchers to engage in conversation and respond to these comments/questions. Compared to likes and tweets, conversation as a type of engagement was commonly identified as a challenge or less of a focus for most participants, with one reason being that they do not have the scientific knowledge to engage in that manner, and another reason being hesitancy to enter the conversation. For example, participant #5 indicated a desire for more engagement from people but mentioned they place less emphasis on creating engagement because talking about injury prevention “can be quite controversial” so they are “not trying to start stuff all the time.” Participants #3, #5, and #6 reported not observing much public engagement overall. For instance, participant #3 expressed having “high hopes” of creating engagement, but has found that responses from public have consisted of only a few likes and shares of posted content, and they are unsure of how to further foster engagement.

Elements of Social Media Strategy

When asked about social media guidelines, all participants responded either that there were no guidelines or policies, or that they had not been used in a long time. Given the lack of guidelines,

which aligns with findings in the literature, the following subsections highlight findings that discuss possible strategic considerations for using social media.

Platform Suitability and Differences. Most participants talked to some extent about the suitability of particular social media platforms and differences in using each platform.

Participants #3, #4 and #6 expressed thoughts that Twitter seems to be the platform suited to reaching the scientific community and academia. Participant #4 “felt like Twitter was the right platform in terms of the research community” and chose to focus on building up their Twitter network and relationships. As another example, participant #1 explained they had chosen to use only Facebook and Twitter because they “haven’t seen the suitability of Vine [and] Pinterest,” for example, considering the nature of the institute’s subject matter and research. Participant #1 also talked about posting more frequently on Twitter, compared to Facebook, because of the “nature of the platform” cycling through content more rapidly. From more of a time and resources perspective, participant #2 mentioned being able to “support Twitter a little better because...conversations are a little bit quicker and in snippets rather than being...novels.”

Brand Personality and Voice. Several participants mentioned that on social media, they stay in line with their brand personality or voice when posting or responding. Participants #2 and #4 provided the most insight into their respective brands. For example, participant #2 described their brand personality as “an amalgamation of all of [their] researchers’ personalities” and also mentioned having a list of brand values in mind, such as “explainability,” openness and transparency, inspiring thinking, and resetting people’s expectations to be more realistic. Participant #4 described their brand as “research focused,” stating that they “don’t share opinions” because “the institute doesn’t have a personality.” Participant #5 talked about still “finding the voice” of their brand and “getting comfortable” with their tone when

communicating about “predictable and preventable” injuries. Participant #6, however, mentioned that they “haven’t spent much time looking at how to construct...brand online,” and participant #3 did not discuss brand, but mentioned having a “neutral” voice when posting.

Target Publics. When asked about publics they reach or wish to reach and the type of response they would like from these publics, participants provided information about types of publics and the types of feedback/responses desired. Despite the different backgrounds of participants, the most common target public groups identified included government (or decision-makers), industry (or practitioners), the research community, groups interested in a particular research topic, and the general public. Most participants also articulated that they want to reach beyond local to national and international audiences. Participant #5 was the exception, stating that they follow their provincial mandate and “primarily serve the provincial government.” Half of participants (who were all communications personnel) also talked about using paid advertising to boost reach to their desired publics or to target relevant publics based on interests/topics. Participant #5 described this feature of Facebook as useful since they “have a lot of different audiences.”

Regarding the suitability of targeting particular publics, participant #1 pointed out that some demographics, such as young teenagers, may simply not be interested in the ARCI’s work or research, so it does not make sense to target them. Similarly, participant #4 prioritized their scientific audience and stated that the general public is not their primary audience; instead, they focus on the scientific community and educated public, in alignment with their brand.

While all participants stated that they could always improve on reaching their publics, four out of six participants seemed to be sufficiently targeting groups of interest and actively improving their audience targeting. Participant #3 was somewhat of an outlier in terms of having

primarily a local academic audience, and they communicated a desire to reach publics “other than campus stakeholders” outside the university. They expressed a need for further direction in terms of strategy and audience targeting, as they felt that social media were being used “for the same purpose and audience” as other campus communication channels. Participant #4 described an interesting observation that they like to see who their “cheerleaders” (who talk about or share their research) are, as an indication of whether the content they are sharing is relevant to their audiences. However, they also noted that academics were less seen “celebrating [their] research successes” compared to government and industry.

Content Planning and Message Features. Content planning and message features emerged as categories that provide insight into the use of social media to communicate and engage with publics. Based on participant responses, the amount of planning that goes into social media usage varies. The majority of participants articulated that most social media posting and commenting is spontaneous, and only tends to be more planned when upcoming content, specific events or dates are known ahead of time, such as conferences and promotional campaigns. For example, Participant #3 said that planned content tends to be “related to [their] grants and announcements” that they put out. A lack of time (due to competing priorities) was commonly mentioned among participants as one reason for a lack of social media planning, while a second reason was that researchers do not typically give much notice (if any) about upcoming projects, blog posts or reports that can be disseminated via social media. Participant #5 was the most planning-oriented, stating that other than spontaneous “responses to stories in the media,” they are “mostly planning things...in advance.” Participant #5 also elaborated on their planning process, mentioning that their centre has an editorial calendar and that they “often pre-write

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

messages and share those through email with [their] networks so those people can share on their own networks or share [the centre's] messages straight from Facebook.”

Several participants also provided some insight into their respective thinking processes behind creating social media posts. Most participants talked about drawing out the key message or point of interest from content to use in a social media post. For example, participant #4 said that they look for the “who cares factor” and that “a good analogy to research is key” when crafting messages, while participant #2 said they look for the “true nugget within an article,” keeping their audience in mind.

When talking about message features or tailoring that they incorporate, the majority of participants reported using hashtags, images/visuals, and also discussed tagging other people's Twitter handles. Participant #1 elaborated with one example of their process related to using hashtags: “if we're doing a report on healthcare, I sort of go and spend time just searching various hashtags to see what's being used and for specific debates.” Regarding visuals, Participant #1 talked about content being “very visually driven,” and Participant 2 discussed the incorporation of “graphics” and “figures” as part of content, which aligned with comments by other participants. With respect to examples of tagging, Participant #3 explained that they tag the “handle of the unit where the researcher is based,” which they said has resulted in a few shares and they have also been tagged by other groups in posts that relate to them.

Regarding posting frequency, participants #3 and #6 responded that they generally post about once per week, while other participants aimed to post at least once per day or more. Participant #2 talked about posting the most frequently, stating that they “usually post three times a day on Twitter, Monday through Friday,” with one third being self-promotional content and two-thirds being content from other sources.

Communications Strategy and the Role of Social Media

Some of the interview questions asked participants about whether ARCIIs have an integrated communications strategy and the role that social media plays in strategy. The following subsections discuss the key findings in terms of the extent of strategy development among ARCIIs and the role of social media in relation to other communication channels.

Extent of Strategy Development. In terms of communications strategy development, participants with a communications background typically did not have a written comprehensive strategy, but some explained that they have ongoing strategy development happening in their heads or as they go. For example, participant #4 explained that they have “never had a real communications plan” because of a lack of time, but “it’s in [their] brain.” However, they mentioned one occasion where they did write a “comms plan for [a] campaign” because they were “sharing it across campus.” Participants #1 and #5 also talked about planning and strategy development on a campaign-by-campaign basis. Participants with a program coordinator/administrator background (participants #3 and #6) reported not having or overseeing a current communications strategy with regards to communications or social media planning.

Related to strategy, several publicly available documents were discovered following the interviews and were also reviewed, which included strategic plans and annual reports. The documents found pertained to the ARCIIs of participants #1, #4, and #6. Interestingly, none of the participants mentioned these documents in relation to communications planning, and a strategic plan that participant #5 was unaware of was discovered as one of the documents, within which it was mentioned that a communications strategy was being planned. One annual report acknowledged social media as part of participant #1’s communications activities, stating that their “social media accounts collectively reached over a million people,” and one strategic report

(from participant #4's ARCI) mentioned social media only in the context of training staff "to provide contingency" for continuity in communications. The other documents, however, did not mention social media in their sections on communications and outreach. Communications and outreach activities described in these documents tended to highlight more traditional outreach and communications activities, including publications, presentations by students and researchers, and conferences.

Role of Social Media. Participants were asked about social media's role in relation to other communications channels. Most participants expressed that social media were being used in a complementary manner to other communications channels. Participant #5 elaborated on the role of social media usage in strategic campaigns, stating that they decide "key messages and those going to a social media graphic and posts and then, based on those key messages, [they] create a press release" and "a newsletter article...[to] send to organizations who support" them. Social media were also used by participant #4 as an extension of traditional media to reinforce campaign messaging, and to build relationships as previously mentioned. The exception to the observation that social media play a complementary role in communications was participant #3, who felt that social media were reaching the same audience as other communications channels and not fulfilling a strategic purpose.

Perceived Benefits, Risks, and Challenges of Using Social Media

Several benefits, risks and challenges emerged from the findings as factors potentially impacting social media usage among ARCIs. Barriers and benefits of social media were also common themes in the literature on researchers' usage of social media. Thus, the most common ones noted in the findings are discussed here.

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

Overall, participants agreed that the benefits of social media outweigh the risks, although not all participants felt they were experiencing the full extent of those benefits. Participant #3 was the greatest exception, feeling that their social media were not being used to achieve a goal and were reaching the same audience as other communications channels. Other participants, however, listed a variety of benefits. Participant #1 described social media as an “effective way to reach people in...a relatively cost-effective way.” Participant #6 added that social media provide a “really rapid way of communicating,” “keeps you in the forefront of people’s minds,” and “you can reach a large audience quickly.” Participant #4 also noted that “the benefits are huge and that’s why [they] carve out time” for social media, especially for “the relationship building benefits.” Participant #2 summed up their thoughts about benefits versus risk in this way: “if you’re going to be part of this community and if you’re going to be a thought leader and if you’re going to really engage with people, then you have to accept some of the good with some of the bad.”

While the benefits were generally perceived to outweigh the risks, discussion with participants yielded two common risks that potentially influence the extent to which they converse and engage with people online. The most common risk identified by all participants was that of controversial/sensitive topics that they were cautious of entering into or commenting on, due to concern for the ARCI’s reputation. For example, participant #5 explained that they “walk a very fine line with [their] tone” because there can be lots of conflict around injury prevention messages. Participant #6 added that they “try to stay away from politically polarizing...topics” and that they are also careful to share only content from trusted sources, as they do not want to be seen giving a “stamp of approval” to groups or research that could negatively impact the ARCI’s reputation.

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

A second risk that the majority of participants perceived was that of research/content being misinterpreted/miscommunicated on social media, which could impact their reputation and leave people with the wrong idea. This risk stemmed from concerns about oversimplification of information and the lack of nuance that can be communicated via brief social media posts. For example, Participant #2 explained that “people can just read a tweet and run away without reading your article” and noted that “making sure that people get the true understanding from things is a bit of a risk when it comes to social media.” Participant #5 mentioned that “oftentimes if you rephrase [something] slightly, it can mean something completely different,” while participant #4 emphasized that “every single word can count.”

In addition to risks and benefits, some common challenges associated with using social media were revealed in discussion with participants: lack of time, difficulty of gathering/finding internal content, and funding/budget concerns. Lack of time to devote to social media was a common theme in the literature review and was mentioned by nearly all participants as a reason for not dedicating more time to social media planning and engaging in online conversation. Participant #1 was somewhat an exception, saying that the amount of time you devote to social media can vary and be “as little as a couple hours sitting down thinking about what the key things are.” Meanwhile, participant #2 stated not having enough time to “actually meaningfully engage with people” and the other participants talked about competing priorities leaving little time for social media.

Most participants also talked about the challenge of getting content from researchers to be able to post on social media. For example, participant #4 said that they “struggle to get [their] research out there because [they] don’t know what research researchers are doing” and participant #3 added that “it’s hard to get content from [their] researchers in general.”

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

Funding and budget concerns emerged as a third common challenge, impacting the extent to which some participants could plan social media and also the extent to which communications planning takes place. Participant #5 talked about the difficulty of being able to plan ahead because of funding uncertainty as well as the need to “balance the funding versus being able to show what you’re doing” in terms of communications outcomes. Participant #2 explained that “funding is given to these centres for a very specific reason and usually it’s funded research,” and the difficulty is proving the value of communications for funding, “which then translates to how many resources are available to push out work.”

DISCUSSION

This section discusses the key findings in relation to the research question and within the context of dialogic theory. To briefly reiterate, the aim of the study was to explore how ARCIIs use social media to communicate and engage with different publics, in an effort to better understand successful practices and gain some insight to address a gap in the literature. The findings are quite revealing about the nature, scope and the progression of social media usage among ARCIIs.

Despite the variation in participant responses, several key findings emerged that provide insight into how ARCIIs use social media to communicate and engage with different publics:

1. All six participants were found to be using social media for promotion and information dissemination as well as building awareness and raising the ARCI profile/reputation, but fewer participants reported successfully building relationships and engagement even though it was a motivation for using social media.

EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

2. Some common strategic considerations in using social media included platform suitability; brand personality and voice; finding the key message or point of interest to post; utilizing hashtags, tagging and visuals in posting; and targeting relevant publics.
3. In terms of communications strategy development, participants typically did not have a written comprehensive strategy due to a lack of time and competing priorities, but those with a communications background explained that they have ongoing strategy development happening in their heads.
4. Most participants viewed social media as tools that complement other communications channels.
5. Although participants agreed that the benefits of social media outweigh the risks, two main risks and three challenges potentially influencing social media usage were identified. These risks included controversial/sensitive discussions and the potential for miscommunication/misinterpretation of research/content communicated in short social media posts. The most commonly mentioned challenges were lack of time, difficulty of gathering/finding content, and funding/budget concerns.

Overall, these findings answer the RQs identified for the study. However, one interesting theme that emerged but did not fit with the RQs or with the dialogic framework was that of learning experiences. Several participants indicated that they were still learning and experimenting with social media to see what works. For instance, participant #5 talked about experimenting with additional social media platforms beyond Facebook and Twitter, such as Instagram. While this theme of learning did not fit with the current study questions, it seems worth noting, as it illustrates that ARCIIs are still progressing in their usage of social media practices, despite the lack of social media guidelines in the literature.

The following section discusses the study findings within the context of dialogic theory and elements of communications strategy, as discussed in the literature review.

Dialogic Theory Framework

Dialogic theory within the context of public relations was deemed appropriate to assess how ARCIIs communicate and engage on social media, as “the field of public relations has seen a theoretical shift, from a one-way approach of managing communication to an emphasis on relationship building through dialogue” (Waters et al., 2011, p. 214). Considering the trending importance of dialogue in public relations and communications and that social media features allow for two-way conversation, dialogic theory seemed an appropriate framework within which to examine ARCI social media usage. However, as discussed previously in the literature review, several studies revealed that organizations are not maximizing the dialogic capabilities of social media and continue to primarily employ one-way communication. Thus, it was uncertain whether ARCIIs would follow the overall trend of other organizations.

Dialogue was defined “as communicating about issues with publics” (Kent & Taylor, 2002, p. 22) in the present study and the data collection instrument was constructed using Kent and Taylor’s (2002) five features of dialogue: mutuality, propinquity, empathy, risk and commitment. The following paragraphs examine these five features in relation to the findings.

Mutuality involves acknowledging that “organizations and publics are inextricably tied together” and is characterized by a “collaborative orientation” and “spirit of mutual equality” (Kent & Taylor, 2002, p. 25). This collaborative orientation of dialogue indicates that in conversation, each party involved should be trying to understand the other, while the spirit of mutual equality refers to maintaining equality between parties conversing and avoiding manipulation, promoting “ethical dialogue” (Kent & Taylor, 2002, p. 25). Considering

participants' responses in relation to mutuality, most ARCIs seem to be intent on adding their research or organizational perspectives to the public discourse, but there is a lack of interaction or conversation with publics on social media to support mutual understanding. Reflecting on the findings in general, only a few instances of conversation or debate were reported by participants, where they shared their research-based position in response to comments by others.

Proximity for organizations, according to Kent and Taylor (2002) is based on the idea of consulting publics in matters that impact them, and is characterized by immediacy of presence, temporal flow, and engagement. Immediacy of presence indicates that “parties involved are communicating in the present about issues, rather than after decisions have been made” (Kent & Taylor, 2002, p. 26). Temporal flow refers to the focus of dialogue “on a continued and shared future for all participants...that is both equitable and acceptable to all involved,” while engagement requires the accessibility of participants and should involve building relationships “rather than maintaining positions of neutrality or observer status” (Kent & Taylor, 2002, p. 26). Based on the findings, direct consultation of publics was not happening on social media, but some participants talked about the public interest component of research and about how they add to the public discourse with their research when possible. In terms of engagement, few participants were actively building relationships. While most participants said that they desire and value engagement, a lack of time and competing priorities present barriers to increasing engagement.

Empathy as a feature of dialogue “refers to the atmosphere of support and trust that must exist if dialogue is to succeed” (Kent & Taylor, 2002, p. 27). Some of the findings indicated that trust and support among ARCIs and their publics are being built and observed. Supportiveness was noted by participants as being observed in responses from partner groups and other

“cheerleaders,” but academics, however, were noted to be less vocal supporters on social media. Participants generally expressed having a communal orientation and a desire to build “local as well as international relationships” (Kent & Taylor, 2002, p. 27), but some participants did not feel they were successfully achieving this to the extent that they would like. Confirmation of others was also generally happening based on the findings, as participants all stated that they respond to comments and inquiries on social media, although few people were observed to be commenting or inquiring.

Risk is characterized by vulnerability and unanticipated consequences, and “although parties who engage in dialogue take relational risks, dialogic participants also risk great rewards” (Kent & Taylor, 2002, p. 28). All the interview participants felt that the benefits outweigh the risks of using social media, but a few common risks and challenges as previously discussed were still found to impact how ARCIs enter online conversations and the extent to which they engage.

Commitment, the final principle of dialogue, is defined by Kent and Taylor (2002) in terms of genuineness, commitment to conversation, and commitment to interpretation. As mentioned, only a few instances of conversation were reported by participants, and conversation generally was not reported as a current goal or priority on social media but instead mentioned as more of a desired form of engagement. Commitment to interpretation, however, was one common concern that participants did focus on, as they were concerned about the risk for miscommunication and misinterpretation of research on social media.

While dialogic theory was helpful to assess the extent to which ARCIs are engaging in dialogue with their publics, it was found to be insufficient in addressing other interesting findings on social media usage that could inform the development of guidelines. This result, combined with the study findings on the purpose for which ARCIs are using social media,

indicates that ARCIIs are primarily communicating with their publics in a one-way manner, which aligns with the literature regarding organizational social media usage. Findings regarding one participant suggested that engagement and relationship building could still be possible with a shift in priorities towards putting in the time and effort to support relationship development. Lack of time, however, was the most commonly identified challenge in both this study and the literature, indicating that building engagement and relationships on social media could be unrealistic for most ARCIIs if not prioritized.

Elements of social media strategy that emerged as considerations for developing guidelines could not be explained by the theoretical framework, indicating that dialogic theory is limited to evaluating the extent that engagement and dialogue are taking place as part of the focus on building relationships in the public relations literature. Elements of public relations strategy gleaned from the literature, however, did help to frame the role of social media in the context of communications and public relations strategy. Still, some findings were unexpected, such as the themes of brand personality and platform suitability. Overall, social media were reported to complement other communications channels, and some strategic considerations were revealed in the findings; however, a more comprehensive communications strategy was nonexistent among participants, except as a process happening in the minds of communications personnel. Written communications strategies were reported as an effort that was only carried out when a document was needed to share with others for promotional campaigns, as participants reported a lack of time for strategy writing. While the literature review identified integrated communications or public relations strategy as important, the variation found in terms of the extent to which strategy development is taking place among ARCIIs indicates a need for further research to understand the relationship between social media operation based on personnel

experience and that based on concrete strategy. For instance, concrete, detailed strategies could potentially be more helpful for personnel with less communications background/experience, while more experienced personnel may still achieve their goals with an “on-the-go” style of strategy.

SUMMARY

In summary, the findings revealed significant insight into the use of social media by ARCIs, which could be used to address the lack of social media guidelines for other ARCIs. While social media generally is being used by ARCIs for one-way communication to disseminate information and build awareness, and less so for relationship building and engaging with publics, building relationships and cultivating engagement were still perceived as important. Considering this observation and that ARCIs revealed they are still learning how to use social media, it is possible that building relationships and engagement could increase over time. Several considerations for social media strategy were also discussed, including platform suitability, brand personality and voice, target publics and content planning and message features. These considerations could help inform the development of recommendations or guidelines for ARCIs wanting to use or improve their usage of social media. However, despite the fact that ARCIs generally perceived huge benefits in using social media, some risks and challenges, including controversial/sensitive topics, potential miscommunication/misinterpretation, lack of time, finding/gathering internal content, and funding/budget concerns, were still found to be potentially limiting the extent to which ARCIs engage online with their publics and cultivate meaningful dialogue. The following chapter provides concluding thoughts, guidelines for ARCIs based on the study findings, and suggests ways that future research can build on the study findings.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

INTRODUCTION

As funding organizations increasingly expect research results to be communicated with various publics, this research seeks to enhance understanding of successful social media practices among ARCIIs. The problem identified and addressed in this research, as revealed from a review of the recent literature on this topic, is a lack of research informing how ARCIIs use social media and a gap in applying theory to practice, as evidenced by a lack of social media guidelines. To address this problem, the present study draws on dialogic theory to explore how ARCIIs use social media to communicate and engage with different publics, including types of publics targeted and whether ARCIIs employ social media as part of an integrated communications strategy.

This chapter provides a summary of the key study findings, discusses the contribution to the literature and practice, identifies future directions for research, and concludes with a summary of key thoughts and findings from the research.

SUMMARY OF FINDINGS

While the findings indicate that social media are generally being used by ARCIIs for one-way communication to disseminate information and build awareness, and less so for relationship building and engaging with publics, building relationships and cultivating engagement were still perceived as important. Considering this observation and that ARCIIs revealed they are still learning how to use social media, it is possible that building relationships and engagement could increase over time, emphasizing a need for continued research. In terms of who ARCIIs want to reach, the most common target public groups identified included government (or decision-

makers), industry (or practitioners), the research community, groups interested in a particular research topic, and the general public.

Several significant elements of social media strategy also emerged from the findings, including platform suitability, brand personality and voice, target publics and content planning and message features. These considerations help suggest some guidelines for ARCIIs wanting to use or improve their usage of social media (as discussed in the following subsection). However, despite the fact that ARCIIs generally perceive huge benefits in using social media, some risks and challenges, including controversial/sensitive topics, potential miscommunication or misinterpretation, lack of time, finding/gathering internal content, and funding/budget concerns, are still found to be limiting the extent to which ARCIIs engage online with their publics and cultivate meaningful dialogue. Lack of time remains one major barrier that has been identified frequently in the literature (Al-Aufi & Fulton, 2015; Donelan, 2016; Ecklund, James & Lincoln, 2012; Nicholas & Rowlands, 2011; Nikiphorou et al., 2017), and some research has also pointed to the concern for miscommunication and/or misinterpretation of scientific findings (Grande et al., 2014).

Overall, these findings answer the research question of how ARCIIs are using social media to communicate and engage with their publics. However, one interesting theme that emerged but did not fit with the research questions or with the dialogic framework was that of learning experiences. Several participants indicated that they were still learning and experimenting with social media to see what works. Although this theme did not fit with the research question, it illustrates that ARCIIs are still progressing in their usage of social media practices, despite the lack of social media guidelines and the gap in the literature with respect to applying theory to practice.

While dialogic theory was helpful to assess the extent to which ARCIIs are engaging in dialogue with their publics, it was insufficient in explaining other interesting findings on social media usage that could inform guideline development. This result, combined with the study findings on the purpose for which ARCIIs are using social media, indicates that ARCIIs are primarily communicating with their publics in a one-way manner, which aligns with the literature regarding organizational social media usage. Findings regarding one participant suggested that engagement and relationship building could still be possible with a shift in priorities towards putting in the time and effort to support relationship development. Lack of time, however, was the most commonly identified challenge in both this study and the literature, indicating that building engagement and relationships on social media could be unrealistic for most ARCIIs if not prioritized.

Elements of social media strategy that emerged as considerations for guideline development could not be explained by the theoretical framework, indicating that dialogic theory is limited to evaluating the extent that engagement and dialogue are taking place as part of the focus on building relationships in the public relations literature. Elements of public relations strategy gleaned from the literature, however, did help to frame the role of social media in the context of communications and public relations strategy. Overall, social media were reported to complement other communications channels, and some strategic considerations were revealed in the findings; however, a more comprehensive communications strategy was not found to exist among participants, except as an internal process happening in the minds of communications personnel or when documentation is required for short-term campaigns.

CONTRIBUTION TO THE LITERATURE AND PRACTICE

The findings reveal significant insight into ARCI social media usage, providing a foundation for future research and the development of social media guidelines for ARCIIs wanting to use or improve their usage of social media. This research is a start to addressing the gap in the literature, and hopefully other researchers will build on this work. Regarding practical application of the findings, the following recommendations based on the study results may be helpful to ARCIIs:

1. Use social media with a goal in mind and in complement to other communication channels.
2. Determine which social media platform(s) may be suitable for the ARCI and its intended publics. For example, Twitter was mentioned by participants as suitable for the research community.
3. Establish a brand personality to guide the voice and tone that should match the ARCI, its messages, and its audience.
4. When posting, focus on communicating the key message or point of interest that targeted publics will connect with.
5. Target the publics you want to reach and engage with, utilizing social media features such as hashtags, retweeting and tagging, as well as incorporating interesting visuals in posts.
6. Post frequently (recommended 3-5 times per week or more), engage with others by retweeting, tagging and liking, and respond to comments/inquiries.
7. Vary content so that it is not all self-promotional; share content of value from other quality sources to build relationships.
8. Set aside time for content planning and engagement.

These recommendations are intended to help address the lack of guidelines found in the literature and provide some direction for ARCIIs and future research on best practices. Compared to the guidelines and recommendations by Veletsianos and Kimmons (2016) for academics using social media, these recommendations based on the current study findings present some alternative considerations that go beyond basic usage and involve more strategic thinking tailored towards ARCIIs. More research, however, is needed to gain further insight into best practices within these guidelines and whether ARCIIs at other academic institutions would yield different considerations for social media usage.

FUTURE DIRECTION

Additional research into the usage of social media among ARCIIs from other academic institutions will help to evaluate and build on the above suggested guidelines for best practices. Due to time and financial constraints, this research limited its scope to selecting cases from within the University of Alberta. Although a theoretical framework was applied to the research to improve analytic generalization with respect to the literature review findings, it was found that the dialogic theoretical framework is insufficient for explaining the findings. However, elements of communications strategy identified in the literature, such as target publics and targeted messaging for these publics, provided helpful guidance to recognize strategic considerations and practices articulated by participants. The study findings in this regard were then used to create the above set of recommendations for social media practice among ARCIIs. It is recommended that future research explore cases from other academic institutions to evaluate these recommendations as well as evaluate or develop other theory frameworks that may be more suitable. The Technology Acceptance Model could potentially be a fit, as it “has been used to

study perceived ease of use and perceived usefulness of new technologies in relation to people's attitude toward adoption" (Ngai, Tao & Moon, 2014, p.34). Uses and Gratifications Theory is another possible theory that has been applied in studies of social media usage in an effort to understand user behaviours (Ngai, Tao & Moon, 2014). In addition, although these guidelines are based on the findings for ARCIs, as per the study focus, they could be potentially useful to individual social media users, presenting another possible area for future research.

While the literature review identified integrated communications or public relations strategy as important, the variation found in terms of the extent to which strategy development is taking place among ARCIs indicates a need for further research to understand the relationship between social media operation based on personnel experience and that based on concrete strategy. In other words, concrete, detailed strategies could potentially be more helpful for personnel with less communications background/experience, while more experienced personnel may still achieve their goals by following their own internal strategic thinking.

CONCLUSION

The problem identified and addressed in this research, as revealed from a review of the recent literature, is a lack of research informing how ARCIs use social media and a gap in applying theory to practice as evidenced by a lack of practice guidelines. Overall, the findings provide significant insight, answering the question of how ARCIs use social media to communicate and engage with publics online, including which publics they are targeting and whether social media are being used as part of a larger integrated communications or public relations strategy. Based on the research findings, several recommendations have been made, building on the basic guidelines that currently exist in the literature. While all the recommendations highlighted in this

chapter are intended for ARCIIs, these guidelines could also be helpful to individual scientists/researchers seeking more detailed guidance in using social media. This study provides a foundation for future research and the development of guidelines for ARCIIs wanting to use or improve their usage of social media, which could enhance the public communication of scientific findings. Developing social media guidelines within the context of science communication could have broader implications on the level of social media uptake among researchers and research organizations, and in turn, the extent to which research findings are being communicated to different publics online.

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EXPLORING HOW ACADEMIC RESEARCH CENTRES AND INSTITUTES USE SOCIAL MEDIA

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APPENDIX A: GUIDELINES AND RECOMMENDATIONS FOR SOCIAL MEDIA USAGE

This section continues the discussion on literature and sources that point to a need for more detailed social media guidelines.

Recommendations in the Scholarly Literature. Although several studies have pointed to a need for guidelines to direct academics on how to use social media, little scholarly research actually provides guidelines or recommendations. In their study of how education scholars use Twitter, Veletsianos and Kimmons (2016) concluded their study with some suggested ways in which scholars could increase their followers: tweeting often, following others, identifying oneself as a professor (if applicable) and using Twitter continuously over an extended period of time.

Osterrieder (2013) specifically published a commentary to provide an introduction and guidelines to social media for researchers in the plant sciences. The commentary includes suggestions on how researchers can get started as well as tips and basic explanations for “consuming, connecting, curating and creating” (p. 4, Osterrieder, 2013). The commentary provides mostly basic information for individuals who need a simple introduction to social media and how to use it, but it does not go into detail about what is considered effective social media strategy.

Building a Personal Strategy. While I have mentioned the importance of strategy in my literature review, I have found little detail in the literature as to how researchers should design a strategy. However, I discovered one useful online article that tackles developing a personal strategy. Dutta (2010) provides a framework to help individuals form their own social media strategy, which includes considering one’s goals, audience, and personal resources. Considering

these points helps with choosing the right platforms and allotting one's time effectively (Dutta, 2010).

Organizational Guidelines. As previously mentioned in the section discussing barriers to social media use, some research has suggested creating education and training resources to help researchers adopt social media. The Economic and Social Research Council's website provides a section on social media best practices and guidance, which includes a detailed guide to help researchers in the UK learn about using some common social media channels (ESRC, 2017). The website includes information about social media benefits, how to establish a social media presence, and considerations for which/how many tools to use. Tips and recommendations are also detailed for particular channels, including Twitter, blogs, videos (on YouTube, Vimeo and Vine) and podcasts. This website is a good starting point for how organizations could be providing guidelines to help researchers adopt social media.

APPENDIX B: RECRUITMENT TEXT

Dear (*Insert Participant Name*),

My name is Aalyssa Atley and I am a Master's student working under the supervision of Dr. Gordon Gow in the Master of Arts in Communications and Technology program at the University of Alberta. I received your name and contact information through the (*insert name of centre/institute*). The reason that I am contacting you is that I am conducting a study that explores how academic research centres and institutes use social media. I am currently seeking volunteers from research centres and institutes at the University of Alberta to participate in this study.

As you are someone who manages/uses the social media accounts of an academic research centre/institute, your experience and knowledge would be extremely valuable to this study. Participation in this study would involve one hour of your time for an interview about how your centre/institute uses social media.

Further details about the study are included in the attached information letter and consent form for you to review. If you are interested in participating, please send me a reply at aalyssa@ualberta.ca. I will then contact you to discuss an interview time and location that work for you.

If you have any questions about this study, don't hesitate to contact me via phone (780-xxx-xxxx) or email (xxxxxxx@ualberta.ca). Your participation is entirely voluntary. The plan for this study has been reviewed and approved by a Research Ethics Board at the University of Alberta.

APPENDIX C: INFORMATION PROVIDED TO PARTICIPANTS AND CONSENT

Study Title: Exploring How Academic Research Centres and Institutes Use Social Media

Background

My research explores how academic research centres and institutes use social media. I've contacted you to participate in this study because you are someone who manages/uses the social media accounts of an academic research centre/institute, and your experience and knowledge are important and highly relevant to this research.

Purpose

This study is my capstone project, which is required for the completion of my Master of Arts degree in Communications and Technology at the University of Alberta. The purpose of this research is to explore how research centres/institutes use social media, in an effort to better understand successful practices. The findings of the study may be used in research articles, presentations and online postings.

Study Procedures

Interviews will be conducted in person, or via Skype if needed. The interview will take approximately 45 to 60 minutes. If you are available for an in-person interview, I can meet you at a location that is convenient for you. The interviews will be recorded and transcribed. Your name will be removed from the transcript and kept anonymous. If you choose to share any documents, images or other information with me, these materials will be used *only for this research* and will not be shared with anyone else.

Benefits

Your participation in this research will help address a lack of research on how research centres/institutes use social media. The results of this study will also help other research centres/institutes that are considering implementing social media.

Risk

No risks are anticipated for participating in this study. If I learn of anything during the study that may affect your willingness to participate, I will inform you immediately.

Voluntary Participation

Participation in this study is entirely voluntary. There is no compensation or reimbursement for participation. If you choose to participate, you may withdraw at any time, up until 2 weeks after the interview. This deadline for withdrawal allows me sufficient time to find additional participants and still complete my research project on time. Simply contact me by email or phone if you wish to withdraw. If you choose to withdraw, any data that has been collected will be destroyed.

Confidentiality & Anonymity

Your responses and any information you share with me will be kept confidential and stored in a locked office. The interview transcript will be viewed only by me and will not be shared with anyone else. Your name will also be removed from the interview transcript and will not be mentioned in the findings report.

While I am committed to protecting your confidentiality by keeping your identity anonymous and ensuring that all project data is stored securely, absolute anonymity cannot be guaranteed. There is still the potential risk that someone could seek out your identity by gathering information from the research centre/institute at which you are employed.

Following research policy, I will keep the data in a secure place for a minimum of five years following the completion of the study. Electronic files will be kept in a password-protected folder and hard copies will be kept in a locked office.

Please let me know if you would like a summary of the research findings once the study has concluded.

Further Information

If you have any further questions regarding this study, please don't hesitate to contact me via phone (780-xxx-xxxx) or email (xxxxxxx@ualberta.ca). Additionally, if you have any concerns or issues at any point during the study, please feel free to contact me, or my supervisor, Dr. Gordon Gow (ph: 780-xxx-xxxx or Email: xxxx@ualberta.ca).

The plan for this study has been reviewed by a Research Ethics Board at the University of Alberta. If you have questions about your rights or how research should be conducted, you can call (780) 492-2615. This office is independent of the researchers.

Consent Statement

(Please check the boxes to acknowledge you have read and understand the points below)

I have read this form and the research study has been explained to me.

I have been given the opportunity to ask questions and my questions have been answered.

If I have additional questions, I have been told whom to contact.

I agree to participate in the research study described above and will receive a copy of this consent form. I will receive a copy of this consent form after I sign it.

Participant's Name (printed) and Signature

Date

Name (printed) and Signature of Person Obtaining Consent

Date