

# **Public Library Resilience during the COVID-19 Pandemic: the role of social media for Canadian Urban Public Libraries.**

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## **Abstract**

This mixed method qualitative research aims to analyse the role of social media in Canadian urban public library resilience during the COVID-19 pandemic.

Facebook and Twitter social media content was collected from a sample of ten urban public libraries across Canada to analyse how libraries have responded and adapted to the closure of library buildings with minimal prior notice, through their use of social media during this pandemic. The research objectives include analysis of the value of social media as a platform to provide community outreach and engagement, crisis management, health literacy, and support of mental health during this challenging time of change.

Analysis of the data was performed using a combination of template coding, open coding and sentiment analysis

The data and findings from this research provide an insight to the potential of social media as a strategic and valuable resource for public libraries. In addition, the research outcomes may support crisis management policy planning for public libraries.

## **Keywords**

Public Libraries, social media, COVID-19, Community Outreach, Health Literacy, Crisis Management, Mental Health

## **1 Introduction**

The outbreak of the COVID-19 coronavirus has dissolved our perception of normality, imposing global restrictions on movement of citizens and closures of businesses. The momentum with which the virus spread required world leaders to implement disaster management plans through mandatory quarantines with minimal warning for citizens, eliminating any opportunity for preparation. The impact is unprecedented in our lifetime, causing widespread anxiety, fuelled by the uncertainty regarding treatment of COVID-19 disease and the lack of a cure. At the time of writing this research project, it is still unknown what the outcomes will be in terms of duration, death toll, political, economic and societal ramifications of this coronavirus pandemic.

Managing change is not new for public libraries. In planning and delivering relevant library programs and services within the community, public libraries apply a local lens to evolving wider social trends, anticipating the current and future needs of their patrons through open discourse within the community they serve. Embracing change is the how libraries retain their value.

The closure of most public library buildings has greatly restricted access to their physical resources, and this disruption has created new challenges for library staff in providing support within their communities. The rapid shut down nationwide due to Covid-19 provides favourable research conditions, as all libraries have been operating under the same quarantine restrictions and within the same time frame, creating the opportunity for comparative studies.

Librarians have been forced to think differently about what the needs of their community are, given these changes, and how public libraries can serve their communities using digital resources, such as social media, in new and creative ways.

Despite the role of social media being considered as peripheral or complimentary to public librarianship (Choi and Harper 2019); how public libraries use social media has been quite thoroughly researched in terms of the content of social media posts, marketing and promotion of library activities and resources, and user engagement.

This mixed method research analyses how public libraries are using social media to support and engage with patrons during this pandemic. The research is focused on the social media content on Facebook and Twitter of ten urban public libraries across Canada. Comparative content analysis was performed with the use of a template coding scheme developed in a previous study by Joo, Choi and Baek (2018). Further open coding was then applied to enable analysis of the research objectives under current pandemic conditions.

The outcomes from this research provide an insight to the potential value of social media as a strategic and valuable resource for public libraries, and practical implications for increased engagement in social media use are discussed. The research identifies social media strategies which librarians may consider when planning for outreach communications and future library services. In addition, the findings may support crisis management planning for public libraries.

## **1.1 Research Aim**

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“Resilience is the capacity of a system, community or society to adapt to disturbances resulting from hazards by persevering, recuperating or changing to reach and maintain an acceptable level of functioning.” - Government of Canada definition of resilience in An Emergency Management Framework for Canada (2017).

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In these unprecedented times, public library buildings have been closed and physical resources are inaccessible, leaving libraries dependent on digital resources. As such, social media has become an invaluable tool in enabling librarians to engage and support their local communities in this time of crisis.

This research aims to analyse the role of social media in urban public library resilience during the COVID-19 pandemic.

## **1.2 Research Objectives**

### **1.2.1 Research Objective: Crisis Management**

While access to library buildings and their physical collections are unavailable to the public, analysis of the digital communication methods used by libraries aims to develop an understanding of how libraries have adapted and responded to this rapidly changing environment. This data analysis could inform future crisis management decision and policy making. Research questions within this objective include:

- What methods of communication have libraries used to inform their patrons of changes to library services due to COVID-19? Is the information posted on the library website also posted on social media? Are any other communication avenues available (e.g., phone lines, staff emails)?
- What level of engagement does the library encourage within their social media platforms on posts informing patrons of changes to library services?
- How responsive are libraries to patron queries posted on social media regarding changes to library services?

### **1.2.2 Research Objective: Community Outreach and Support**

Prior to this pandemic, most library social media content promoted upcoming library events (Joo, Choi and Beck 2018), and 56% of libraries invested less than five hours a week in their social media (Bacon 2017). Exploring the new ways in which libraries are currently using their social media will provide valuable insight into identifying possible future trends in the use of social media platforms for the planning and delivery of public library services. Research questions within this objective include:

- What type of content are libraries posting? How does it differ from the pre-pandemic content?
- Does the library post different content on different social media platforms, or the same content across platforms?
- In what ways are users engaging with content?
- What library services and programs are being delivered through social media channels which were previously unavailable digitally?
- How have libraries demonstrated creativity in the ways they are using social media at this time?

### **1.2.3 Research Objective: Health Literacy and Mental Health Wellness**

The World Health Organisation is investing huge resources in fighting the spread of misinformation. Analysis of how public libraries are supporting health literacy, including mental health wellbeing, through social media during this time of uncertainty will strengthen the value of librarians in promoting health literacy. Research questions within this objective include:

- Is the library supporting health literacy on its website and social media? If so, what methods are used? (for example, informative health advice posts, links to other websites with reliable information, sharing of Alberta Health Services daily updates, instructional or inspiring posts to encourage critical thinking in information consumption)
- Does the quantity or type of proactive health literacy posts differ between digital platforms? If so, in what way?
- What type of posts are most effective in encouraging engagement from the public in promoting awareness of health literacy through its social media platforms?

## **2 Evidencing and Literature Review**

### **2.1 Use of Social Media by Public Libraries**

Public Libraries have always adapted to social trends in creative ways to maintain relevance and their value within the community. Research in the early years of social media and access to information via the internet raised concern for the status of libraries and librarianship as gatekeepers of information (Carlsson 2015). Most libraries have since developed comprehensive digital resources which, in comparison to social media, are perceived to be credible sources of reliable, high-quality information (Zha et al. 2019). The role of social media is considered a positive opportunity for libraries to improve their marketing and services. (Choi and Joo 2018). As the public library's physical resources are currently inaccessible due to social distancing restrictions, the library's digital resources have become central to the library's offering, thereby increasing their value within librarianship. While the importance of the digital library has already been established, this proposed research will explore the potential value of social media, which until now was considered to be peripheral or complimentary to public librarianship (Choi and Harper 2020). However, a report into the value of galleries, libraries, archives and museums (GLAMs) in Canada (Oxford Economics 2019) found their online value to be \$1.6 billion dollars per year, of which social media for libraries was valued at \$269 million, and this was before the pandemic, during which time

more museums and libraries than ever before have been offering virtual options for the public to engage with their collections.

Pew Research Center reported that Facebook (69%) and YouTube (73%) are the most commonly used social media platforms by U.S. adults (Perrin and Anderson 2019). Facebook is also the most used social media platform by libraries and library users, followed by Twitter and then Instagram. However, more than half (56%) of libraries invest less than 5 hours per week in social media (Bacon 2017), which may be due to issues with staff resources, skills and expertise (Choi and Joo 2018; Clements and Liew 2016).

Research studies examining the content of library social media posts typically measure the impact of successful posts through levels of user engagement. However, research conducted by Lund (2019) investigated whether social media engagement correlates with library visits, found that Facebook followership per capita within a library's service area correlates moderately-to-strongly with both library visits and event attendance per capita. Levels of social media engagement and number of followers also increase with more library staff (Lund 2019; Joo, Lu and Lee 2019), although further research identified an opportunity for libraries to achieve more meaningful levels of social media engagement by seeking feedback from existing patrons and followers (Choi and Harper 2019).

Prior to this pandemic, the most frequent use of Facebook was in promoting upcoming library events. Community news and emotionally inspiring posts generated high user engagement (Joo, Choi and Beck 2018). Facebook posts with the most 'likes' and 'shares' included community events, awards and photos, whereas posts about summer reading programs generated the most comments. (Joo, Lu and Lee 2019). Assuming the libraries are no longer promoting events in person, research into the current content of library posts on social media will make an interesting comparison and potentially it could provide a snapshot into the cultural memory of this unprecedented time within librarianship (Henninger and Scifleet 2015), as Canadian urban libraries explore more creative ways to serve their communities online (Klingbeil 2020).

## **2.2 Social Media, the COVID-19 'Infodemic', and Digital Health Literacy**

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"But we're not just fighting an epidemic; we're fighting an infodemic. Fake news spreads faster and more easily than this virus and is just as dangerous."

-Dr, Tedros Adhanom Ghebreyesus (2020), Director-General of the World Health Organisation (WHO)

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A recent survey researching coronavirus health literacy among a sample of 2000 Canadians, found that 46% of Canadians who participated in the survey believed at least one of four COVID-19 conspiracy theories and myths. In addition, 57% of the Canadians surveyed believed that they could "easily distinguish conspiracy theories and misinformation, from factual information about COVID-19", indicating an overconfidence in their own health literacy abilities (Carleton Newsroom 2020). The Pew Research Center report 23% of Americans believe COVID-19 originated by being intentionally developed in a lab and a further 6% believe it was developed accidentally in a lab, bringing the total to 29% of Americans who believe the origins of this strain of coronavirus began in a lab (Schaeffer 2020). The spread of misinformation has predominantly been through social media platforms. Pew Research Center determined that 18% of American adults source their news from social media and that those who get their news mostly from social media are more likely to be exposed to misinformation and less likely to be following coronavirus news (Jurkowitz and Mitchell 2020).

The speed with which misinformation can spread on social media is due to the power of 'clickbait' generated advertising income, combined with algorithms creating information bubbles. Social media designs lack a feature for the user to 'dislike' the content of a post without clicking and generating income for the content producer. This means that the only form of protest against misinformation

posted on social media is inaction; an imbalance and a design flaw in social media platforms which consequentially promotes 'fake news'. (Rochlin 2017)

One of the main challenges in fighting the circulation of COVID-19 misinformation is the source is often coming from positions of power (Owen 2020), as highlighted in the obituary of Dr. Li Wenliang, a young ophthalmologist, who was silenced by the Chinese authorities for alerting doctors to the virus outbreak in Wuhan on 30<sup>th</sup> December 2019, with devastating global consequences in the response and spread of the pandemic. (Green 2020).

Owen (2020) identifies further sources of misinformation as:

- Medical misinformation such as bad science, false cures, and fake cases
- Ideological content from communities who distrust science and proven measures like vaccines
- Profiteers including traffic seekers, selling "cures", other health and wellness products, or phishing scams
- Conspiracy theorists such as those claiming the coronavirus is a bioweapon, was planned by Bill Gates, or created in a Chinese or American lab
- Harmful speech ranging from racist attacks to Neo-Nazis talking about ways to \*spread\* the coronavirus to cause chaos" (Owen 2020).

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"Digital health literacy (or eHealth literacy) is the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem."

World Health Organisation definition of Digital Health Literacy (Ortiz 2017)

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Heidi Larson (2018), through her work with the Vaccine Confidence Project, predicted a dangerous consequence of pandemic misinformation as "an emotional contagion, digitally enabled, could erode trust in vaccines so much as to render them moot" (Larson 2018).

Trust is an important factor in providing accurate health information in the current climate. Levels of trust influence how readily people will adopt health advice, especially when there is a health threat (Huo, Zhang and Ma 2017). The World Health Organisation (2020) list of urgent challenges for the next decade includes 'earning public trust' and 'harnessing new technologies'. WHO identified the need to build partnerships with social media providers to ensure users can access reliable health information, along with the need to provide literacy education. (World Health Organisation 2020)

Research by Carleton University determined Canadians' trust levels are higher for public health officials, medics and academics than for government officials (Waddell 2020). The growing levels of mistrust of government was identified as one of ten challenges facing public libraries, as it could undermine trust levels across all levels of public service (Smith, 2019), although public libraries still enjoy a high trust level. The Canadian Urban Libraries Council (2020) state trust is the brand of public libraries. This was reflected in the results of a UK based survey with similar results (CILIP 2018).

Featherstone (2012) proposes a librarian movement to provide community-based disaster outreach services and suggests librarians will encompass monitoring, archiving and analysing social media data produced during a disaster as a role in response and recovery. An application of this in COVID-19 is the work of librarians as contact tracers (Inklebarger 2020).

In a comparative study of literature on social media in librarianship and journalism, Chen (2018) found that scholarly journal articles in librarianship are positive towards the use of social media but less critical of social media issues than journalism authors. In fact, Chen identified several journalism articles addressing information accuracy, credibility and trustworthiness on social media, but did not find a single librarianship article in the 475 samples reviewed, which addressed these issues in social media, potentially highlighting a gap in research and a need for libraries to advocate for information

literacy through their social media channels (Chen 2018). Chisita (2020) emphasises the increased levels of social media use and “calls for a proactive approach by libraries in overcoming an infodemic of misinformation through health information literacy.”

In a study researching the effectiveness of existing efforts in combatting fake news, Rochlin (2017) suggests literacy educational programs to empower patrons to recognise misinformation and understand the power of a click, stating “librarians have a responsibility to adopt the epidemic of fake news as a central concern...and through creative thought and collaboration, librarians have the tools, abilities, and obligation to provide their communities with the weaponry to fight fake news” (Rochlin 2017).

### **3 Methodology and Theoretical approaches**

The research involves a mixed method approach to data collection in an effort to collect rich data on current social media use.

Quantitative and qualitative textual analysis of library social media content of ten public libraries using template and open coding facilitates the analysis of public library use of social media networks with a focus on Facebook and Twitter.

Stieglitz et al. (2018) developed a four-step social media analytics process which will be applied to the research. The four steps are data discovery, collection, preparation and analysis.

#### **3.1 Data Discovery and Library Sample**

The proposal for this research suggested analysis of social media data from libraries within Marigold Library System, which supports 36 public libraries ranging from small rural libraries to urban libraries serving populations up to 35,000. Marigold public libraries serve a total of 230,000 residents across Southern Alberta, Canada. These libraries were initially deemed an appropriate sample for this research as they do have autonomy of their social media accounts.

However, in support of its member libraries, Marigold Library system headquarters tends to create social media posts, which member libraries are welcome to repost to their individual library social media accounts. On initial analysis of Facebook data gathered, there appeared to be repetition in the social media postings within this library system. Therefore, it was decided that the social media data generated from this particular sample of libraries does not represent the autonomy and diversity required to meet the aims and objectives of this research. To support robust research, a more suitable sample of libraries will require that the libraries operate independently of each other in their decision making and responses to the restrictions imposed by COVID-19.

Following this, a sample of urban public library systems across Canada were chosen for the purposes of this research for the following reasons;

- Canadian urban public library systems generally manage social media accounts which represent all library branches within its system (for example, Calgary Public Library has one Facebook account and one Twitter account representing all 21 branches within Calgary Public Library).
- A sample of urban libraries represents a greater portion of the population and is more geographically balanced across Canada.
- Urban public libraries operate independently of each other in choosing how they respond to the needs of their community.

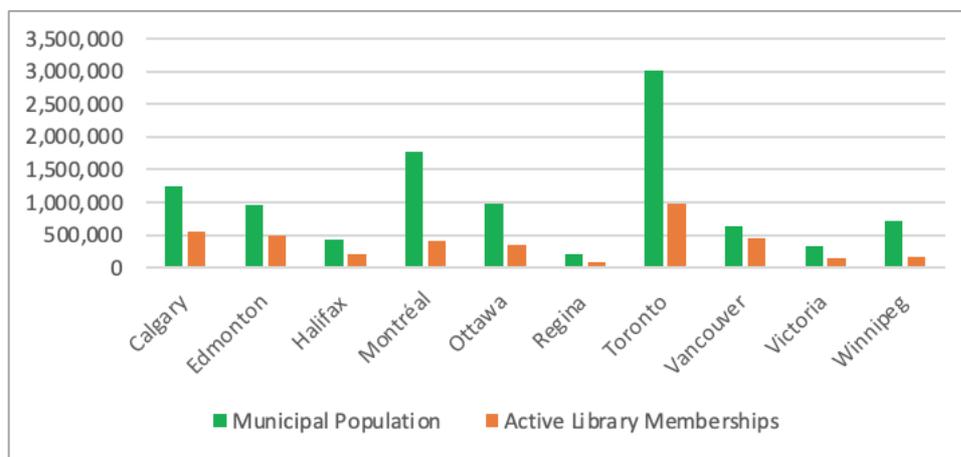
The social media data generated by the following ten urban libraries was analysed for this research;

1. Calgary Public Library, Alberta
2. Edmonton Public Library, Alberta
3. Greater Victoria Public Library, British Columbia

4. Halifax Public Library, Nova Scotia
5. Bibliothèques de Montréal, Quebec
6. Ottawa Public Library, Ontario
7. Regina Public Library, Saskatchewan
8. Toronto Public Library, Ontario
9. Vancouver Public Library, British Columbia
10. Winnipeg Public Library, Manitoba

These ten urban public library systems represent 299 public library branches which serve over 9.6 million Canadians. Canada’s population according to the 2016 Federal Census is 35,151,728 (Statistics Canada, 2017). As such, these libraries are serving over a quarter of the population. Table 1 illustrates the ratio of urban population to active library memberships according to the Canadian Urban Libraries Council (CULC) 2018 public library statistics (Canadian Urban Libraries Council 2018).

Table 1. Active library memberships within urban population (CULC 2018).



### 3.2 Data Collection

Data was collected from the Facebook and Twitter accounts of the sample libraries over a period of three months, from March to May 2020.

The closure of all library branches within this research sample took place between 13 March and 16 March 2020. By choosing to collect data from 1 March to 31 May, the data shows how sudden the closures were across the country, with data gathered prior to the closure notices providing evidence that library staff did not know of the impending closure and therefore had no time to prepare in advance. This time range also illustrates how quickly some librarians responded to these unprecedented sudden changes with a shift to digital services, resources and programming happening within days, and how creatively some librarians adapted and redefined the parameters of how the public library provides community services during this time of uncertainty and change.

The social media research data collected consists of 1,341 Facebook posts and 4,409 Twitter tweets for the chosen research sample. A common challenge for researchers in social media analytics, is the volume of data (Stieglitz et al. 2018), and as such a limitation in this research study is that the time range of three months from March to May 2020 does not encompass the full pandemic closure time for Canadian urban libraries, thereby omitting the opportunity to analyse the social media data on phased re-opening procedures. Aside from the volume of research data a longer time span would generate, the primary reason for this limitation is due to the time frame of this research project which commenced during the quarantine period and prior to the phased reopening of library buildings.

Twitter data was collected using Twitonomy, a web-based Twitter analytics tool, which downloaded data from the sample library Twitter accounts, formatted into a Microsoft Excel document. Facebook data was collected manually, by copy and paste method, into a Microsoft Word document. At a later stage, Ncapture, a web browser extension, was also used to import Facebook and Twitter Data into NVivo, a software for statistical and qualitative analysis, however that was not effective in capturing the required data, so the Twitter data was downloaded to excel and the Facebook data was in a word document.

In addition to published social media posts on Facebook and Twitter for the sample libraries, data collected in support of this research includes projects conducted by the Canadian Urban Libraries Council (CULC), particularly the Key Performance Indicators (2018) showing ranked library statistics, and the COVID-19 Toolkit (2020). Open data publications on the websites of the sample libraries were also used in support of this research, when available.

### 3.3 Preparation

The unstructured collected data was then formatted in preparation for analysis. Facebook data, collected manually by copy and paste into a Word document, was formatted and summarised in an excel document, with categories including date of post, target audience, language, format, attachments, subject, quantity of reactions, comments and shares received. This began to provide some structure to the data which can be used in analysis and coding of the data and it facilitates comparative analysis. It also provided the opportunity to become familiar with the data, to begin to recognise similarities, differences and relationships across the different Facebook accounts.

For the purposes of providing a comparative analysis, the initial coding template used for this research was developed in a previous study using open coding on a wider sample of Facebook posts from public libraries in the United States (Joo, Choi and Baek 2018). The coding scheme uses 10 categories to classify the content of each post. By using these established codes, this research has a foundation on which to compare trends in content and engagement levels of public libraries' social media postings from previous research with our current shift to digital emphasis due to the pandemic lockdown.

Table 2. Coding template developed by Joo, Choi and Baek (2018).

CODE	CODE DESCRIPTION	CODE	CODE DESCRIPTION
C1	Upcoming Event Announcement	C6	Information about books, authors or collections
C2	Completed Event	C7	Storytime / Reading Programming for Children
C3	Emotionally Inspiring Message	C8	Community / Local News
C4	General Library Announcement	C9	Profile / Cover Photo
C5	Library Clubs	C10	All other posts

However, in using the open coding devised by Joo, Choi and Baek (2018) for comparative analysis, it is important to bear in mind that there are variants in this research beyond the impact of COVID-19. For example, this research sample is smaller and is specifically urban public libraries in a Canadian context. In addition, this research is analysing data collected from two social media platforms, Facebook and Twitter, used by the sample libraries. Therefore, the use of coding established in a previous study is indicative of general trends in how social media was used by public libraries in the past compared to our current situation but is not a tightly controlled comparative summary.

Following this initial template coding, an additional review of the data was required in order to highlight the research objective themes. Namely, crisis management, library services and resources, community outreach support and information literacy regarding COVID-19.

Table 3. Research themed coding.

Theme	Description	Examples
T1	Crisis Management	Closure Notices, COVID-19 related website updates
T2	Information Literacy	Links to local Public Health Authority or increasing awareness of how to spot misinformation and fake news.
T3	Mental Health	Uplifting annotation, stress reducing programming, shared resources
T4	Online Program Delivery	Facebook Live Storytime or other live, interactive programming using some other online platform, such as Zoom.
T5	New Digital Library Resource	New or expanded access to existing digital library resources, such as Ancestry Library Edition.
T6	Online Resource	Shared links to open access resources from online sources other than the library, such as virtual museum tours.
T7	Community Outreach Support	Removal of access barriers, such as providing online memberships or eliminating fines, and support offered by the library in partnership with other community organisations in COVID-19 relief work.

### 3.4 Analysis

Qualitative content analysis of the social media data was done using template analysis and open coding. Open coding has been chosen because of the unprecedented circumstances in which libraries are operating, which means the coding will be flexible as the range of content within the data is unknown. The data will determine the coding. Open coding involves analysis of unstructured text to categorise the content (Joo, Choi and Baek 2018).

Data will be quantified within the coding such as frequency of posts, number of 'likes', 'shares' and comments the posts receive, along with whether multimedia or image attachments were included. This data will determine the overall engagement level of the library.

Social media guidelines published by the American Library Association (2018) list a range of five community engagement levels for social media use from "the library posts information relating to its services and operations but does not seek out or respond to comments" to "the library serves as a forum for the discussion of many issues related to its collections, programs and spaces." (ALA 2018). This research will measure levels of engagement by the number of Facebook reactions, comments or shares on a post or the number of Tweet likes and retweets.

Calculations eliminating the bias for larger libraries will enable a comparative analysis of social media engagement across the library groups, regardless of the size of their social media followings.

## 4 Findings

This chapter begins with an examination of the macro and micro environmental factors affecting public libraries in Canada during the coronavirus COVID-19 pandemic, including a strengths, weaknesses, opportunities and threats (S.W.O.T.) assessment under library lockdown conditions.

Following the environmental scan, the findings of a content analysis conducted using a coding template developed in research by Joo, Choi and Baek (2018), combined with thematic open coding are presented. The template coding allows for a comparative analysis between Facebook and Twitter content whilst the findings of the original research by Joo, Choi and Baek also provide a foundation benchmark to assess how social media use has changed. The findings of thematic open coding applied to the data in addition to the template, supports analysis of the unique specific conditions and priorities facing public libraries during the current pandemic.

Finally, a critical evaluation of the research outcomes is applied to the research objectives.

### 4.1 Macro and Micro Environmental Analysis

Coronavirus COVID-19 has spread rapidly across the globe. The response to this health crisis is unprecedented in our lifetime. World leaders have declared their nations to be in a state of emergency, involving restrictions on non-essential travel, mandatory quarantines and the wearing of face coverings in public. National lockdowns have shut down entire economies for months in an effort to “flatten the curve” and control the spread of transmission. These dramatic changes have severely impacted our modern-day lifestyles within a matter of weeks, from the first human case of COVID-19 confirmed in China in December 2019 to national lockdowns throughout Europe in early March 2020. Examination of these changes, on a macro and micro scale, which are impacting public libraries, is an important step in understanding how public libraries are navigating this unprecedented time.

#### 4.1.1 An Invisible Enemy - Macro Environment Factors

The World Health Organisation (2020) defines a disaster as “a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources”, and an emergency as “a sudden and usually unforeseen event that calls for immediate measures to minimize its adverse consequences.”

On 11th March, the World Health Organisation declared the Coronavirus COVID-19 to be a global pandemic. At that point, there were 126,000 cases reported globally. The bulletin of the World Health Organisation (WHO) defines a pandemic as “an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people” (Kelly 2011).

Historically, the most recent example of a pandemic health crisis response involving quarantines on a comparable scale to our current pandemic was the Spanish flu pandemic of 1918. However, at that time there was very little else that was comparable to today, as living conditions were less hygienic and more crowded than they are now. The population of the world was war weary after four years of the Great War (World War One), many suffered weakened immunity due to poor nourishment. The virus spread globally through travel among the soldiers as the war came to an end and they returned to their home countries. Scientific knowledge was limited: neither anti-viral medication nor antibiotics had been invented yet (Bronca 2020). Communication technology and the sharing of information was predominantly by newspaper, radio or mail. These conditions, primitive by comparison to today, were considered to be the underlying reasons why the pandemic death toll was so high (over 50 million globally) and for the strict health crisis response imposing quarantines and mandatory face masks.

More recent pandemics in the 21<sup>st</sup> century include Ebola from 2014 to 2016, H1N1 flu in 2009 and Severe Acute Respiratory Syndrome (SARS) from 2002 to 2004. Ebola and SARS were more deadly than coronavirus COVID-19, with a higher death rate among confirmed cases, yet these pandemics did not require stringent restrictions on travel and mandatory quarantines globally because isolation of confirmed cases sufficed to limit the spread. In other words, patients were only contagious when symptomatic.

In March, wide-scale testing of citizens in Iceland resulted in the discovery that 50% of positive test results were conducted on asymptomatic patients. Further scientific studies confirmed that coronavirus COVID-19 is an invisible enemy, with an incubation period of up to fourteen days during which the patient is contagious and can spread the virus unknowingly (Bronca 2020). COVID-19 is much more challenging to control the spread of transmission and this is the reason behind the public health crisis response, temporarily shutting down economies in an effort to flatten the curve.

In Canada, the first confirmed case of COVID-19 was reported by Health Canada on 25th January 2020. The patient had recently travelled from Wuhan in China, where the virus was first discovered. By the time Canada reported its first case, China had already reported 2744 cases and 81 deaths and the residents in the city of Wuhan had been ordered to quarantine. The first case of COVID-19 in Canada which was related to travel outside of China was reported almost a month later, on 20th February 2020. The patient had travelled from Iran. Local transmission of the coronavirus began in March, with outbreaks occurring at an international mining conference in Toronto which took place from 2<sup>nd</sup> to 5<sup>th</sup> March, and a dental conference in Vancouver which took place from 5<sup>th</sup> to 7<sup>th</sup> March. On 24th March, Health Canada reported local transmission as the primary source of cases in Canada. There were 2792 confirmed cases in Canada at that time. (Bronca 2020)

As Canada currently has a Liberal minority government, the prime minister, Justin Trudeau, received royal assent for the COVID-19 Emergency Response Act on 25<sup>th</sup> March. This act enables the government to follow through on the promise of \$82 billion fiscal support in a timely manner and to respond to COVID-19 as needed (Department of Finance Canada 2020). In its response to COVID-19, the government established seven guiding principles as follows:

- Collaboration with all levels of Government and stakeholders
- Evidence-informed decision making
- Proportionality – the response should be appropriate to the threat
- Flexibility
- A precautionary approach
- Use of established practices and systems
- Ethical decision making

Whilst fiscal support for Canadians is essential during these uncertain times, so too is the responsibility of communicating up to date and accurate information to citizens. To this end, the government have set up a website, [Canada.ca/coronavirus](https://Canada.ca/coronavirus), an information telephone line and the live streaming of regular briefings on government social media accounts. The Public Health Agency of Canada have developed awareness resources such as social media graphics as part of a public education and communications campaign (Canada's response, Government of Canada 2020).

Working in collaboration with the Public Health Agency of Canada and the Federal Government, provincial and territorial governments across Canada responded by each declaring a State of Public Health Emergency, allowing broader authority to the respective Minister for Health to implement protective measures for the public health of citizens within their jurisdiction.

Table 4. Provincial and Territorial States of Emergency.

Date	Province / Territory
13 March 2020	Quebec
16 March 2020	Prince Edward Island
17 March 2020	Alberta
18 March 2020	British Columbia
	Saskatchewan
	Newfoundland and Labrador
	North West Territories
19 March 2020	New Brunswick
20 March 2020	Manitoba
	Ontario
22 March 2020	Nova Scotia
27 March 2020	Yukon

#### 4.1.2 Unprecedented Changes - The Micro-Environment

Immediately following the declaration of the pandemic by the World Health Organisation, and with the increasing threat of overwhelmed health care services due to COVID-19, Municipal Councils across Canada declared closure of all municipal buildings including schools, recreation centres, public libraries, galleries and museums with immediate effect. Businesses were closed and employees told to work from home, even the outdoor playgrounds for children were closed.

The physical closure of all urban public libraries nationwide was sudden and unforeseen by both library staff and library patrons. The ten urban public library systems in this research sample closed all branches within a five-day period from Thursday 12<sup>th</sup> March to Monday 16<sup>th</sup> March 2020. Closure notices were communicated via social media with very little forewarning for library patrons or staff.

Table 5. Time frames of library closure notices.

Date closure notice was posted on social media	Library	Closure effective from
Thursday, 12th March 2020	Bibliothèques de Montréal	March 13th, until further notice
Friday, 13th March 2020	Ottawa Public Library	March 16th, until further notice
	Toronto Public Library	March 13th to April 6th
Saturday, 14th March 2020	Edmonton Public Library	Immediately, until further notice
	Vancouver Public Library	March 16th, until further notice

	Winnipeg Public Library	March 16th, until further notice
<b>Sunday, 15th March 2020</b>	Calgary Public Library	March 15th, until further notice
	Halifax Public Library	March 16th for three weeks
<b>Monday, 16th March 2020</b>	Greater Victoria Public Library	6pm, 16th March until further notice
	Regina Public Library	March 16th until further notice

Never before have public libraries faced closures on a national scale and with unknown time frames. The impact of the closure of library buildings include:

- The circulation of all physical library collection items is no longer available.
- Events and programming within the libraries are postponed indefinitely.
- Use of physical library resources, such as public computers and maker space equipment, is no longer accessible.
- In person reference and information library services are no longer available.
- The library as a safe and warm community gathering space is no longer available.
- Staffing requirements are reduced, leading to temporary redundancies.

In these challenging times, public libraries are relying on their digital assets to meet the needs of their community. Digital assets may include:

- the digital library collection and resources,
- the library website
- mobile applications
- the online public access catalogue (OPAC)
- social media platforms.



Figure 1. 'Values' wordcloud (created using Wordart.com).

As a service-oriented organisation, understanding and fulfilling the needs of the local community are imperative to retaining and increasing public library value. These needs are addressed in the Library Strategic Plan outlining future service goals and direction. However, due the rapid emergency lockdown response to the COVID-19 coronavirus, the needs of urban communities across Canada also suddenly changed. Some examples include:

- The vulnerable members of the community, those in poverty or experiencing homelessness, rely daily on the physical resources the library offers for their survival.
- Families, who may have used the library for recreational reading and children’s programming as supplementary to their children’s schooling, suddenly find themselves homeschooling full-time whilst also trying to work remotely from home.
- Business owners and entrepreneurs, unsure of the duration of the lockdown, are faced with critical decisions regarding staffing and the financial survival of their business in these uncertain times.
- Seniors, the demographic at highest risk of experiencing severe symptoms if they test positive for COVID-19, are also the demographic most likely to live alone and rely on the public library for social connection and wellbeing.

The values wordcloud (Figure 1) illustrates the library values as stated in the Library Strategic Plans of the ten public libraries in this research. The larger fonts indicate the most frequently used words when describing the values of the library in the Strategic Plan. These values should guide librarians in managing library services and in adapting to the changes and challenges of the current pandemic.

With library values in mind, a strengths, weaknesses, opportunities and threats (S.W.O.T.) analysis of the current pandemic conditions facing public libraries provides an understanding of the environmental conditions influencing the response to library building closures (Table 6).

Table 6. Strengths, Weaknesses, Opportunities and Threats (S.W.O.T.) analysis.

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Social Media is free and widely used.</li> <li>• Social media enables quick, direct communication and participatory engagement.</li> <li>• Public Libraries' brand is trust</li> <li>• Creative and intelligent staff</li> <li>• A robust digital Library collection</li> <li>• Public libraries are resilient in embracing change</li> </ul>	<ul style="list-style-type: none"> <li>• Library buildings are closed.</li> <li>• No access to physical collection or resources.</li> <li>• Access barriers such as in-person membership applications and blocks due to fines.</li> <li>• No time to plan and prepare for the closure.</li> <li>• Publishing embargoes and digital licensing cost models create limits on borrowing.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Expand the potential of social media for strategic library service delivery</li> <li>• Re-think procedures to enable and increase digital access.</li> <li>• Increase awareness of digital library collection and resources</li> <li>• Experiment in social media participatory engagement and the delivery of virtual library programming and services.</li> <li>• Re-purpose the use of physical library assets.</li> </ul>	<ul style="list-style-type: none"> <li>• Uncertainty of COVID-19 outcomes or duration.</li> <li>• Financial implications on staffing, building projects and future funding.</li> <li>• Concerns in meeting the needs of the most vulnerable community members who may not have digital tools or literacy.</li> </ul>

## 4.2 Library Social Networking: Facebook versus Twitter

According to *The State of Social Media in Canada 2020* report (Gruzd and Mai 2020), 94% of online Canadians have at least one social media account. The most popular social media platform in Canada is Facebook (83%), followed by messaging apps (65%), YouTube (64%), Instagram (51%), LinkedIn (44%) and Twitter (42%). Facebook users have a higher percentage of daily users (77%) compared to Twitter (50%).

Facebook and Twitter have different characteristics, which affects how they are perceived and used. It's important to understand these fundamental differences between the two platforms in order to use them to their potential. The most significant difference between them, as social networking tools, is that Facebook networks people whereas Twitter networks ideas and topics.

Twitter focuses on current dialogue and trends. It is an active, fast moving, open conversation between strangers. Tweets are limited to 140 characters, which has led to the term 'micro-blogging'. Most tweets can be viewed publicly, and users can react to a tweet by responding with a comment, re-tweeting or clicking the heart to label it as a favourite tweet. Ideas are grouped and searchable through the use of hashtags. This makes Twitter an ideal platform for conversational interactions, current events and activism which have the potential to reach a wide audience, although briefly.

Facebook builds connections between people. A Facebook post has more permanence than a tweet, as the nature of the network is not as fast moving as Twitter. The focus of a Facebook post is on sharing among established followers and friends. There is no limit on the length of a post, and users have control over who sees each post with flexible privacy settings which can be adjusted per post. Engagement with a Facebook post can be done by choosing one of a series of reaction emojis, commenting or sharing the post if privacy settings allow it. Reaction emojis allow expression of a variety of emotions including; *like, love, laugh, wow, sad, angry*. In response to COVID-19, Facebook launched a new reaction emoji: *care* (Figure 2).

Facebook also offers Facebook Groups, Facebook Live for sharing events, and business profiles which include Facebook Insights for analytics. Facebook's strength is in encouraging engagement with each post.



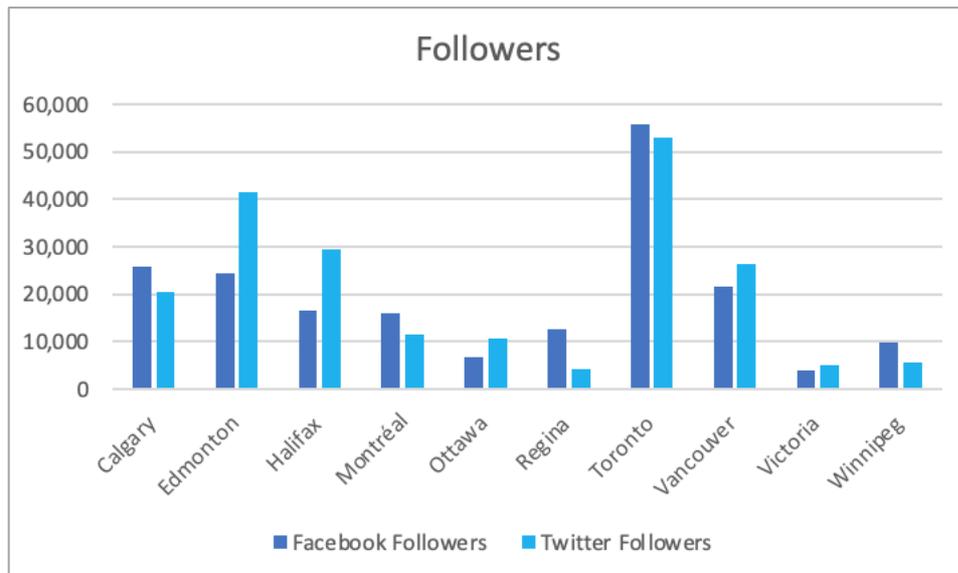
Figure 2. Facebook introduce new 'care' emoji during COVID-19.

All of the urban public libraries in this research sample have adapted the use of both Facebook and Twitter with over 400,000 followers almost evenly distributed across the two social networking platforms as follows:

- 193,414 Facebook Followers
- 208,272 Twitter Followers

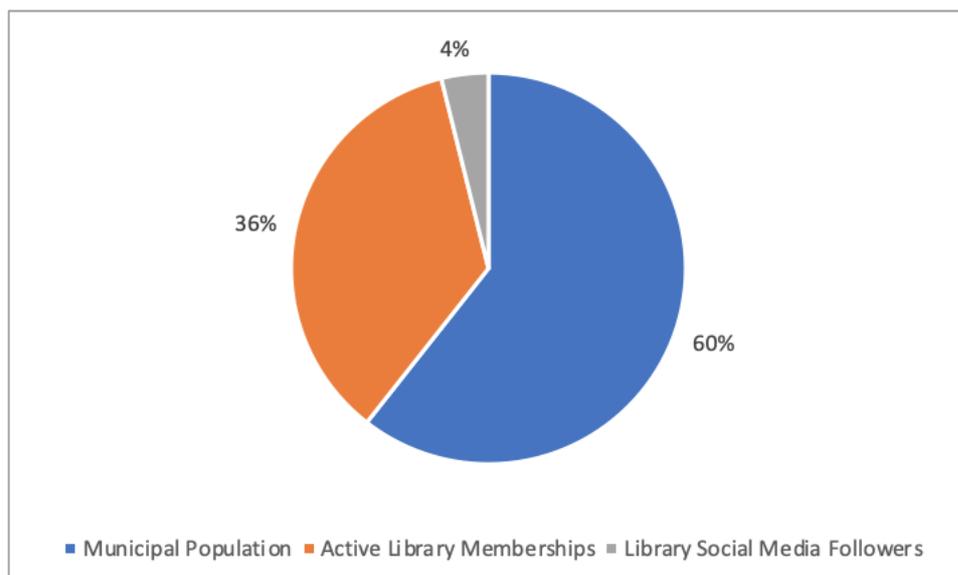
The distribution of these followers is shown in Table 7, which reflects similarities to the distribution of active library members within the population as shown on Table 1.

Table 7. Distribution of social media followers.



However, Table 8 indicates that the social media followers on Facebook and Twitter only represent 4% of the total municipal population these libraries serve, which suggests that social media networking has not yet reached its potential for urban public libraries in Canada. Therefore, an increased focus on promoting the public library’s social networking presence in order to increase the number of followers on Facebook and Twitter within the community would increase the value of social media for these libraries and possibly increase the value of the library for its social media followers.

Table 8. Percentage of population following public library social media.



### 4.3 Social Media Content Analysis

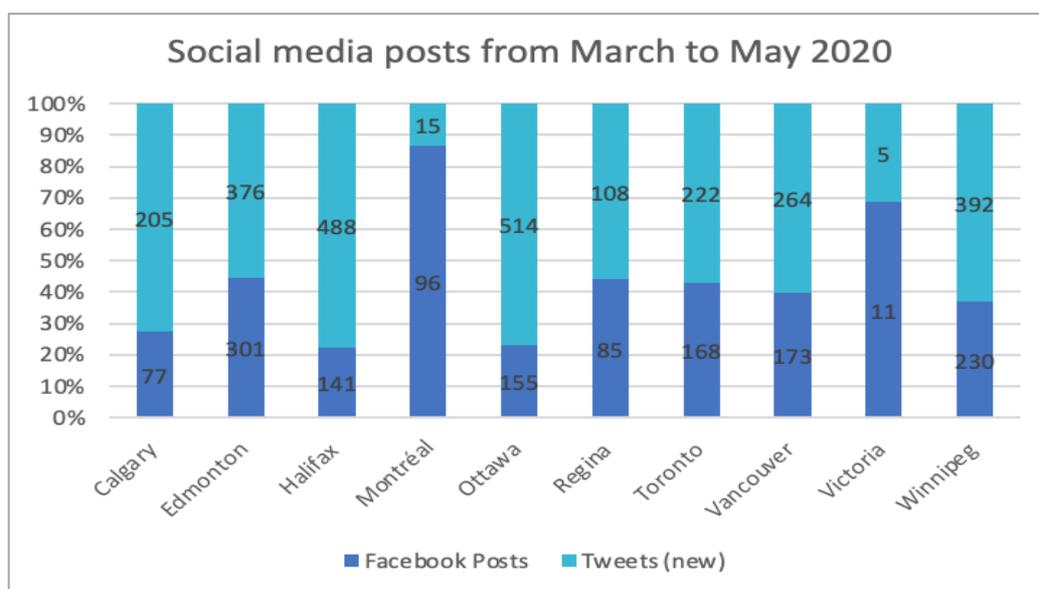
The data analysed in this research includes new social media posts from 10 urban public libraries in Canada over three months from March to May 2020. In total, there are 4026 posts as follows:

- 1437 Facebook Posts
- 2589 Twitter Tweets

Table 9 shows the distribution of these posts between Facebook and Twitter. There is an emphasis on Facebook by Bibliothèques de Montréal and Greater Victoria Public Library, with the remaining libraries showing an emphasis on Twitter, although only marginally for most, with Calgary Public Library, Halifax Public Library and Ottawa Public Library using Twitter for over 70% of their social media posts.

In addition to the tweets analysed, which are newly generated tweets, there are a further 1383 replies and 452 retweets posted by the sample libraries within the research time frame. These tweets are excluded from the coding analysis, as are comments and replies made on Facebook posts.

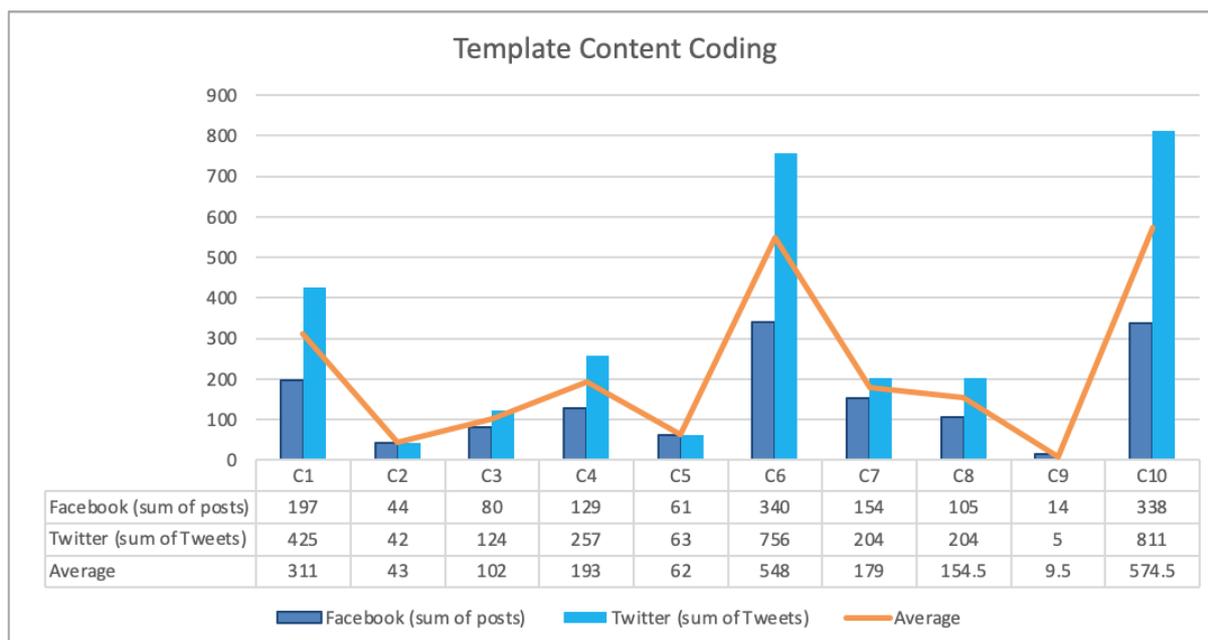
Table 9. Distribution of social media posts on Facebook and Twitter.



For comparative purposes, a coding scheme developed in a previous study by Joo, Choi and Baek (2018) was used as an initial coding template (Table 2). It should be noted that the coding scheme was developed for Facebook library posts only. However, in this research it has been applied to both Facebook and Twitter as a basis for comparison to illustrate how the sample libraries are using social media between platforms and to compare findings with previous studies completed prior to the COVID-19 pandemic. Table 10 shows the distribution of Facebook posts and Twitter tweets using the template coding for content analysis. This indicates that the content emphasis was predominantly in categories C6 (information about books, authors or collections), C10 (other) and C1 (upcoming event announcement).

Code C10, described as *other*, is a 'catch all' which required further analysis as all new and miscellaneous content was filtered into it, and therefore it grew to contain the largest number of posts of all the coded categories. Table 11 outlines the content categories within code C10. Eight categories of content have been identified which represent over half the content within code C10. All other categories of content within code C10 contain less than 10 posts and therefore can be classified as miscellaneous.

Table 10. Quantitative comparison of content posted on Facebook and Twitter.



Content such as polls, questions, quizzes and challenges could be grouped into a category as *participatory engagement*, as the purpose of these posts is to interact and engage with social media followers. It should be noted that the poll count is particularly high on account of some libraries hosting #MarchMadness on their social media accounts through the month of March, and therefore the percentage of posts may be higher than average within this category.

Table 11. Breakdown of coding category C10 – *Other*.

Content within coding category C10	Facebook (% of content within C10)	Twitter (% of content within C10)
Poll	27%	14%
Activity at Home	10%	9%
Sharing Online Content	12%	7%
Word of the Day	6%	6%
Question / Quiz	10%	5%
Challenge	2%	3%
Mental Health	3%	2%
Greeting	7%	4%
<b>Totals</b>	<b>0.77%</b>	<b>0.5%</b>

For comparative purposes, it is a more effective to analyse the content posted between Facebook and Twitter by percentage of posts or tweets per category as shown in Table 10. This shows that both Facebook and Twitter content emphasised digital library resources (code C6) predominantly, along with upcoming events and programming (code C1), with a greater emphasis of these on Twitter.

Facebook posts had more emphasis on story time and reading programming (code C7) possibly because the virtual delivery of these events was often on Facebook. Likewise, Facebook also placed a higher emphasis on library clubs (code C5), such as online book clubs, and in turn posts about completed events (code C2) also received more emphasis on Facebook.

General Library Announcements (code C4) and community and local news (code C8) received similar emphasis on both platforms.

In comparison to the research findings by Joo, Choi and Baek (2018), the content analysis of this research differs significantly as shown in Table 13. While marketing upcoming events (code C1) plays a significant role in social media activity on both Facebook and Twitter networks, the primary focus for the content of public library social media in this research is in promoting and creating awareness of the digital library resources (code C6) available to patrons while the libraries are closed.

Table 12. Percentage of content posted on Facebook and Twitter.

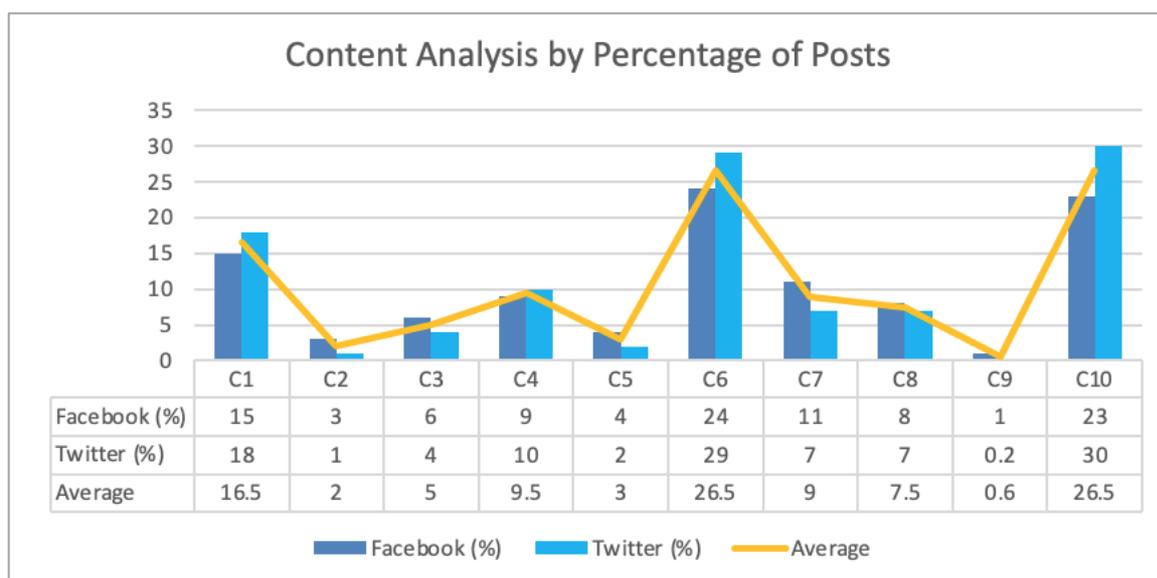


Table 13. Summary of Content Coding Analysis Results.

Code	Code Description	Joo, Choi and Baek (2018) Facebook Content (%)	Facebook Content (%)	Twitter Content (%)
C1	Upcoming Event	35.5%	15%	18%
C2	Completed Event	12.7%	3%	1%
C3	Emotionally Inspiring	11.9%	6%	4%
C4	General Library Announcement	11%	9%	10%
C5	Library Clubs	8.5%	4%	2%
C6	Information about books, authors or collections	7.0%	24%	29%
C7	Story time / Reading Programs	4.5%	11%	7%
C8	Community / Local News	2.6%	8%	7%
C9	Profile / Cover Photo	3.8%	1%	0.2%
C10	Other	2.4%	23%	30%

Table 14 and Table 15 show an interesting pattern in the content distribution from March to May 2020. As the libraries closed in mid-March, the first graph on these tables depicts the social media content before and after the closure of the libraries along with the total for March. As one would expect, it shows a sharp decrease in the promotion of upcoming events (code C1) after the closures, and an increase in providing information on the digital library collection (code C6). The increase in promoting the digital library resources (code C6) did lower slightly in April and May, but it clearly remained a priority. Promotion of virtual upcoming events and story times (codes C1 and C7) increased in April and again in May as the delivery of virtual programming became an increasingly important role for library social media as libraries adjusted to lock down conditions.

General library announcements (code C4) experienced an increased volume in March as libraries announced their closures and addressed the consequential issues regarding checked out items, holds, late fees and due dates. The volume of posts in this category dropped in April but increased again in May with the introduction of some new library services such as curbside pick-ups.

Table 14. Timeline Content Analysis: Facebook.

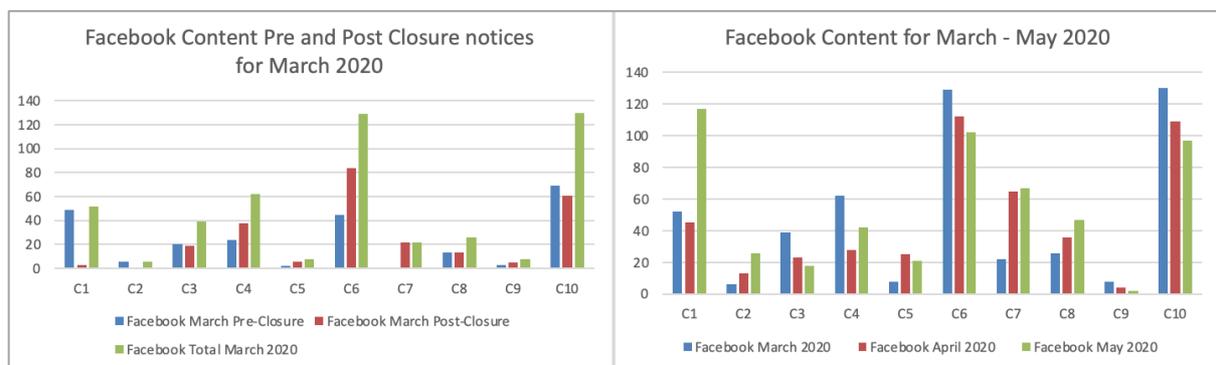
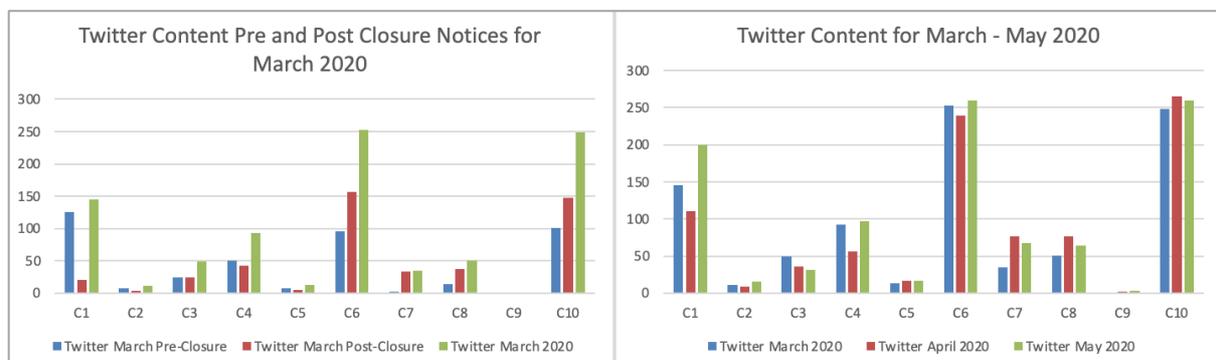


Table 15. Timeline Content Analysis: Twitter.



#### 4.4 Social Media Engagement Analysis

A key indicator to measure the performance of library social media content across Facebook and Twitter platforms can be the level of engagement each category of content receives. Table 16 compares the average number of Facebook reactions and Twitter favourites per post within each of the content coding categories. It shows a higher level of engagement on Facebook content than Twitter. The trend of reactions or favourites within each category of content are quite similar, with emotionally inspiring content (code C3) and community / local news (code C8) receiving the highest levels of engagement on both Facebook and Twitter. This finding is similar to the research findings by Joo, Choi and Baek (2018). A notable difference between Facebook reactions and Twitter favourites is in response to general library announcement content (code C4), which includes the library closure notices. However, there is a spike in retweets in this category as shown in Table 17. As with Facebook reactions and Twitter favourites, Facebook posts attract higher levels of content

sharing than Tweets. This may be due to the nature of Twitter as a platform for faster moving dialogue.

Table 16. Average number of Facebook Reactions and Twitter Favourites per Post.

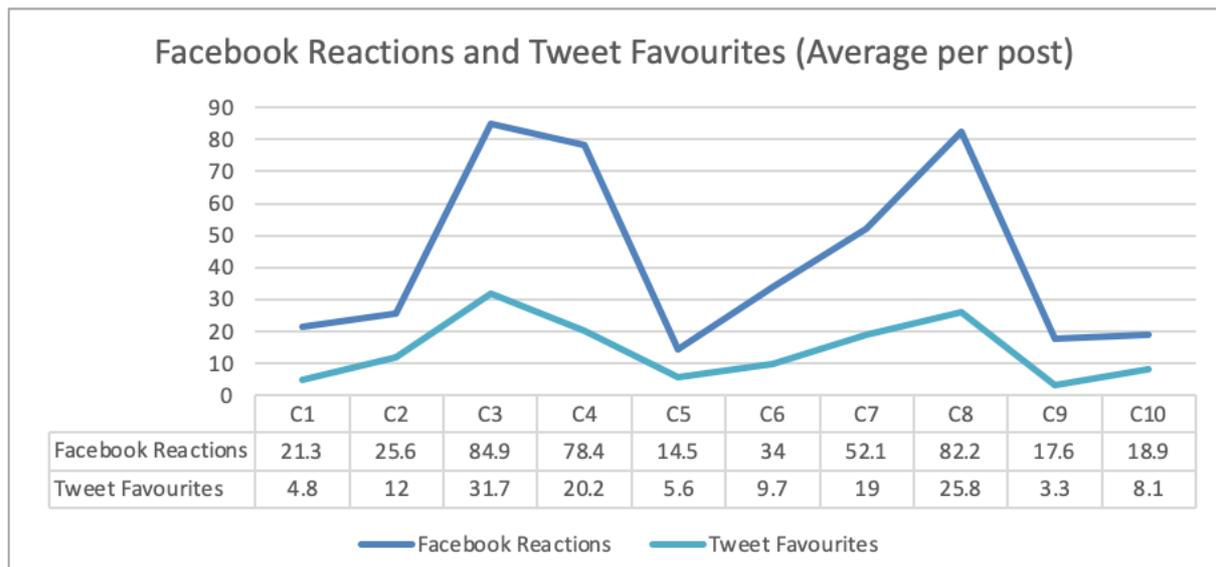
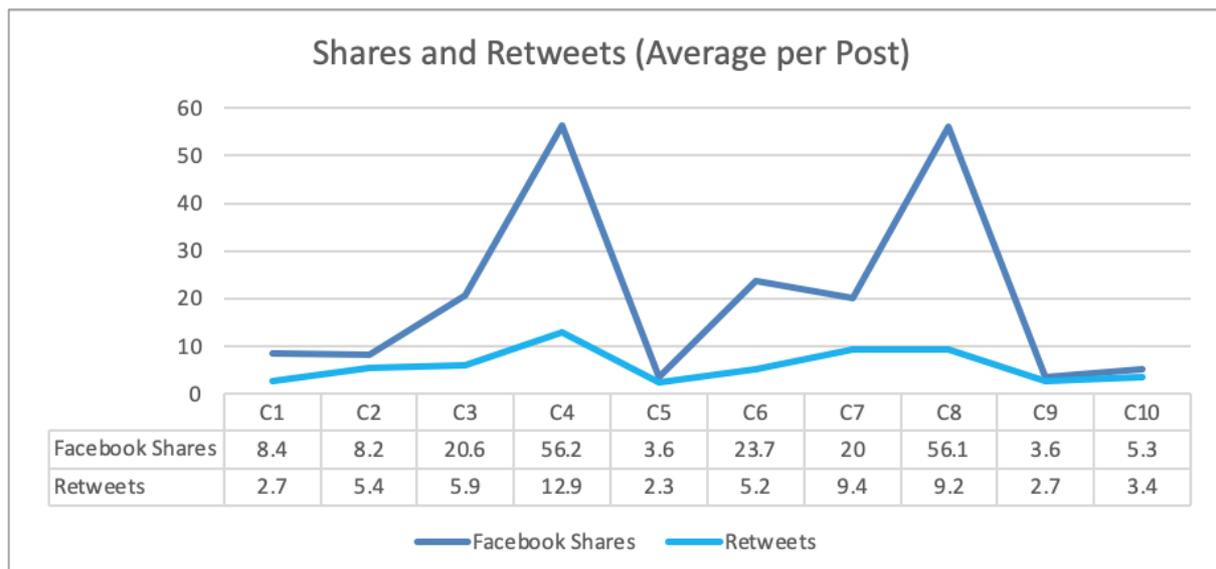


Table 17. Average number of Shares and Retweets per Post.



In addition to the template coding of the social media content posted to Facebook and Twitter, another set of seven thematic codes (see Table 3) was applied to address the aims and objectives of the research. In applying the template coding, every social media post was coded into one of the ten categories, however with the thematic coding, only relevant posts are coded. The thematic coding is not related to the template coding however it can be useful to visualise the data together for comparative purposes as shown in Table 18. Quantity of posts by content code, and Table 19, Engagement Levels by content code.

Table 18. Quantity of posts by content code.

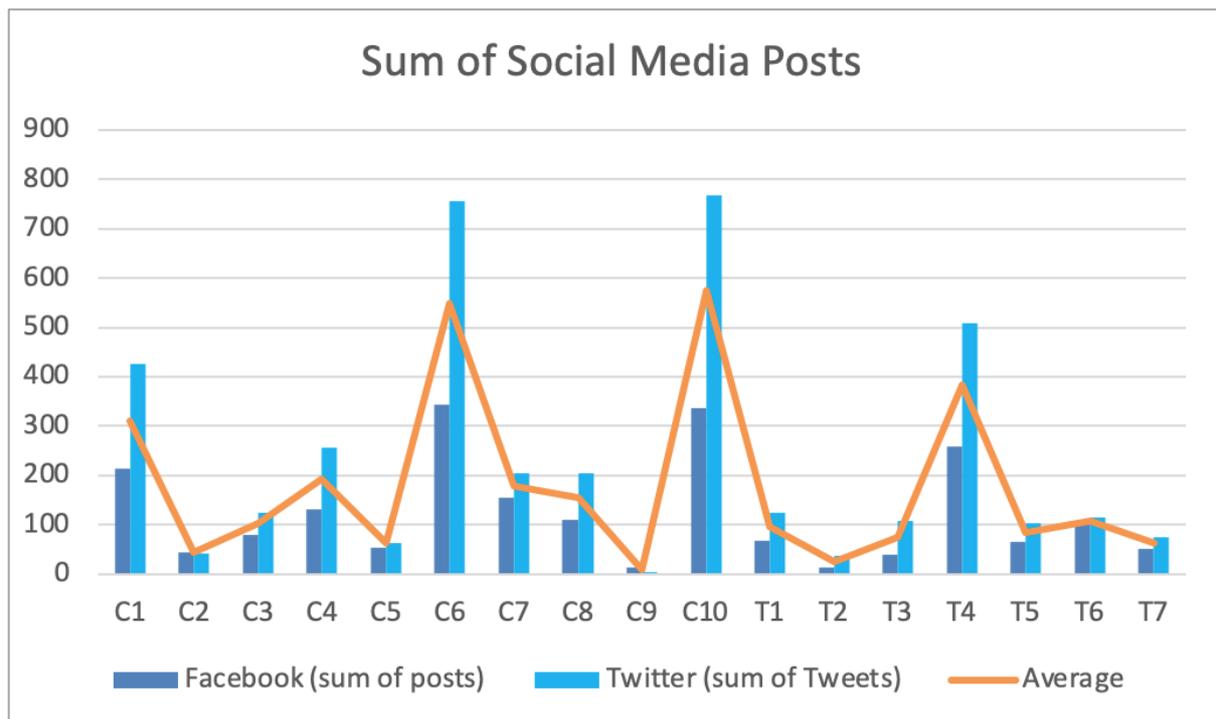
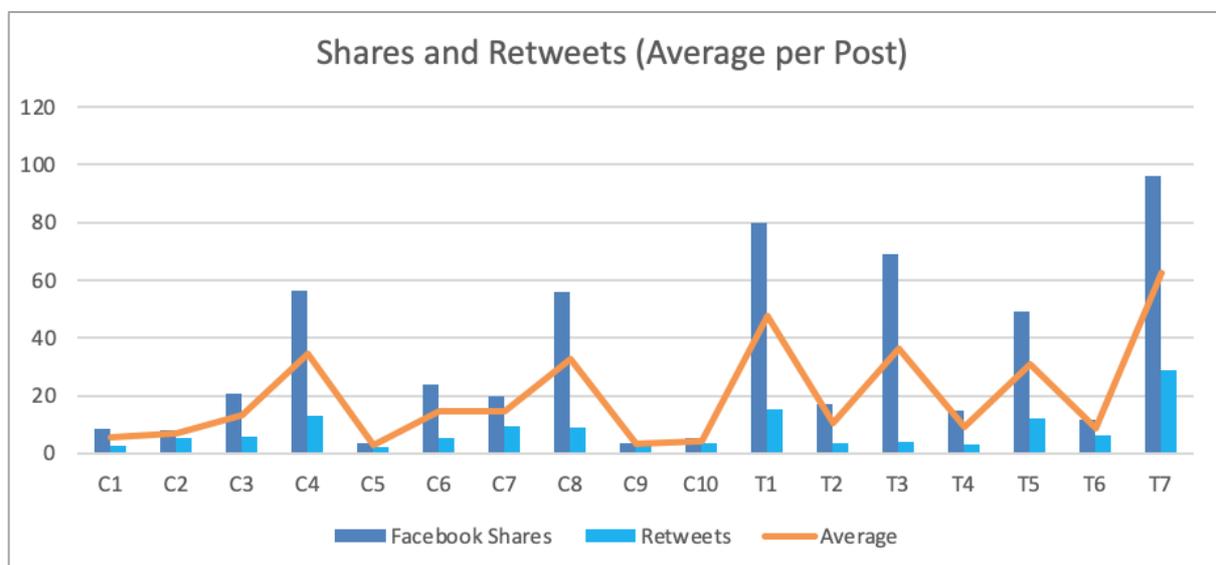


Table 19. Engagement Levels by content code.



#### 4.5 Research Findings - Crisis Management

The first of these codes is T1 – Crisis Management. This code was applied to all social media content posted by the libraries which reflected changes to the normal operation of the libraries due to the COVID-19 pandemic.

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“For many organizations during a crisis, social media is the most effective way of communicating urgent information quickly. It will also become a much more significant customer service tool during a closure.”

- Canadian Urban Libraries Council (2020)

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The World Health Organisation (2020) defines Emergency Management as “the organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and rehabilitation.”

The Facebook and Twitter data collected for this research includes approximately two weeks of data prior to the public library buildings closing. This pre-closure data provides evidence of how unexpected the library closures were for the libraries and their social media followers as outlined in selected examples shown in Table 20 below.

Table 20. Time frame of events prior to library closures.

<b>Calgary Public Library – 3 days</b>	
Thursday, 12 March 2020	A post offering in-person math tutoring homework assistance to school aged children from trained volunteers.
Friday, 13 March 2020	Library suspends all programming and events, cancels outreach services and is encouraging social distancing measures.
Sunday, 15 March 2020	All branches are temporarily closed with immediate effect until further notice.
<b>Edmonton Public Library – 2 days</b>	
Thursday, 12 March 2020	Post promoting the re-opening ceremony of a renovated library branch scheduled for Tuesday 17 <sup>th</sup> March.
	A request for volunteers with a link to a volunteer application form.
Saturday, 14 March 2020	All branches are closed until further notice with a link to a message from the CEO.
<b>Halifax Public Library – 4 days</b>	
Wednesday, 11 March 2020	Promotion of library programming during March Spring Break for school, scheduled to take place from 16 <sup>th</sup> to 20 <sup>th</sup> March.
Sunday, 15 March 2020	Closure Notice with immediate effect.
<b>Ottawa Public Library – same day</b>	
Friday, 13 March 2020	Bilingual post stating the library branches remain open and the library are following Ottawa Public Health guidelines.  In the comments, a patron posted a link to a news article entitled <i>City of Ottawa closing all municipal facilities for three months.</i>
	Bilingual closure notice.
<b>Toronto Public Library – 2 days</b>	
Tuesday, 10 March 2020	Promotion of a book launch event to take place on 12 March 2020.
Thursday 12 March 2020	Cancellation of book sale scheduled for Thursday 19 March due to staffing issues.
Friday, 13 March 2020	Closure notice with link to message from Toronto’s City Librarian.

Regina Public Library – 3 days	
Friday, 13 March 2020	Public Health Agency of Canada has assessed the public health risk of COVID-19 as low for the general population. Library services and programs are operating as scheduled. Link to their website page dedicated to COVID-19 information.
	Meme - “We scrub like we’re about to handle a rare, signed, first-edition Harry Potter and we just ate a jelly doughnut.” Link to their website page dedicated to COVID-19 information posted in comments.
	“Cure Your Stay-at-Home Blues with These Library Services” - Link to website update promoting digital library resources.
Monday, 16 March 2020	Closure Notice – Closed until further notice. Customer service available by telephone or email between 1-5pm every day. Link to COVID-19 page on their website.
	Meme - “This won’t stop the library memes.” (Figure 3) Link to digital resources on their website in comments.



Figure 3. Library meme by Regina Public Library.

The example of Regina Public Library shows evidence of preparation in the updates to their website in anticipation of a closure. In addition, the social media communication style adapted by this library is very effective in achieving high levels of engagement.

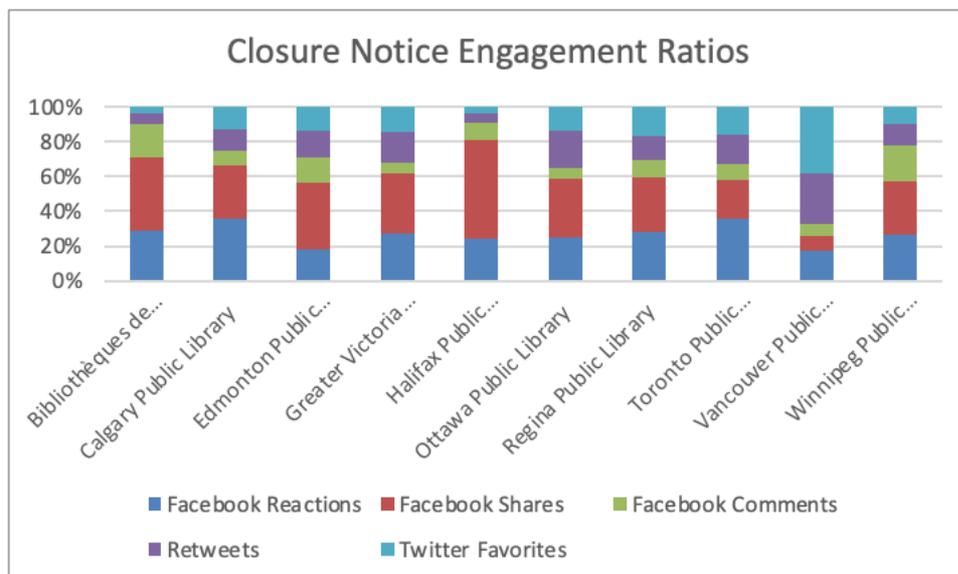
The Canadian Urban Libraries Council (2020) published a COVID-19 toolkit of best practices for Public Libraries, in which it advises communications for crisis management to be “clear, confident, credible and correct.” The most critical emergency communication post for public libraries during this pandemic has been the social media closure notice, as the closures were predominantly effective immediately. The benefit of social media in this scenario is the potential to reach a wide audience instantaneously.

The communication style and message content determine the levels of engagement and audience reach of the post. When communicating a message across different social media networks, there are a number of elements to consider:

- Graphics and Images – graphics play an important role in the success of a social media post. The graphics used in the closure notices are simple, high contrast in colour and eye catching.
- Links – All closure notices contained links to further information on the library’s website. Some links connected to the digital library resources, some had already updated the library website with a COVID-19 information page and linked to that, some linked to a statement by the Chief Librarian or CEO.
- Language – Canada officially has two languages. Most closure notices were in English only, exception include Bibliothèques de Montréal, which was French only, and Ottawa Public Library posted in both languages, however this resulted in a very lengthy Facebook post.

The Facebook closure notices vary in communication style and format. However, engagement levels were highest on the posts which had a high contrast graphic with very concise text accompanying it.

Table 21. Closure Notice Engagement Ratios.



As seen in the template coding findings, emotionally inspiring (code C3) social media posts draw high engagement levels. This is a very effective social media communication strategy implemented by Regina Public Library. A serious library announcement is often managed in two posts, one serious post followed by a humorous one, which contains a link in the comments. The engagement levels are substantially higher on the humorous posts. For example, a meme was posted on Facebook immediately following their closure notice. The closure notice got 46 reactions, 51 shares and 15 comments and the meme got 177 reactions, 9 shares and 20 comments (Figure 3).

Following the closure notice, the response phase of emergency management begins with frequently asked questions. The initial questions every library needed to address related to holds, due dates, returns and late fees on physical collection items. Communication styles are very important, as followers repeatedly asked the same questions, even with the information provided. For example, Vancouver Public Library Facebook post on 18 March 2020, uses a local icon 'Dude with Sign' to create a very clear graphical message in a light-hearted manner which effectively answered these frequently asked questions at a glance, and resulted in 283 reactions and 44 shares, but only 16 comments, effectively avoiding the repetitive questions in the comments.

Therefore, it is recommended that public libraries implement a social media communications strategy which considers the style of communication to increase engagement and value in their social media.

#### **4.6 Research Findings: Community Outreach and Support**

Public libraries have responded to the current crisis in a variety of creative and innovative ways. Code T7 was applied to all social media posts which expressed how the library is reaching out to the community to meet their needs.

Table 19. Engagement Levels by content code, shows that this social media content received the highest levels of engagement per post of all the content categories coded in this research.

The community outreach and support objectives in this social media research are as follows:

- To reduce barriers and increase accessibility to the digital library resources for everyone.
- To empower community members to help others and to express gratitude to essential workers
- To work with and support local relief organisations in their work to alleviate poverty and provide support to the vulnerable members of the community.
- To maintain a communication and connection between the library and the community.

The first objective; to reduce barriers and increase accessibility, has long been a public library priority as most library strategic plans will testify. However, the ways in which libraries have used social media to increase accessibility during this time has also increased awareness of the digital library resources and has increased the value of the library at a time when most businesses and services are unavailable to the community. The following are measures public libraries have taken to reduce barriers and increase accessibility:

- Digital library memberships available online or by phone.
- Introduction of a 'Fine Free' model for the library, permanently.
- Loaning out chromebooks and wifi hot spots to people with no digital access in their homes.
- Increasing the wifi range at library buildings so people can still connect from the car park.
- Video tutorials posted on social media to explain how to access and use the digital library resources.
- Removing blocks on membership cards due to overdue fines accrued.
- Library phone lines with specified operating hours for people who need to speak to a librarian.
- Ask a Librarian – live question and answer sessions on Twitter.

The second objective; to empower community members to help others and to express gratitude to essential workers, encourages a sense of community connection at a time of social isolation. In this sense, it supports another research objective in this study; that of libraries providing mental health support. Ways in which the libraries have used social media to empower community members to offer help and express gratitude include:

- Blog post suggesting ideas how everyone can reach out and offer support to each other
- A social media poll asking the community to vote on their preferred design of a bespoke library card which will be gifted to the provincial Chief Medical Officer in gratitude.
- A request for photos of home-made thank you cards via social media which will be displayed in a virtual 'Gallery of Thanks' for essential workers on the library website.
- 'Buy Local' campaigning via social media with links to support small businesses at a time of economic uncertainty.
- Weekly podcast programming to celebrate local heroes who made a positive impact on the community during the COVID-19 crisis.
- News articles about Librarians helping within the community.

The third objective; to work with and support local relief organisations in their work to alleviate poverty and provide support to the vulnerable members of the community is possibly the most innovative community outreach support. Urban public libraries partnered and supported local relief work in the following ways;

- Library buildings being used as a homeless shelter – Bibliothèques de Montréal
- Library buildings being used as food bank distribution centres – Toronto Public Library
- Donations – Edmonton Public Library donated toilet paper to a local shelter
- Donations – Edmonton Public Library donated hand sanitizer and wipes to a local charity
- Using makerspace equipment to manufacture personal protective equipment (PPE) for health care workers.
- Computer servers crunching COVID-19 data – Regina Public Library
- Creating book packs and activities for distribution at food banks and shelters
- Donations – Toronto Public Library donated PPE previously purchased to use in handling their special collections.

The fourth objective; to maintain communication and connection between the library and the community includes;

- Messages displayed in Library windows – Vancouver Public Library
- 'We Miss You' videos made by the librarians and posted on social media
- Newcomer support
- Home schooling support

#### **4.7 Research Findings: Health Literacy and Mental Health Wellbeing**

All social media posts relating to information literacy were coded T2 and posts supporting mental health wellbeing were coded T3. Table 18. Quantity of posts by content code, shows that neither of these categories received a large volume of posts, however

Table 19. Engagement Levels by content code, shows that T3 for mental health wellbeing received very high engagement results on Facebook. Health literacy posts did not receive a lot of engagement, however those that were presented in an emotionally inspiring or fun way did have high engagement. For example, in a comparison of two Facebook posts by Vancouver Public Library, one dated 13 March 2020, used #bookfacefriday to promote health literacy in a visual, lighthearted and creative way and included a link to health literacy information and resources, which received 160 reactions, 3 comments and 21 shares, compared to another post, dated 13 May 2020, which was more serious in nature, sharing a link to health literacy information and resources on the library website, which received 25 reactions, no comments and two shares.

Ways in which the public libraries in this research used social media to support mental health wellbeing include the following:

- Programming – Regina Public Library had a walk-in library counselling service in partnership with Family Service Regina. The day after the closure notice, a Facebook post announced that service was now available by phone.
- Programming – Death Café: Ottawa Public Library offer a regular virtual discussion for grief.
- Blog posts dedicated to information, activities and resources to support mental health in children, including advice on how to talk to children about COVID-19.
- Book lists on self-compassion, coping techniques, meditation, yoga and resiliency.
- Links sharing videos in a variety of languages created by the local health authority to enable health literacy for speakers of foreign languages.
- Sharing archive photos with historical references to remind Canadians how they overcame adversity in World War Two.
- Poetry – On Saturday 18 April and Sunday 19 April 2020, a serial killer went on a rampage through Nova Scotia, killing 22 people and setting fire to sixteen locations. The next day, Halifax Public Libraries shared a poem to express support for the community.

The poem, *Everything has changed* by Sheree Fitch, received 573 Facebook reactions, which was the highest level of engagement in Facebook reactions for Halifax Public Libraries in the three months of data collected for this research, and it received the highest number of shares of all the Facebook data collected for the ten urban public libraries included in this research project with over 2,200 shares.

From an engagement perspective, the social media content which matched the research objectives, namely crisis management communications, community outreach and support, health literacy and mental health support and wellbeing were the posts which attracted the highest levels of engagement. This indicates that librarians are using social media in a way which is meeting the needs of the community.

## 4.8 Limitations and future research suggestions

This study collected data from ten Canadian urban libraries from March to May 2020 on two social media networks, Facebook and Twitter. The data collection time span includes the library closures and how libraries responded in the first ten weeks of lockdown, but it does not include phased re-opening management and procedures.

This study does not include analysis of other forms of communication used by libraries such as website updates, media releases or physical signage outside libraries unless such communications were also shared on Facebook or Twitter.

The research for this study took place in September 2020, while the initial library closures were still in effect and many library staff were temporarily made redundant. Future research may include data collection through interviews with the librarians who manage the social media accounts. This may provide insight into COVID-19 related changes behind the scenes which may have affected the social media accounts, including temporary staff redundancies, insights into how many followers the library social media accounts gained during the library closures and current statistics such as the quantity of digital memberships issued by the libraries during the COVID-19 lockdown. It may also provide insight into their thoughts on the future potential for social media as a strategic library asset.

## 5 Conclusion

Adapting to change is not new for public libraries. In these unprecedented times, public libraries buildings have been closed and physical resources are inaccessible, leaving libraries dependent on digital resources. This mixed method research analyses how public libraries are using social media to

support and engage with patrons during this pandemic. The research is focused on the social media content on Facebook and Twitter of ten urban public libraries across Canada. Comparative content analysis was performed with the use of a template coding scheme developed in a previous study by Joo, Choi and Baek (2018). Further open coding was then applied to enable analysis of the research objectives under current pandemic condition. Sentiment analysis was used to measure engagement.

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“In many countries, in addition to a broad, whole-of- government approach, national and international civil society and community-based organizations will have a key role in meeting the basic needs of vulnerable populations. It is therefore critical that these organizations have capacities in place to manage the health risks of emergencies, including plans regarding how they will continue their essential services during a disaster.” - Health Emergency and Disaster Risk Management Framework (World Health Organisation 2019)

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The outcomes from this research provide an insight to the potential value of social media as a strategic and valuable resource for public libraries. As librarians have adapted by implementing innovative ways to continue to serve the community with restricted resources, the engagement levels on the social media posts which directly address the current needs of the community during a pandemic are significantly higher than engagement in more traditional uses of social media by public libraries. Therefore, the following recommendations arising from the research outcomes, may increase the potential of social media for public libraries.

Recommendation One: a focus on promoting the public library’s social networking presence in order to build the number of followers on Facebook and Twitter within the community would improve the value of social media for these libraries.

Recommendation Two: library investment in a strategic social media communications plan, underpinned by the library’s mission, vision, values, and objectives, will enable social media to become an asset in facilitating the library to fulfill the objectives of the library strategic plan.

Recommendation Three: libraries should assess the value in permanently keeping some of the recent changes to how social media is used, such as provision of virtual programming, as an outreach service due to the high engagement levels this social networking has attracted.

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