# The gendered digital turn: Canadian mayors on social media

Katherine V.R. Sullivan
*Université de Montréal, Pavillon Lionel-Groulx, 3150, Jean-Brillant, Montréal, H3T 1N8, QB, Canada*
*E-mail: Katherine.sullivan@umontreal.ca*

**Abstract.** Women continue to occupy lesser positions of power at all political levels in Canada, although scholars still argue on the accessibility of municipal politics to women. However, no previous study has systematically examined the gender ratio of mayors across Canada, as well as their (active) use of social media platforms in a professional capacity. Using novel data, this study examines the variation in social media adoption and active use by gender outside of an electoral campaign. Results show that there is a higher proportion of women mayors who have a Facebook page, as well as Twitter and Instagram accounts and who actively use them outside of electoral campaigns, when compared with men mayors' social media practices.

Keywords: Canadian politics, municipal politics, social media, representation, gender

**Key points for practitioners:**

- This study uses a novel dataset that includes electoral results, Statistics Canada's 2016 census, as well as data from Facebook pages, Twitter and Instagram accounts, creating an effective repertoire of Canadian mayors and of their social media accounts.
- Results highlight the importance of segmenting political roles when studying the feminization rate, especially when some roles are in subordination to others. For example, results show that combining both women councillors and women mayors falsely inflates the feminization rate at the municipal level.
- Results also show that there is a higher proportion of women mayors who actively use a Facebook page, as well as Twitter and Instagram accounts outside of electoral campaigns, compared to men mayors' social media use.
- Results also demonstrate that social media platforms are being adopted outside of Canada's biggest cities. However, social media adoption remains strongly related to a municipality's population size.

"One fundamental problem facing democracies is the continued lack of gender equality in political leadership" Inglehart & Norris, 2003: 127.

## 1. Introduction

There is still little research on municipal politics in Canada, as it is often overlooked by researchers, who prefer to focus on the provincial and federal levels, as they obviously attract more media and citizen attention. Although Canadian local politics are often believed to be more accessible to women seeking to participate in politics (Brodie, 1985), gender parity has not yet been reached. This is also true for local governments in the United States (Holman, 2017) and in Europe (Johansson, 2006; Steyvers & Medir, 2017). However, although the greater accessibility holds true to some extent in Canada (Tremblay & Mévellec, 2013), it only applies to council positions, rather than mayorships (Tolley, 2011). Among the obstacles limiting the number of women in positions of political power are the lack of representation (Thomas, 2011) and explicit sexism (SCSW, 2018), but also the gendered media bias towards women

political actors (Goodyear-Grant, 2013). The latter refers to the news media's propensity to rely on sexist stereotypes when speaking of women politicians and the lack of attention given to their political competence and policies (Ross, 2010).

Alternatively, social media has become an important political tool in order to broadcast information, exchange with citizens and to circumvent traditional communication channels (Enli, 2017). Indeed, results from interviews with women in positions of power show that social media platforms are found to be useful to connect with constituents and share their message without traditional new media's intermediation (Di Meco, 2019: p. 25). Hence, this study aims to examine the social media adoption rate by Canadian mayors, and particularly by women mayors, outside of electoral campaigns and to answer the following research questions: What is Canadian mayors' social media adoption rate? How many mayors who have a Facebook page, a Twitter account and/or an Instagram account actively use them? To what extent does the adoption and active use of social media platforms vary according to mayors' gender? Finally, to what extent does the active use of social media platforms vary at the intersection of mayors' gender and their municipality's population size?

It is done by creating a database of all Canadian mayors and takes account of their presence and active use of 3 social media platforms: Facebook, Twitter and Instagram. Analyses focus on the variation of social media adoption and active use according to the gender of mayors across Canada, as well as by municipality population size. Unlike other research on municipal governments, this study examines all Canadian mayors by merging data from Statistics Canada's 2016 census, provincial municipal directories, and social media accounts identified on Facebook, Twitter and Instagram.

Results show that women mayors are more inclined than men mayors to use social media. Additionally, a higher proportion of women mayors both have and actively use a Facebook page, as well as a Twitter and an Instagram account, than their male counterparts. Finally, there is also a greater proportion of Canadian women mayors who are actively using multiple social media platforms, than men mayors. Similar trends emerge when looking at results from binary logistic regressions and an OLS regression. These findings aim to contribute to the limited literature on the distribution of Canadian women mayors, as well as the gendered variation in digital communication strategies.

## 2. Background and theoretical concepts

### 2.1. Municipal politics in Canada

Canada is a vast country composed of 10 provinces and 3 territories. The federal government has a national mandate and, like the provinces, operates from a parliament. Although the relationship between federal and provincial governments is often perceived as being equal, the municipal governments occupy a subordinate status (Tolley, 2011: 574). These municipal governments are entirely under the legislative control of the provincial or territorial government (Lightbody, 2006: 17) who delegates local responsibilities, such as local parks, libraries and police. Unlike the provincial or federal levels of government, political parties within a municipal government – which can be a village, town, village or metropolitan municipality – are scarcer.

This study thus focuses on political actors at the municipal level, as they are often overlooked by researchers. Indeed, Larsson and Svensson (2014) note in their article focusing on the literature on the use of digital tools by political actors that political communication scholars need to devote greater attention to regional or local politics, in order to balance the amount of work at the national level: "[...] as political communication research has typically focused on national or international levels of study,

scholars within the field should also make efforts to contribute to our knowledge of online practices at the hands of politicians at regional and local levels" (Larsson & Svensson, 2014). Additionally, Raynauld and Greenberg (2014), note that "much attention has been devoted to provincial and national politics, particularly during key moments, such as elections or intense debates relating to contentious policy issues or political controversies, while local or community-based political contexts have been largely overlooked" (412). Accordingly, political communication researchers are beginning to take an interest in this level of government, particularly in light of the fact that "[...] many local governments rival their provincial and federal counterparts in terms of social media deployment and usage, particularly for engagement-oriented pursuits [...]" (Gruzd & Roy, 2016: p. 80). In fact, there have been studies on the role of social networking platforms in the formation of local electoral dynamics during the municipal election in Ottawa in 2010 (Raynauld & Greenberg, 2014), the potential of social media as an election tool during the 2010 Niagara election (Hagar, 2014), as well as on the use of Facebook by municipalities (Lev-On & Steinfeld, 2015).

Internationally, social media is increasingly used by municipal governments and political actors. Among the 75 largest cities in the United States, the use of Facebook by municipalities between 2009 and 2011 went from 13% to 87%, and the use of Twitter increased from 25% to 87% (Mossberger & al., 2013). Within 217 Italian and Spanish local governments, a higher level of Facebook use has been associated with a greater governmental transparency (Guillamon et al., 2016). Facebook is also considered as being almost as important as emails by Scandinavian local and regional politicians, whereas Twitter is perceived as a platform for the urban elite (Larsson & Skogerbo, 2018)

However, little is known about Canadian mayors, especially outside of electoral campaigns. As is shown in Kate Graham's thesis (2018), mayors' role and power remain largely undefined in Canada. Indeed, Graham demonstrates that, in practice, a mayor's type of leadership is more important than institutional variables. Unlike federal and provincial elected positions, a mayoral position varies greatly across municipalities, meaning that the salary and type of position (full-time or part-time), as well as access to resources, are not standardized. Hence, the decision to actively use multiple social media platforms outside of an electoral campaign – especially by mayors in smaller municipalities – can hint at a mayor's leadership style.

Thus, the municipal level is of great interest to study gendered social media adoption rates. Mayors are, after all, political actors who are found in large numbers in Canada and because of their leadership position, they are likely to be subjected to significant media coverage in their local community, unlike most elected at the federal and provincial levels. In this sense, this study aims to offer new insights, not only on local politics' social media practices, but also on the role of gender, by going beyond Gruzd and Roy's (2016) critical examination of social media usage by municipal governments. Although their study is one of the rare few to focus on municipalities in multiple provinces, by examining municipal governments in Calgary, Ottawa, Regina, and Halifax, this study goes further by looking at all Canadian mayors.

The municipal level is often considered as being more accessible for women, mainly because it is easier to reconcile with family life (Brodie, 1985) and deals with more policies that directly affect daily lives (Trimble, 1995). This is consistent with results from Tremblay and Mévellec's (2013) work on the feminization rate at the municipal level. They compared women's representation in city halls to that in the Canadian legislature. Their results are promising, as they show that the feminization rate is higher at the municipal level, namely of 21% in 2002 and 26% in 2009, compared to 19% in 2002 and 21% in 2009 at the provincial and federal level. This is consistent with work by Blais and Gidengil (1991), as well as Brodie (1985), who reach the conclusion that women find greater electoral success at the municipal

level. However, this feminization rate combines both women councillors and women mayors. Although these results suggest a greater accessibility for women in politics, it could also be hiding an unequal distribution of positions of power. For example, the first and only woman Prime minister of Canada was Kim Campbell in 1993 when Brian Mulroney retired from politics. At the time of writing, out of the 10 provinces and 3 territories, there is 1 woman Premier: Caroline Cochrane, Premier of the Northwest Territories. According to Trimble and Arscott (2003), women politicians are usually on the sidelines when it comes to positions of power, such as party leader, premier and prime minister. They are usually chosen to lead a party in times of crisis and remain in power for less than 2 years. Similarly, O'Neill and Stewart (2009) compared the experiences of men and women party leaders at the provincial and federal levels in Canada between 1980 and 2005. Their results reveal that major parties are less likely to elect women as their leaders, while parties on the ideological left are more likely than other parties to select women. Additionally, men politicians enjoy longer tenures as leaders and often find greater electoral success. Finally, Tolley (2011) examined the electoral presence of women in federal, provincial and municipal governments and found an important underrepresentation of women in mayoral positions, but also in other positions of power at the federal and provincial level.

## 2.2. The gender bias

In addition to the lack of women in positions of power in Canadian politics, research shows the existence of a gender bias towards women politicians in the media (Goodyear-Grant, 2013; Robinson & St-Jean, 1995; Tremblay & Bélanger, 1997). In fact, Goodyear-Grant (2013) argues that women in politics often receive less visibility in the media than their male counterparts, which can affect voters' perceptions of candidates as visibility can be interpreted as a guarantee of the quality of a candidate. Women politicians are also often represented by gendered personality traits and are more heavily criticized (Robinson & St-Jean, 1995; Tremblay & Bélanger, 1997). Hence, the news media's propensity to rely on sexist stereotypes to report on women politicians also overshadows their political competence (Ross, 2010).

Shor et al. (2015) analyzed the coverage of women politicians in newspaper articles and their findings suggest that sexism is commonplace and operates in ways that minimize women's political abilities in order to focus on stereotypes and their appearance. Similarly, the private life of women politicians can also negatively affect their mediatized political image. Indeed, according to a qualitative analysis of journalistic discourse of news stories, editorials and articles published in the printed media in Quebec during 4 leadership races, women politicians' personal lives can negatively affect their mediatized political image (Lalancette & Lemarier-Saulnier, 2013). Thomas and Bittner (2017), for their part, examined parental status in politics, with a particular interest for its effect on women politicians. Their results suggest that a man politician with a family is perceived much more favorably than his female counterpart with children.

Furthermore, according to the thesis of gendered mediation, the news media reflects the dominant culture and is thus often dominated by a male narrative (Goodyear-Grant, 2013). Hence, there is often a double standard when analyzing a political candidate's competence (Braden, 1996). Finally, recent studies show that the mass media prove to be an obstacle stopping women from participating in politics in the province of Quebec and that the newspaper coverage during municipal elections is still biased towards men candidates (Théberge-Guyon et al., 2018).

## 2.3. Research questions

Therefore, this study seeks to shed light on the social media adoption rate of Canadian mayors, particularly by women mayors, by creating a repertory of all mayors across the country, as well as their

social media presence and active use of Facebook, Twitter and Instagram. Hence this study aims to answer the following research questions:

What is Canadian mayors' social media adoption rate? How many mayors who have a Facebook page, a Twitter account and/or an Instagram account actively use them? To what extent does the adoption and active use of social media platforms vary according to mayors' gender? Finally, to what extent does the active use of social media platforms vary at the intersection of mayors' gender and their municipality's population size?

## 3. Gendered social media adoption

Social media platforms, such as Facebook, Twitter and Instagram, could help political actors – as well as their communication team – bypass the news media by directly addressing interested citizens. Indeed, digital media could allow political actors to disseminate information autonomously (Parisi & Regra, 2007) without having to respect news media's standards or framing (Parmelee & Bichard, 2012). This "disintermediation" is the circumvention of the media by direct representation and was first introduced to communication research by Katz and Dayan (1992) who looked at whether media events influenced television reporting. They were interested in television events that acted as a break from the media routine and as a national gathering. According to Thomas and Bittner (2017), "even the most cautious communication strategy cannot fully control the way in which the media report, frame and analyze women in politics" (11). It is therefore not surprising that politicians avoid having to rely solely on traditional communication channels (Broersma & Graham, 2012)

Whereas it has been found that experienced men politicians have higher "media capital" or an easier access to news media, interviews with 85 women leaders in politics, civil society, television, journalism and technology show that traditional media remain an obstacle for women's political ambitions (Di Meco, 2019). Indeed, according to Di Meco (2019), news media coverage remains heavily biased, both in quality and quantity, and act as a form of disinformation about women politicians. This negatively impacts their viability as candidates, as well as societal expectations of women in positions of power. Additionally, respondents reported finding social media useful for mobilizing their constituency, denounce sexism and control their political discourse despite the ubiquity of online trolls. Indeed, political actors who are routinely marginalized by traditional media are found to be able to express themselves online (Ross, 2016). This is consistent with results from a 2016 survey of women parliamentarians in 107 countries that show that 85% of respondents use social media, particularly Facebook, in a professional capacity (Patterson, 2016). Larsson and Skogerbo (2018) also found that Scandinavian women, as well as less experienced, local and regional politicians are online enthusiasts and view social media as an alternative to traditional news media.

Within the Canadian population, 94% of Canadian adults have an account on at least one social media platform, making Canada one of the most connected countries in the world (Grudz & Mai, 2020). There also exists a gendered adoption of social media platforms among the general population. For example, Facebook remains the dominant social media platform in Canada, and is slightly used more by Canadian women (86%), than men (81%), whereas Instagram attracts more women users (59%) than men users (43%). Alternatively, the gender gap is smaller on Twitter, where men (43%) and women (41%) show similar adoption rates.

Alternatively, this hypothesized "digital turn" may also be due to other factors, such as a municipality's population size and media coverage (or lack thereof). Lindgren, Corbett and Hodson (2016) examined

the disappearance of many local newsrooms and its effects on citizens' political knowledge of local current affairs. Their results suggest that the growing disappearance of local newsrooms has led to a "local news poverty", meaning that crucial local information becomes inaccessible in certain municipalities. In response, a smaller municipality's local government may take up the role of local information broadcaster. However, according to Grudz and Roy (2016), local governments haven't yet embraced social media platforms as tools for regular information broadcasting, but rather to share unusual updates and service availability (85). The lack of organized news broadcasters, as well as internalized gender roles, could in turn influence a mayor's decision to adopt social media platforms, rather than a hypothetical gendered local news coverage.

Additionally, traditional definitions of (men) political leaders tend to rely on agentic attributes, whereas women politicians are often perceived as being more communally motivated (Diekman et al., 2010). These communal attributes, in addition to the fact that women are two to three times more likely to accept non-promotable tasks in response to volunteer requests (Versterlund et al., 2015), suggest that there could be a gendered variation in social media adoption rates among Canadian mayors.

Hence, it is hypothesized that a greater number of women mayors will adopt and actively use social media platforms across the country.

> *H1: A greater number of Canadian women mayors, when compared to men mayors, will adopt and actively use social media platforms.*

Furthermore, it is also expected that the gendered variation will be greater in municipalities with a population size of 200 000 or more, namely because of the potentially increased gendered media coverage.

> *H2: The gendered variation in social media adoption and active use will be greater within Canadian municipalities with a population size of 200 000 or more.*

## 4. Methods

### 4.1. Data collection

To examine Canadian mayors' social media adoption rate and active use according to their gender, it was necessary to first create a database. As municipal politics is under provincial jurisdiction, it is difficult to come upon complete aggregate information about Canadian mayors, especially that no official data currently exists on all Canadian mayors, as the Federation of Canadian municipalities does not have verified data for the entire country after 2015. Data collection began in mid-November 2018, once municipal elections in Ontario, Yukon, Northwest Territories, British Columbia, New Brunswick, Manitoba and Prince Edward Island were over and official results were available, and it ended in mid-January 2019.

The first step in creating the database[1] was identifying every municipality within each of the 10 provinces and 3 territories. Population size was also identified by using data from Statistics Canada's 2016 census. It was then possible to use election results or municipal directories to identify mayors and their gender. When not specified, the latter was verified by examining pictures and pronouns used, either in newspaper articles or on the municipality's website.

However, mayors are not the only elected heads of municipal governments across the country, as

---

[1]Sullivan, K. (2021). "Canadian mayors on social media". https://doi.org/10.5683/SP2/YCGAJC, Scholars Portal Dataverse.

there are also chiefs, reeves and heads of council, to name but a few. The Government of Alberta (2019) refers to the municipal head of council as a Chief Elected Official (CEO) that can be a mayor, reeve or chairperson and the Government of Northwest Territories (2019) defines the CEO as either mayor or chief and as having the same responsibilities. As their role is similar – if not identical – to that of mayor, this study includes them and will refer to all heads of municipal governments – or CEOs – as "mayors". Also, some municipalities were excluded during the data collection when mayoral positions had not been filled for various reasons. For example, this is the case for four municipalities in New Brunswick: Aroostook, Oakwood, Hanwell and Shediac.

The second step was identifying mayors on three social media platforms: Facebook, Twitter, and Instagram. These platforms were selected for multiple reasons, including the accessibility of public data and the visual nature of publications. A mayor was deemed as "having" an account or page, even if only as a placeholder, when it existed and made some reference to their position as mayor. Thus, rather than examine the content of mayors' publications, the existence of a professional page or account was coded as 1 and the absence, as 0. This was done for all 3 platforms.

The goal was to calculate Canadian mayors' social media adoption rate, or the proportion of mayors who have a Facebook page, a public Twitter account, as well as a public Instagram account. The decision to focus solely on Facebook *pages* arose when noticing that some mayors used Facebook *profiles* to share information about their municipality. However, although some used their profile in a professional capacity, others had a more hybrid approach, by mixing both their professional and personal lives. This can be an ethical issue, as "one of the biggest areas of concern with social media data is the extent to whether such data should be considered public or private data" (Townsend & Wallace, 2016: 5). Larsson (2015) also stresses the importance of considering the open or closed nature of data. Fortunately, Facebook has diversified its functionalities by allowing users the possibility of creating a profile, which is usually preferred for personal use, or a page, which is preferred by professionals hoping to gain insight into their followers by using the promotion tools and analytics. This decision was also made in light of the fact that it is nearly impossible to identify a clear list of requirements for a Facebook profile to be deemed "professional" without doing an entire content analysis of said profile beforehand. Also, when multiple accounts for one mayor were found, which was often the case on Twitter, the one most recently used was selected. It is also important to note that this study does not look at the content of Canadian mayors' publications, rather their presence on Twitter, Facebook and Instagram, as well as their active use. In this sense, many ethical considerations may be foregone. Also, ethics concerning using social media data are still lagging in political communication. According to Williams, Burnap and Sloan (2017), Twitter's terms of service specifically state that users' post that are public will be made available to third parties. Researchers must then take a more reflexive approach to interpret these commercially motivated terms of service (1150).

Once the accounts were identified, a certain level of post-electoral social media activity was verified in the beginning of the month of January 2019. It seemed reasonable to believe that an active account would publish at least one post between December 1st and January 12th, if only to announce the municipality's Holiday Season schedule or to share good wishes for the New Year. This verification helped to weed out campaign-centric accounts. Hence, if a mayor published at least one post on an account or page between December 1st, 2018 and January 12th 2019, they were coded 1, as an active account. This was done for all 3 platforms.

### 4.2. Data analysis

Once the database was completed and verified, the proportion of women mayors across provinces and territories was calculated, as well as compared by population size. To facilitate the analysis, municipalities'

population size was divided into 5 categories: (1) 200,000 or more; (2) 100,000 – 199,999; (3) 50,000 – 99,999; (4) 10,000 – 49,999; and (5) 9,999 or less.[2]

Social media presence and active use was then analyzed on a comparative basis according to gender on the national level and then by population size. The proportion of mayors who are present on multiple platforms and who actively use them was also compared between women and men mayors across Canada and by population size.

The gendered variation in the active use of social media platforms was also examined by performing multivariate regressions. The gender variable was coded as 1 for women mayors and 0 for men mayors. The municipality population size was also coded from 0 to 1, where the largest cities were coded 1 and the smallest, 0. In order to answer the final research question pertaining to the gendered variation in regard to municipalities' population size, an interaction variable was created by combining the dummy gender variable and the categorial municipality population size variable.

Finally, the tables of results in the following section do not include results from tests of independence as this study examines the entire population of Canadian mayors.

## 5. Results

This section presents descriptive statistics, as well as cross-tabulations which allows the comparison of results by gender. It will first summarize the proportion of women mayors in Canada, then examine Canadian mayors' social media presence and active use nationwide. Finally, results from multivariate regressions will be presented in order to better understand the gendered variation in the active use of Facebook, Twitter and Instagram, as well as the interaction between gender and municipality population size on social media active use.

In a general perspective, results reveal that women mayors are still a minority in Canada. Indeed, among the 3525 mayors included in the database, 19.4% of mayoral positions are held by women. Additionally, smaller municipalities may be more accessible to women running for mayor, as the highest proportions are found in municipalities with a population of 10,000 to 49,999 residents (22.4%) and of 9,999 or less (19.3%), whereas smaller proportions are found in municipalities with a population of 100,000 to 199,999 residents (12.0%) and of 200,000 or greater (15.0%).

When examining mayors' social media adoption and active use, results in Table 1 show that very few mayors have a social media account, and that even less – nearly half – actively use it. A greater proportion of mayors actively use Facebook (7.3%) and Twitter (6.6%), but very few actively use Instagram (2.3%).

Results in Table 2 reveal that, not only are there more women mayors who have a Facebook page (18.2% compared with 10.8% for their male colleagues), there are also more women mayors who actively use their page (12.1%) when compared to men mayors (6.2%). This greater digital presence is maintained for Twitter (16.9%) and Instagram (9.5%), although the – positive – gender gap in the active use is somewhat smaller.

Overall, the gendered variation in social media adoption and active use is also present in the number of platforms used by Canadian mayors. Table 3 shows that there is a higher proportion of women mayors who are present on multiple platforms and actively use them. Indeed, there are more women mayors

---

[2]These categories were created by following Statistics Canada's example of selected population size groups for urban areas (Puderer, 2009), where the population size was divided into 8 groups: (1) 1, 000, 000 and over; (2) 500, 000 to 999, 999; (3) 100,000 to 499, 999; (4) 50,000 to 99, 999; (5) 10,000 to 49, 999; (6) 5,000 to 9,999; (7) 2,500 to 4,999; (8)1,000 to 2,499. In this study, smaller municipalities were combined into one category, as were the more populated municipalities.

Table 1
Proportion of Canadian mayors who have a social media account or page, as well as those who actively use them

| Social media platform | Proportion of mayors who have an account or page | Proportion of mayors who actively use account or page |
|---|---|---|
| Facebook page | 12.2% | 7.3% |
| Twitter account | 11.6% | 6.6% |
| Instagram account | 5.8% | 2.3% |
| N | 3525 | 3525 |

Table 2
Proportion of Canadian mayors with a social media presence and who actively use social media platforms according to gender

| Social media platform | Proportion of mayors who have an account or page | | Proportion of mayors who actively use account or page | |
|---|---|---|---|---|
| | Men mayors | Women mayors | Men mayors | Women mayors |
| Facebook page | 10.8% | 18.2% | 6.2% | 12.1% |
| Twitter account | 10.3% | 16.9% | 5.9% | 9.5% |
| Instagram account | 4.9% | 9.5% | 2.1% | 3.2% |
| N | *2840* | *685* | *2840* | *685* |

Table 3
Proportion of Canadian mayors who actively use social media platforms according to gender

| Number of platforms | Proportion of mayors by number of social media platforms | | Proportion of mayors by number of social media platforms actively used | |
|---|---|---|---|---|
| | Men mayors | Women mayors | Men mayors | Women mayors |
| None | 83.7% | 73.4% | 90.2% | 82.8% |
| 1 platform | 9.2% | 13.7% | 6.6% | 11.4% |
| 2 platforms | 4.7% | 7.6% | 2.1% | 3.9% |
| 3 platforms | 2.5% | 5.3% | 1.1% | 1.9% |
| N | 2840 | 685 | 2840 | 685 |

than their male counterparts – a gap of 5.7 percentage points – who are present on multiple social media platforms. Similar results emerge when looking at their active use, as there is a positive gender gap of 2.6 percentage points.

Gendered variations in mayors' active use of social media platforms is further examined by municipality population size. As there is a greater number of smaller municipalities in Canada, the greatest proportion of mayors (3101/3525) is found within municipalities with a population size of 9,999 or less. Furthermore, there are 313 mayors in municipalities with a population size of 10,000 to 49,999, 50 mayors in municipalities with a population size of 50,000 to 99,999, 34 mayors in municipalities with a population size of 100,000 to 199,999 and 27 mayors in municipalities with a population size of 200,000 or greater.

Table 4 shows results of binary logistic regressions and of an OLS regression. Results from the latter generally demonstrate that being a woman mayor increases one's tendency to actively use multiple social media platforms, especially in municipalities with a greater population size. More specifically, results from the OLS regression show that, on average, women mayors actively use 0.9 more social media platforms than their male colleagues. Furthermore, women mayors in the biggest municipalities actively use 0.65 more social media platforms than women mayors in the smallest municipalities, in addition to the effect observed for the gender variable. The interaction term, however, is not statistically significant when looking at Facebook and Instagram.

Table 4
Mayors' active use of social media platforms by gender, municipality population size and an interaction between gender and population size

| | Facebook | | Twitter | | Instagram | | Number of active accounts |
|---|---|---|---|---|---|---|---|
| | B | Exp(B) | B | Exp(B) | B | Exp(B) | B |
| Gender | 0.783*** | 2.188 | 0.532*** | 1.703 | 0.832** | 2.298 | 0.085*** |
| | (0.172) | | (0.198) | | (0.337) | | (0.020) |
| Municipality population size | 4.852*** | 128.009 | 5.367*** | 214.225 | 5.524*** | 250.592 | 1.796*** |
| | (0.347) | | (0.368) | | (0.411) | | (0.057) |
| Women mayors x municipality population size | 1.101 | 3.007 | 1.963* | 7.117 | −0.409 | 0.665 | 0.652*** |
| | (0.9842) | | (1.047) | | (0.960) | | (0.142) |
| Constant | −3.158*** | 0.043 | −3.311*** | 0.036 | −4.748*** | 0.009 | 0.067*** |
| | (0.096) | | (0.102) | | (0.197) | | (0.009) |
| N | 3525 | | 3525 | | 3525 | | 3525 |
| R2 | 0.082 | | 0.093 | | 0.058 | | 0.280 |

Note: $R^2$ is the Cox & Snell Pseudo $R^2$ for logistic regressions (columns 1, 2, and 3); and adjusted $R^2$ for OLS regression (column 4).

Odds ratio ($exp^B$) from the binary logistic regressions show that women mayors are – more or less – twice as likely to actively use Facebook, Twitter and Instagram as men mayors. Although both the gender and municipality population size influence the probability of actively using social media platforms, a municipality's population size has a greater effect. Also, women mayors in the biggest municipalities are seven times more likely to actively use Twitter than women mayors in the smallest municipalities, even when controlling for municipality size and gender. The interaction term, however, is not statistically significant when looking at Facebook and Instagram. Overall, these results partially support the hypothesis that women mayors in municipalities with the greatest population sizes are more inclined than their male colleagues to actively use multiple social media platforms.

## 6. Discussion

This study's aim was to examine the positive gender gap in social media adoption and active use among Canadian mayors. These results offer a first glimpse into gendered variations in the adoption rate and active use of social media platforms by mayors in Canada. Results thus confirm the necessity to stratify political roles at the municipal level when reporting feminization rates. As previously mentioned, studies indicating a greater accessibility to municipal politics for women generally tend to look at both council and mayoral positions as whole, thus amplifying feminization rates as positions of power are generally held by men (Trimble & Arscott, 2003).

Even though women hold 19.4% – or a fifth – of all mayoral positions in the country and are mostly found in municipalities with smaller population sizes, results show that, nationally, there is a higher proportion of women mayors online who actively use a Facebook page, Twitter account and/or Instagram account. These results are unprecedented in the political communication literature.

Also, it appears that Facebook is the most actively used platform by both women and men mayors, whereas Instagram is the least popular. This is consistent with results from a social media report by Gruzd et al. (2018), which states that Facebook is the most popular platform in Canada and attracts the most varied user base. Furthermore, unlike Twitter, which can often be perceived as being a much more political sphere, Facebook can act as a sphere for political interaction among average citizens (Larsson & Enli, 2017). Additionally, according to Gruzd and Roy (2016), Facebook is useful in community building and encouraging participative forms of engagement.

There is also a sizeable gap between mayors who are *present* on social media platforms and those who are *active*, which may be the result of campaign-centric communication strategies or of placeholder accounts. According to results from Wagner's (2015) study on information and communication technologies (ICTs) use in Canadian municipal elections, half of Canadian municipal candidates campaign online, using digital platforms to reach out to voters, promoting themselves and sharing their views on key goals (86).

As previously mentioned, this study focuses on mayors as political actors who have an important role to play in citizens' daily life. It thus appears important to avoid electoral campaigns, as they are exceptional political periods that do not reflect daily communication practices (Van Aeslt & De Swert, 2009). Results in Table 1 show that nearly half of all mayors who are present on social media platforms are actively using them. Additionally, when adding the comparison by gender (Table 2), the gap between presence and activity tends to be larger for men mayors when looking at Facebook, as 10.8% of men mayors have a Facebook page, but only 6.2% actively use it, whereas 18.2% of women mayors are present and 12.1% are active. Table 3 confirms this by showing that 98% of men mayors are active on at least one platform and 17.2% of women mayors are active on at least one platform. Hence, results indicate that women mayors are most active on Facebook, Twitter and Instagram outside of an electoral campaign, when compared to men mayors.

This positive gender gap, as has been previously mentioned, also exists within the Canadian population, which is among the most connected in the world (Grudz & Mai, 2020). Indeed, Canadian women are more numerous than men on Facebook and Instagram, but not Twitter. This discrepancy between women mayors and women in the general population could be explained by the focus of this study, which is on their *professional* use of Facebook, Twitter and Instagram, rather than their *personal* use. These results are particularly interesting in light of the fact that Twitter does not seem to be a welcoming digital space for women to speak of politics. Indeed, posting about political issues on Twitter increases the likelihood of women reporting having experienced mansplaining (Koc-Michalska et al., 2019).

Furthermore, it could also be hypothesized that men mayors tend to have a longer incumbency than women mayors, hence leading to a decreased need to use social media. Although this could be true in some cases, municipal politics are often much less competitive, especially outside of the more populated municipalities, limiting the need for a permanent campaign online. In addition, there exists little research on the content of mayors' social media posts, but local governments generally use digital platforms to broadcast information, respond to service requests and provide issues management (Evans et al., 2018). Gao and Lee (2017) also found that small local governments use Twitter and Facebook to broadcast information, but also to invite citizens to participate.

When looking at the effect of municipality population size on active social media adoption, results (Table 4) show that there is strong relationship between active social media use among women mayors and population size. Indeed, women mayors in bigger municipalities actively use 0.65 more social media accounts and are seven times more likely to actively use Twitter than women mayors in smaller municipalities, even when controlling for municipality size and gender. According to literature on media coverage of women in politics, this could be a way to bypass a biased media coverage of local politics.

It is important to note that although social media platforms offer advantageous uses for politicians who are generally marginalized from traditional media, they are not a panacea. For example, women politicians face disproportionate gender trolling online (Fichman & McClelland, 2020) and algorithms have increasing agency in delivering and mediating rhetoric online (Dillet, 2020). Hybridity between traditional and social media is often viewed as an effective approach to political communication (Chadwick, 2013). However, this can be true in a national campaign, but difficult to achieve within weak local media ecosystems.

Finally, creating the database used herein highlighted many limitations and challenges, as municipal level political information can be difficult to come by. It was impossible to validate collected data, as the Federation of Canadian municipalities does not have verified data for the entire country after 2015. Furthermore, some provincial and municipal federation websites, such as Ontario, do not offer municipal directories, but rather municipal election results. Consulting electoral results online can be very time consuming and can sometimes facilitate oversights. Indeed, some mayors may resign during data collection. Furthermore, once the mayors were identified following Statistics Canada's database of municipalities, it was challenging to identify them on social media platforms for multiple reasons: some have multiple Twitter accounts, having abandoned accounts from past electoral campaigns, others go by nicknames or middle names. Therefore, one can spend hours looking for a (fictional) William B. Timmins, but need be looking for Bill Timmins, or even Bob Timmins. The most difficult platform to use for research purposes, however, is Instagram. Facebook and Twitter allow users to narrow a search according to name and peruse a list, which includes a picture and a few details. However, Instagram only allows users to search each other using a drop-down menu. It is then necessary to squint at the miniscule profile picture and cross-reference images and usernames with Twitter profiles. When trying to compare numbers from this study to those from official sources, it was noticed that it had to be done provincially, but that there does not seem to be a public record of the distribution of mayors across the country.

## 7. Conclusion and future research

This study's aim was to shed light on Canadian mayors' adoption and active use of social media, with a particular interest for women mayors. To this end, a database of Canadian mayors was created which included their gender, the existence of a Facebook page, Instagram account and Twitter account, their active use of these platforms, as well as the population size of their municipality.

The goal was not only to assess the proportion of Canadian mayors actively using these platforms, but ultimately to examine the gender variation in the adoption and active use of social media, as well as the extent to which the active use of social media platforms varies at the intersection of mayors' gender and their municipality's population size.

Results show that women mayors are more inclined than men mayors to use a Facebook page, as well as an Instagram and Twitter account in a professional capacity. Additionally, a greater number of women mayors tend to both have and actively use these platforms separately and all three platforms combined when compared with men mayors. Results also demonstrate that although women mayors in bigger municipalities are rarer, they also actively use 0.65 more social media accounts than women mayors in smaller municipalities.

Finally, it is important to note that this study provides the empirical foundations to a much larger research project focusing on mayors' leadership styles and digital content. Hence this study aimed to act as a springboard to understand women mayors' motivations to use social media (or not) in a professional capacity, as well as the impact of gender on their communication strategies. As no publicly available repertoire exists, it seemed necessary to create one so that future research may build upon it. This aim has been met.

## Acknowledgments

## References

Affaires municipales et habitation Québec (N.d). *Répertoire des municipalités*. December 2. https://www.mamh.gouv.qc.ca/recherche-avancee/fiche/municipalite/.

Association of Manitoba Municipalities (2018). *Municipal Directory*. December 4. http://www.amm.mb.ca/members/municipal-directory/.

Blais, A., & Gidengil, E. (1991). *Making representative democracy work: the view of canadians*, Toronto: Dundurn.

Braden, M. (1996). *Women Politicians and the Media*. Lexington: University Press of Kentucky.

Brants, K., & Voltmer, K. (2011). *Political communication in postmodern Democracy: challenging the primacy of politics*. London: Palgrave Macmillan.

Brodie, J. (1985). *Women in Politics in Canada*. Toronto: McGraw-Hill Ryerson.

Broersma, M., & Graham, T. (2012). Social media as beat. Tweets as a news source during the 2010 British and Dutch elections. *Journalism Practice*, *3*(6), 403-419.

Cmecia, C., & Patrut, M. (2014). "The visual framing of Romanian women politicians in personal campaign blogs during the 2012 Romanian Parliamentary elections". In Raicheva-Stover, M., & Ibroschea, E. (eds), Women in politics and media: perspectives from nations in Transition. New York, London: Bloomsbury.

Davis, A. (2010). *Political Communication and Social Theory*. Hoboken, NJ: Taylor & Francis.

Dewing, M. (2006). Municipalities, the constitution, and the Canadian federal system. Parliamentary Information and Research Service.

Ellison, N., & Hardey, M. (2013). Social media and local government: citizenship, consumption and democracy. *Local Government Studies*, *40*(1), 21-40.

Enli, G. (2017). Twitter as arena for the authentic outsider: exploring the social media campaigns of Trump and Clinton in the 2016 US presidential election. *European Journal of Communication*, *32*(1), 50-61.

Evans, L., Franks, P., & Chen, H.M. (2018). Voices in the cloud: social media and trust in Canadian and US local governments. *Records Management Journal*, *28*(1), 18-46. doi: 10.1108/RMJ-11-2016-0041.

Fichman, P., & McClelland, M.W. (2020). The impact of gender and political affiliation on trolling. *First Monday*, *26*(1). doi: 10.5210/fm.v26i1.11061.

Gao, X., & Lee, J. (2017). E-government services and social media adoption: experience of small local governments in Nebraska state, *Government Information Quarterly*, *34*(4), 627-634.

GmbH, D. (n.d). *Datawrapper*, s.l.: s.n.

Goodyear-Grant, E. (2013). *Gendered news: media coverage and electoral politics in Canada*. Vancouver: UBC Press.

Government of Alberta (2019). *Alberta Municipal Officials Directory*. November 29. https://open.alberta.ca/opendata/alberta-municipal-officials-directory.

Government of Alberta (2019). *Roles and responsibilities of municipal officials*. December 5. https://www.alberta.ca/roles-and-responsibilities-of-municipal-officials.aspx.

Government of British Columbia (2018). *Municipalities*. November 29. https://www.civicinfo.bc.ca/municipalities [Accessed 29 November 2018].

Government of Newfoundland and Labrador (2018). *Municipal Directory*. November 27. https://www.mae.gov.nl.ca/municipal_directory/.

Government of Northwest Territories (2019). Roles and Responsibilities. December 5. https://www.maca.gov.nt.ca/en/services/municipal-elections/roles-and-responsibilities.

Governement of Northwest Territories (2018). *Municipal elections*. December 2. https://www.maca.gov.nt.ca/en/services/municipal-elections.

Government of Prince Edward Island (2018). *Municipal DIrectory*. November 23. https://www.princeedwardisland.ca/en/publication/municipal-directory.

Governement of Saskatchewan (2018). *Municipal directory*. December 4. https://www.saskatchewan.ca/government/municipal-administration/municipal-directory.

Graham, K. (2018). *Leading Canada's cities? A study of urban mayors*. Electronic thesis and dissertation repository, Western University.

Gruzd, A., & Mai, P. (2020). The State of Social Media in Canada 2020. *Ryerson University Social Media Lab*. Version 5. doi: 10.5683/SP2/XIW8EW.

Grudz, A., Jacobson, J., Mai, P., & Dubois, E. (2018). *The state of social media in Canada 2018*, s.l.: Scholars Portal Dataverse.

Gruzd, A., & Roy, J. (2016). "Social Media and Local Government in Canada: An Examination of Presence and Purpose." In *Social Media and Local Governments. Public Administration and Information*, ed. M. Sobaci. s.l.:Springer.

Hagar, A. (2014). Campaigning online: social media in the 2010 Niagara municipal elections. *Canadian Journal of Urban Research*, *1*(23), 74-98.

Holman, M.R. (2017). Women in local government: what we know and where we go from here. *State and Local Government Review*, *49*(4), 285-296.

Inglehart, R., & Norris, P., eds. (2003). *Rising tide: gender equality and cultural change around the world*. Cambridge, UK, Cambridge University Press.

Johansson, V. (2006). "Gendered Roads to Mayorship in Different Welfare States." In *The European Mayor*, eds. H. Bäck, H. Heinelt and A. Magnier A. The European Mayor. VS Verlag für Sozialwissenschaften.

Kalsnes, B., Larsson, A., & Enli, G. (2017). The social media logic of political interaction: exploring citizens' and politicians' relationship on Facebook and Twitter. *Peer-reviewed Journal on the Internet*, *2*(22).

Katz, E., & Dayan, E. (1992). *Media events: the live broadcasting of history*. Cambridge: Harvard University Press.

Kitchen, H.M., & McMillan, M.L. (1985). "Local government and Canadian federalism", in Simeon, R. (ed.), Intergovernmental Relations, Royal Commission on the Economic Union and Development Prospects for Canada, No. 63, Toronto: University of Toronto Press.

Koc-Michalska, K., Schiffrin, A., Lopez, A., Boulianne, S., & Bimber, B. (2019). From Online Political Posting to Mansplaining: The Gender Gap and Social Media in Political Discussion. *Social Science Computer Review*. doi: 10.1177/0894439319870259.

Lalancette, M., & Lemarier-Saulnier, C. (2013). "Gender and political evaluation in leadership races." In *Mind the Gaps: Canadian perspectives on gender and politics*, eds. T. Small and R. Lexier. Halifax: Fernwood Press.

Larsson, A.O., & Skogerbø, E. (2018). Out with the old, in with the new? Perceptions of social (and other) media by local and regional Norwegian politicians. *New Media & Society*, *20*(1), 219-236. doi: 10.1177/1461444816661549.

Larsson, A.O. (2015). "Studying Big Data – ethical and methodological considerations." In *Internet Research Ethics*, eds. H. Fossheim and H. Ingierd. Ceppelen Damm Akademisk.

Larsson, A., & Svensson, J. (2017). Top users and long tails: Twitter and Instagram use during the 2015 Norwegian elections. *Social Media + Society*, *2*(3).

Larsson, A.O., & Svensson, J. (2014). Politcians online – Identifying current research opportunities. *First Monday*, *19*(4).

Lightbody, J. (2006). "*City Politics, Canada*." Peterborough: Broadview Press.

New Brunswick Government (n.d). *Community Profiles*. November 22. https://www2.gnb.ca/content/gnb/en/departments/elg/local_government/content/community_profiles/list.html.

Nunavut Municipal Training Organization (2019). *Municipal Links*. December 1. https://www.nmto.ca/governance/municipal-links.

Ontario Municipal Elections (2018). *Elections.amo.on.ca*. December 3. https://elections.amo.on.ca/web/en/home.

O'Neill, B., & Stewart, D.K. (2009). Gender and political party leadership in Canada. *Party Politics*, *6*(15), 737-757.

Ontario Municipal Elections (2018). *Ontario Municipal Elections*. December 3. https://elections.amo.on.ca/web/en/home.

Parisi, L., & Regra, R. (2007). *Disintermediation in political communication: chance or missed opportunity*. CMCS Working Paper.

Parmelee, J., & Bichard, S. (2012). "*Politics and the Twitter revolution: how tweets influence the relationship between political leaders and the public*." Langam: Lexington Books.

Patterson, T. (2016). Social Media: Advancing Women in Politics?, Women in Parliaments Global Forum.

Puderer, H.A. (2009). *Urban perspectives and measurements*. Geography Working Paper Series, Statistics Canda.

Raynauld, V., & Greenberg, J. (2014). Tweet, click, vote: Twitter and the 2010 Ottawa municipal election. *Journal of Information Technology & Politics*, *4*(11), 412-434.

Robinson, G., & St-Jean, A. (1995). "The portrayal of women politicians in the media: political implications." In *Gender and politics in contermporary Canada*, ed. J. Gringras. Toronto: Oxford University Press.

Ross, K. (2017). Gender, Politics, News: A Game of Three Sides. John Wiley & Sons, Incorporated.

Ross, K. (2010). *Gendered media: women, men and identity politics*. Lanham: Rowman & Littlefield Publishers.

Shor, E., de Rijt, A.V., Miltsov, A., Kulkarni, V., & Skiena, S. (2015). A paper ceiling: explaining the persistent underrepresentation of women in printed news. *American Sociological Review*, *5*(80), 960-84.

Standing Committee on the Status of Women (2018). FEWO 108, House of Commons.

Steyvers, K., & Medir, L. (2018). "From the Few Are Still Chosen the Few? Continuity and Change in the Social Background of European Mayors." In *Political Leaders and Changing Local Democracy*, eds. H. Heinelt, A. Magnier, M. Cabria and H. Reynaert. Palgrave Macmillan, Cham.

Théberge-Guyon, M., Bourassa-Dansereau, C., Morin, L., & Table de concertation de groupes de femmes de la Montérégie

(2018). *Les représentations médiatiques des femmes aux élections municipales*, Montréal/Longueuil: Service aux collectivités de l'Université du Québec à Montréal/Table de concertation des groupes de femmes de la Montérégie.

Thomas, M., & Bittner, A. (2017). "*Mothers and others – the role of parenthood in politics*." Vancouver: UBC Press.

Thomas, M. (2011). *Gender and psychological orientations to politics*. PhD Thesis, McGill University, Montreal.

Tolley, E. (2011). Do women 'do better' in municipal politics? Electoral representation across three levels of government. *Canadian Journal of Political Science*, *44*(3), 573-594.

Townsend, L., & Wallace, C. (2016). *Social Media Research: A Guide to Ethics*, University of Aberdeen.

Treff, K., & Perry D.B. (1999). *Finances of the Nation*, Toronto: Canadian Tax Foundation.

Tremblay, M., & Bélanger, N. (1997). Femmes chefs de partis politiques et caricatures éditoriales: l'élection fédérale canadienne de 1993. *Recherches Féministes*, *1*(10), 35-75.

Tremblay, M., & Mévellec, A. (2013). "Truly more accessible to women than the legislature? Women in municipal politics." In *Stalled. The Representation of Women in Canadian Governements*, eds. L. Trimble, J. Arscott and M. Tremblay. Vancouver: UBC Press.

Trimble, L. (1995). "Politics where we live: women and cities." In *Canadian Metropolitics: Governing our own cities*, ed. J. Lightbody. Toronto: Copp Clark.

Trimble, L., & Arscott, J. (2003). "*Still Counting: Women in Politics across Canada*." Peterbrorough: Broadview.

Trimble, L., Arscott, J., & Tremblay, M. (2013). "*Stalled: the representation of women in Canadian governments*." Vancouver: UBCPress.

Van Aelst, P., & De Swert, K. (2009). Politics in the news: do campaigns matter? A comparison of political news during election periods and routine periods in Flanders (Belgium). *Communications*, *34*(2), 149-168.

Versterlund, L., Babcock, L., Recarlde, M., & Weingart, L. (2015). *Breaking the glass ceiling with "no": gender differences in accepting and receiving requests for non-promotable tasks*. Working paper series, University of Pittsburg.

Wagner, A. (2015). "Candidate orientation to ITCs in Canadian Municipal Elections", in *Citizen Participation and Political Communication in a Digital World*, ed. Alex Frame & Gilles Bachotte. Routledge.

Williams, M.L., Burnap, P., & Sloan, L. (2017). Towards an ethical framework for publishing twitter data in social research: taking into account users' views, online context and algorithmic estimation. *Sociology*, *51*(6), 1149-1168. doi: 10.1177/0038038517708140.

Yukon Government (2018). *Yukon Local Government Directory*. November 22. http://www.aycyk.ca/UserFiles/Servers/Server_3242987/File/September2018Directory.pdf.

Katherine, V.R. Sullivan is a political science PhD candidate at l'Université de Montréal. Her work focuses mainly on political digital image production, political digital communication and gender performance.